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Public Health Measures to Reduce the Risk of SARS-CoV-2 Transmission in Canada during the Early Days of the COVID-19 Pandemic: A Scoping Review

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5 **Public Health Measures to Reduce the Risk of SARS-CoV-2 Transmission in Canada**
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8 **during the Early Days of the COVID-19 Pandemic: A Scoping Review**
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Patient and Public Involvement

Not applicable. As our study used secondary data sources, patients the public were not involved in our scoping review.

ABSTRACT

Objectives

The main objectives of this study was to synthesize and compare pandemic preparedness strategies issued by the federal and provincial/territorial (P/T) governments in Canada and assess whether COVID-19 public health (PH) measures were tailored towards priority populations, as defined according to relevant social determinants of health.

Design

 Scoping review

Search strategy

We conducted a comprehensive search of federal and P/T websites on COVID-19 pandemic preparedness strategies that were released daily between January 30 and April 30, 2020. We used the PROGRESS-Plus equity-lens framework to define priority populations in the scoping review.

Results

A total of 722 COVID-19 PH measures were issued during the study period. Of these, home quarantine (voluntary) (n = 13.0%; 94/722) and retail/commerce restrictions (10.9%; n = 79/722) were the most common measures introduced. Although PH measure announcements commenced in late January, many of them were issued in March. The COVID-19 PH measures targeted a variety of groups at risk of socially-produced health inequalities.

Conclusion

Most PH measures centred on limiting contact between people who were not living in the same household. They were also reflective of new evidence on preventive measures emerging in the

1
2
3 earlier phase of the pandemic as observed with the use of masks. While the role of social
4
5 inequalities in the COVID-19 pandemic remains to be elucidated, future PH measures should
6
7 adopt an equity lens that prioritizes the needs of priority populations.
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12 **Keywords:** public health measures; COVID-19; pandemic preparedness; health inequalities.
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17 **Conflict of Interest Statement:**
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20 The authors declare that they have no competing interests.
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STRENGTHS AND LIMITATIONS OF THIS STUDY

- Our study presents a comprehensive synthesis of the public health (PH) communication and outreach measures the federal and provincial/territorial (P/T) governments issued in the first 90 days of the COVID-19 pandemic.
- The results provide important insights on the categories, volume, timing, level of implementation, and consideration of equity issues of the PH measures issued by federal and P/T jurisdiction.
- The timeframe for the study precludes us from identifying possible long-term trends on the PH measures implemented during the 90-day period and their potential impact on priority populations.
- It is possible that PH measures announced through the media only may have been missed, but most announcements would have been issued by the government press releases.

INTRODUCTION:

In December 2019, a novel coronavirus was first identified among a cluster of pneumonia cases in Wuhan City, Hubei Province, China. The virus was named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and represents the causative agent of a potentially fatal infectious disease known as coronavirus disease 2019 (COVID-19).¹ The severity ranges from mild to severe illness or death for confirmed COVID-19 cases.²

On January 30, 2020, the World Health Organization (WHO) declared the COVID-19 epidemic a global health emergency, and on March 11, 2020 declared COVID-19 a global pandemic. The reproduction numbers (R_0) of the infectious disease were estimated to be between 2.24 and 3.58 in the early phases of the outbreak in mainland China, resulting in the exponential growth and subsequent spread of the virus across the world.³ As of October 6, 2020, the Public Health Agency of Canada (PHAC) reported 171,323 confirmed cases and 9,530 deaths within Canada, with large variations across jurisdictions.⁴

Canada is a high-income country located in North America with a population of approximately 37.9 million.⁵ The country is divided into 10 provinces and three territories. In Canada, the federal government is responsible for administering the national principles under the *Canada Health Act*, which are criteria and conditions for health insurance plans that the provinces and territories must meet so they can receive federal cash transfers. The Canadian government provides financial support to provincial and territorial (PT) governments to support them in the delivery of programs and services, including health care. Subsequently, the provinces and territories administer and deliver most of Canada's health care services within their jurisdiction.

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3 Health care decision-making and priority settings in the health care system are decentralized and
4 occur at various levels, including regional and local.
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10 In response to the COVID-19 pandemic, Canadian public health officials at all levels of
11 administration issued response interventions to contain and mitigate SARS-CoV-2 transmission
12 at a population level and prepare the health systems' response to the infectious disease. The
13 definitions and scope of these public health (PH) measures vary by federal and P/T governments
14 in their characteristics, target populations, time of initiation in the pandemic curve, and duration
15 of implementation since they may change over time in response to the dynamics in the epidemic
16 curve.⁶ Different strategies, however, may be warranted in response to growth curves or other
17 triggers.
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31 The pandemic situation has unveiled persisting health inequalities rooted in multiple, structural,
32 and intersecting determinants of the conditions in which people live – particularly increasing the
33 vulnerability of the most socially and economically disadvantaged groups.⁷⁻⁹ As the COVID-19
34 pandemic continues to unfold, it is important to understand which measures work under what
35 contexts, and to expand our knowledge about the potential impact of these population-level
36 mitigation and containment strategies on priority populations rooted in well-known social,
37 economic, and structural determinants of health. Racism and discrimination, income, education,
38 occupation, gender, and others are such determinants.¹⁰ Results from this work are needed to
39 inform equitable, effective and coordinated responses to future pandemics across Canada and in
40 other jurisdictions to guide the design and planning of strategies to mitigate unintended negative
41 impacts and maximize unintended positive impacts of PH measures.
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Our study objectives were: 1) to identify and systematically describe and compare the public health pandemic preparedness strategies for COVID-19 issued by the Canadian federal and P/T governments, and 2) to assess whether COVID-19 PH measures were tailored towards priority populations defined according to relevant social determinants of health in Canada.

METHODS:

Search strategy and eligibility criteria

We conducted a scoping review of COVID-19 PH measures adopted across Canadian provinces and territories.¹¹ A focused search strategy was designed by an information specialist to identify official sources of information on COVID-19 public health preparedness strategies released on federal and P/T websites on a daily basis between January 30 and April 30, 2020 (Supplementary File 1). The selection criteria of evidence included definitions, policies, and guidelines of public health strategies implemented by the federal and P/T governments to reduce the risk of SARS-CoV-2 transmission and prepare the communities for the COVID-19 pandemic. PH measures issued at the regional or municipal level were not included. Federal and P/T financial plans to individuals, families, or businesses during the COVID-19 pandemic were also excluded. Additional details on the eligibility criteria are outlined in Table 1.

Table 1: Eligibility Criteria

Criterion	Description
Population	<ul style="list-style-type: none"> General population in Canada, including pediatrics and adults.
Intervention	<ul style="list-style-type: none"> Recommendations, policy, guidance, guiding principles, or guidelines that describe PH measures to contain and/or mitigate the risk of transmission of COVID-19 in Canada. PH measures will be categorized according to the PHAC framework for a Canadian Pandemic Influenza Preparedness measures.(20)

Criterion	Description
	<ul style="list-style-type: none"> Examples of PH measures may include social or physical distancing measures, self-isolation, quarantines, school and university, daycare closures, working from home, limited visitation hours in health care or long-term facilities, or travel restrictions or bans.
Setting(s)	<ul style="list-style-type: none"> All Canadian provinces and territories
Timing	<ul style="list-style-type: none"> Documentation of PH measures implemented between January 30, 2020 and April 30, 2020

PH = Public health; PHAC = Public Health Agency of Canada

Data abstraction and synthesis of results

We used the Public Health Agency of Canada (PHAC) framework for Canadian Pandemic Influenza Preparedness to classify all PH measures identified in the search strategy.¹² We also incorporated additional measures not included in the PHAC framework, such as contact tracing and testing. COVID-19 PH measures were characterized by level of implementation (i.e., mandatory or recommended), timing (i.e., date) of implementation, and target populations.

Priority populations in the scoping review were defined as population groups at risk of socially-produced health inequities.¹³ We used the PROGRESS-Plus equity-lens framework to classify priority populations according to the following social determinants of health: place of residence, race/ethnicity/culture/language (including Indigenous identities), occupation/employment/working conditions, gender and sex, religion background, education, socioeconomic status (e.g., income, housing, single-parent family, food and home security), social capital and networks (e.g., neighbourhood characteristics, community supports). The Plus refers to other characteristics potentially associated with discrimination or features of relationships: age groups, immigration status, and disability.¹³

One reviewer extracted data from press releases on the government websites for their assigned

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3 jurisdiction(s), and a second reviewer checked for the accuracy of the data extracted. As well,
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5 one reviewer compared our data with the results of the COVID-19 Intervention Scan conducted
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7 by the Canadian Institutes for Health Information (CIHI) to verify that no PH measures were
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9 omitted.¹⁴ Supplementary File 2 lists the individual data elements that were extracted for all
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11 COVID-19 PH measures issued across Canadian jurisdictions between January 30 and April 30,
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19 PH measures were classified according to two major categories: public communication and
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21 education (e.g., communication campaigns to maintain social distancing), and public health
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23 orders (e.g., prohibition on mass gatherings in excess of 50 people). Similarly, COVID-19 PH
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25 measures were described by their time of publication, and their target audience. Information
26
27 about COVID-19 PH measures and priority populations identified in the scoping review were
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31 narratively synthesized and tabulated.

32 33 34 35 **Ethics Approval:**

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38 As the information used in our scoping review was derived from public data sources, a formal
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41 ethics approval was not required.

42 43 44 45 **Role of the Funding Source:**

46
47 The study sponsor(s) did not have any involvement in study design, data collection, analysis,
48
49 interpretation of data, writing of the report, or in the decision to submit the paper for publication.

50 51 52 53 **RESULTS**

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3 The scoping review identified a total of 722 PH measures that were issued by federal and P/T
4 governments between January 30 and April 30, 2020.
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10 *Public communication and education:*

11 All federal and P/T jurisdictions (N = 14) issued individual PH measures (20.6% of all measures)
12 between January 30 and April 30 that regarded home quarantine (voluntary) (n = 14/14),
13 followed by self-isolation (voluntary) (n = 13/14) (Table 2). These measures targeted individuals
14 who experienced COVID-19 symptoms or had returned from domestic or international travel.
15 Fewer jurisdictions communicated measures specific to or that solely focused on environmental
16 cleaning (home/personal environment) (n = 3/14) and respiratory etiquette (7/14). Home
17 quarantine (voluntary) (n = 13.0%; 94/722) was the most common PH measure targeted at
18 individuals issued by the federal and P/T governments.
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33 *Public health orders:*

34 Public health orders on physical distancing measures (n = 13/14), border and travel measures (n
35 = 13/14), health care settings (n = 13/14), and childcare or school closures (n = 13/14) were
36 common across jurisdictions. Announcements related to environmental cleaning (public spaces)
37 (n = 12/14), assisted living facilities (e.g., group homes, private and public long-term care
38 facilities, private and public senior residences, shelters) (n = 12/14), cancellations of mass
39 gatherings (n = 12/14), and case contact or tracing management measures (n = 12/14) were also
40 relatively common. Fewer jurisdictions explicitly addressed, community/faith-based
41 organizations (e.g., restrictions or cancellations) (n = 8/14) and workplace (e.g., workspace
42 restrictions, remote work) (n = 9/14). Manitoba and the Yukon were the sole jurisdictions to
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3 target a PH measure related to remote and isolated communities. The most common public
4 health orders issued across Canada centered on retail/commerce restrictions (10.9%; n = 79/722),
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6 closely followed by border and travel measures, including both international and inter-provincial
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8 travel (10.8%; n = 78/722).
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15 *Time of publication:*

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17 Several jurisdictions made communication and education announcements in late January on
18 individual measures. For instance, Quebec issued a PH measure on hand hygiene respiratory
19 etiquette on January 30, 2020. Most public communication and education measures on hand
20 hygiene, voluntary self-isolation, and voluntary home quarantine were issued in March 2020
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22 across numerous jurisdictions (Table 2). Communication on the use of masks was initiated in
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24 April 2020 across the P/T jurisdictions.
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33 Many of the public health orders, such as physical distancing, cancellation of mass gatherings,
34 school closures, or retail/commerce restrictions were introduced after March 11, 2020. Lifting of
35
36 some of the public health orders in phases to reopen the economy began in April 2020 (6.5%; n =
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38 47/722).
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Table 2: Announcement Dates of Public Health Measures by Jurisdiction

Public Health Measure	Federal	BC	AB	SK	MB	ON	QC	NS	NB	PEI	NL	YK	NWT	NU
Public Communication and Education														
Hand hygiene	Apr. 9	Jan. 31	Mar. 17				Jan. 30		Mar. 5	Feb. 28		Mar. 27	Feb. 5	Mar. 4
Respiratory etiquette	Apr. 9	Jan. 31					Jan. 30		Mar. 5			Mar. 30	Feb. 5	Mar. 4
Environmental cleaning (home/personal environment)		Feb. 29				Apr. 2								Mar. 11
Voluntary self-isolation	Mar. 16	Jan. 31	Mar. 18	Mar. 20	Mar. 16		Feb. 7	Mar. 19	Mar. 5	Feb. 28	Mar. 22	Mar. 27	Feb. 5	Mar. 18
Voluntary home quarantine	Mar. 16	Jan. 31	Mar. 18	Mar. 20	Mar. 16	Mar. 30	Feb. 7	Mar. 22	Mar. 5	Feb. 28	Mar. 22	Mar. 27	Feb. 5	Mar. 18
Use of masks	Mar. 18		Mar. 28	Apr. 17	Apr. 21		Apr. 7		Apr. 1	Apr. 6		Apr. 6	Apr. 27	Apr. 29
Public Health Orders														
Environmental cleaning (public spaces)	Mar. 18	Mar. 24	Mar. 13	Apr. 23	Apr. 20	Mar. 15			Mar. 13	Mar. 17	Mar. 13	Apr. 1	Apr. 10	Mar. 13
Physical distancing measures		Mar. 3	Mar. 20	Mar. 19	Mar. 20	Mar. 18	Mar. 15	Mar. 22	Mar. 12	Mar. 13	Mar. 19	Mar. 27	Mar. 16	Mar. 4
School closures		Mar. 17	Mar. 15	Mar. 17	Apr. 20	Mar. 12	Mar. 13	Mar. 30	Mar. 13	Mar. 27	Apr. 2	Apr. 7	Mar. 16	Mar. 16
University closures			Apr. 30			Mar. 13	Mar. 13	Mar. 19	Mar. 19					
Childcare closures			Mar. 15	Mar. 23	Apr. 14		Apr. 27	Apr. 28	Mar. 13	Mar. 15	Mar. 16	Apr. 6	Apr. 24	Mar. 16
Cancellation of mass gatherings		Mar. 3	Mar. 12	Mar. 17		Mar. 13	Mar. 11	Mar. 17	Mar. 12	Apr. 9	Mar. 28	Apr. 3	Apr. 10	Mar. 13
Assisted living facilities	Apr. 12	Mar. 11	Mar. 15	Mar. 17	Mar. 16	Mar. 16	Mar. 12	Mar. 27	Mar. 9	Mar. 15	Mar. 23		Mar. 16	
Workplace (remote work)		Feb. 29	Mar. 20			Mar. 21	Mar. 13		Mar. 16	Mar. 16	Mar. 10		Mar. 14	Mar. 16
Health care settings	Mar. 18	Mar. 16	Mar. 18	Mar. 23	Mar. 16	Mar. 15	Mar. 14	Mar. 18	Mar. 11	Mar. 15	Mar. 12	Mar. 27	Mar. 16	

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Public Health Measure	Federal	BC	AB	SK	MB	ON	QC	NS	NB	PEI	NL	YK	NWT	NU
Community/faith-based organizations		Mar. 7	Mar. 15	Mar. 19	Mar. 20	Apr. 23	Mar. 16		Mar. 12		Mar. 24			
Retail/commerce restrictions		Mar. 16	Mar. 17	Mar. 19	Mar. 20	Mar. 17	Mar. 13	Mar. 13	Mar. 16	Mar. 17	Mar. 13	Apr. 3	Apr. 10	
Remote and isolated communities					Apr. 17							Mar. 30		
Border and travel measures	Feb. 3	Feb. 3	Mar. 12	Apr. 24	Mar. 16		Mar. 11	Mar. 4	Mar. 18	Mar. 10	Mar. 6	Apr. 1	Mar. 16	Mar. 4
Case and contact or tracing management measures	Feb. 9	Feb. 3	Apr. 12		Apr. 17	Mar. 11		Apr. 5	Mar. 15	Apr. 23	Mar. 22	Apr. 6	Mar. 14	Apr. 30
Justice services			Mar. 16		Mar. 16	Mar. 13		Mar. 14	Mar. 13		Mar. 16		Apr. 22	
Government services	Apr. 7		Mar. 17			Mar. 19	Mar. 17	Mar. 17	Mar. 17	Mar. 17	Mar. 15	Mar. 30		Mar. 30
Social services			Mar. 21	Mar. 23	Apr. 10	Apr. 23	Mar. 15		Mar. 18	Mar. 24	Mar. 23	Apr. 22		Mar. 19

AB=Alberta; BC=British Columbia; LTC=Long-term care; MB=Manitoba; NB=New Brunswick; NL=Newfoundland and Labrador; NWT=Northwest Territories; S=Nova Scotia; NU=Nunavut; ON=Ontario; PEI=Prince Edward Island; QC=Quebec; SK=Saskatchewan; YU=Yukon.

Preview only

Level of intervention:

Based on the language used in the press releases, 68% (n = 491) of the COVID-19 public health announcements were deemed as mandatory, while 32% (n = 231) were recommendations.

Although many of the measures classified as public communication and education were deemed to be recommendations by the governments, measures related to voluntary self-isolation and home quarantine were primarily mandatory (Supplemental File 3).

The majority of public health orders that focused on cancellation of mass gatherings, school closures, and assisted living facilities were mandatory. While numerous boarder and travel measures and retail/commerce restrictions were mandatory, several related measures were recommendations.

Target population:

The general public was the target for 68% (n = 490/722) of the issued COVID-19 PH measures.

Other targets included children aged < 17 years (8.4%, n=61/722), health care provider groups (7.1%, n = 51/722), individuals aged > 65 years (5.0%, n = 35/722), and those with physical disabilities (4.4%, n = 32/722) and mental health problems (1.1%, n = 8/722).

Public health measures tailored towards priority populations

Of the 722 PH measures identified in the scoping review (28%, n = 202/722) were tailored to priority populations. Figure 1 shows the distribution of PH measures that scoped priority populations across jurisdictions. The PH measures targeted a variety of groups defined by major social determinants of health (Figure 2). Of all 722 PH measures, 13.4% (n = 97/722) were

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3 tailored to groups defined by age, while COVID-19 PH measures were less frequently tailored
4 towards groups based on occupations (5.7%, n=41/722) or migration status (3.7%, n = 27/722).
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6 Other priority groups that were less frequently targeted included those defined by income and
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8 home security conditions (1.5%, n = 11/722), religion background (1.4%, n = 10/722), race,
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10 ethnicity and/or language (1%, n = 7/722), including Indigenous populations (n = 5) and
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12 individuals with disabilities (0.5%, n = 4/722). Other COVID-19 PH measures targeted
13
14 “vulnerable” populations that were not further defined (1.1%, n = 8/722). None of the measures
15
16 targeted populations defined by sex or gender.
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24 **DISCUSSION**

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26 This scoping review identified a total of 722 PH measures that were implemented by federal and
27
28 P/T governments across Canada during the first 90 days of the COVID-19 pandemic. These
29
30 measures were implemented to slow the growth rate of infections and to reduce the risk of an
31
32 overburdened health care system.¹⁵ The study results showed that many of the measures focused
33
34 on home quarantine (voluntary) and retail/commerce restrictions which targeted the general
35
36 public. From an equity-based perspective, one-third of all COVID-19 PH measures implemented
37
38 in federal and P/T jurisdictions were specifically tailored towards priority groups defined by the
39
40 social determinants of health.^{16,17}
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47 Our scoping review presents a comprehensive synthesis of the public health communication,
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49 outreach activities and orders in Canada by jurisdiction. The results provide insights on the
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51 categories, volume, timing, level of implementation, and consideration in equity issues of the PH
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53 measures issued by the federal and P/T governments.
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6 Similar to our scoping review, the results of a descriptive study on non-pharmaceutical
7 interventions (NPI) implemented in Canada reported that jurisdictions issued many of their PH
8 measures after March 11, 2020.⁶ This date coincides with the WHO's pandemic declaration. The
9 authors also observed some consistency with Europe and Asia in the order of NPI
10 implementation and less variation across Canada in the implementation of NPIs compared with
11 the United States.
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21 As new evidence on preventive measures emerged for this novel coronavirus, recommendations
22 on the use of face masks were revised from limiting their use to frontline health care workers,
23 individuals who were experiencing symptoms, and their caregivers to include the general
24 public.¹⁸ This observation is evident in Table 2, where initial communication on face mask use
25 began in April in many jurisdictions. The timing of the PH measures is an important factor in
26 curbing the spread of the virus. For instance, questions have been raised on whether Canada
27 could have acted sooner in closing its international borders to non-essential travel. This delay
28 may have resulted in time misused during the earlier days of the pandemic.¹⁹
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41 Obtaining real-time epidemiological data about the number of individuals who have the disease,
42 their demographic and clinical characteristics, including age, sex, ethnicity, and co-morbidities
43 remains a priority. To help address this gap, CIHI proposed an interim ethnicity-based data
44 collection standard to help harmonize and facilitate quality data collection.²⁰ In contrast to
45 uniform PH measures, this data can provide insights on the measures that need to be customized
46 to incorporate social and economic inequities among priority populations to effectively lower
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3 their risk of infection and disease severity.²¹ Furthermore, this data can help to inform which
4 measures were less effective in mitigating or containing the novel coronavirus in order to revise
5 the policies accordingly.²² This is particularly relevant as growing evidence about how lockdown
6 measures and the closing of essential businesses has disproportionately affected low income and
7 other vulnerable groups.²³
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17 Public communication and education (e.g., physical distancing, hand hygiene and use of masks)
18 as well as other augmented public health orders (i.e., case and contact management or tracing
19 management) that were in place in the early stages of the pandemic to slow the virus
20 transmission must be continue to be part of the strategy to lifting restrictions (e.g., re-opening of
21 businesses and restaurants). There has been significant improvements in testing and contact
22 tracing as well as increased availability of personal protective equipment in Canada since the
23 beginning of the pandemic.²⁴ In addition to self-isolation and support, increased testing capacity
24 and faster turnaround times of test results coupled with sufficient resources for efficient and
25 timely contact tracing are necessary to closely monitor the virus transmission and take
26 appropriate actions to contain the spread.²⁵ Although outbreaks will occur, they will not
27 necessarily lead to lockdown measures that were issued in March 2020.²⁴ Overall, the adherence
28 and investment in the fundamental pillars of epidemic response are essential to keeping COVID-
29 19 at bay.²⁵
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49 Inequalities are a long-standing challenge that have been documented during the current COVID-
50 19 pandemic and other health crisis in the past.^{26,27} An increasing body of evidence is emerging
51 in relation to the unequal impacts of the COVID-19 pandemic on infection and mortality rates
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3 towards priority groups defined by social determinants of health.^{8,9} While the role of social
4
5 inequalities in the dynamics of the COVID-19 pandemic remains to be elucidated, future PH
6
7 measures should explicitly and consistently adopt an equity lens to promote intersectional and
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9 multifaceted strategies for pandemic preparedness and response actions that prioritize the needs
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11 of vulnerable groups.
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14 15 16 17 **Limitations**

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19 Our study timeframe precludes us from identifying possible long-term trends on the PH
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21 measures implemented during the 90-day period and their potential impact on priority
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23 populations. It is possible that PH measures announced through the media only may have been
24
25 missed in our study. Most announcements, however, would have been issued by the government
26
27 press releases. As most of the public measures identified issued by the federal or P/T
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29 governments did not seem to target priority populations, the authors acknowledge that public
30
31 health orders at the regional or municipal levels may have addressed these gaps. The authors also
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33 recognize that PH measures issued at the municipal level are important contributions to contain
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35 and mitigate COVID-19 transmission since they have the ability to police social distancing or
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37 bans of mass gatherings, and mobilize community centres for quarantine orders and the
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39 homeless. The volume of measures collectively provided by the municipalities, however,
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41 precluded us from collecting data and gathering information at the local level in the specified
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43 timeframe. Moreover, our scoping review did not assess enforcement measures, strategies to
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45 adhere to the mandatory public health orders, or if sick leave benefits for stay-at-home orders
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47 among individuals in quarantine were in place in the early stages of the pandemic; thus, further
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49 investigation is merited.
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Directions for Future Research

Due to the novelty of the virus, data continue to be collected and verified. A better understanding of the transmission dynamics is important for the planning, development and evaluation of effective control policies.²⁸ As such, a comparative analysis on the evolution of the COVID-19 public health orders within Canada versus to other countries as the pandemic progresses is warranted. A focus on intended and unintended consequences for priority populations over a longer period, and an investigation on epidemiological indicators of COVID-19 changes before and after the implementation of PH measures in Canada would complement the findings in this study.

CONCLUSIONS

In the absence of an effective treatment or vaccine for SARS-CoV-2, the federal and P/T governments could only introduce PH measures to mitigate the adverse effects of the COVID-19 pandemic. While most PH measures centred on limiting contact between people who are not living in the same household, they were also reflective of new evidence on preventive measures emerging in the earlier phase of the pandemic – as observed with the use of masks. While the role of social inequalities in the COVID-19 pandemic remains to be elucidated, future PH measures should adopt an equity lens that prioritizes the needs of priority populations.

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For peer review only

DECLARATIONS

Ethics approval and consent to participate

Not applicable. No ethical approval required for this systematic scoping review of secondary data sources.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

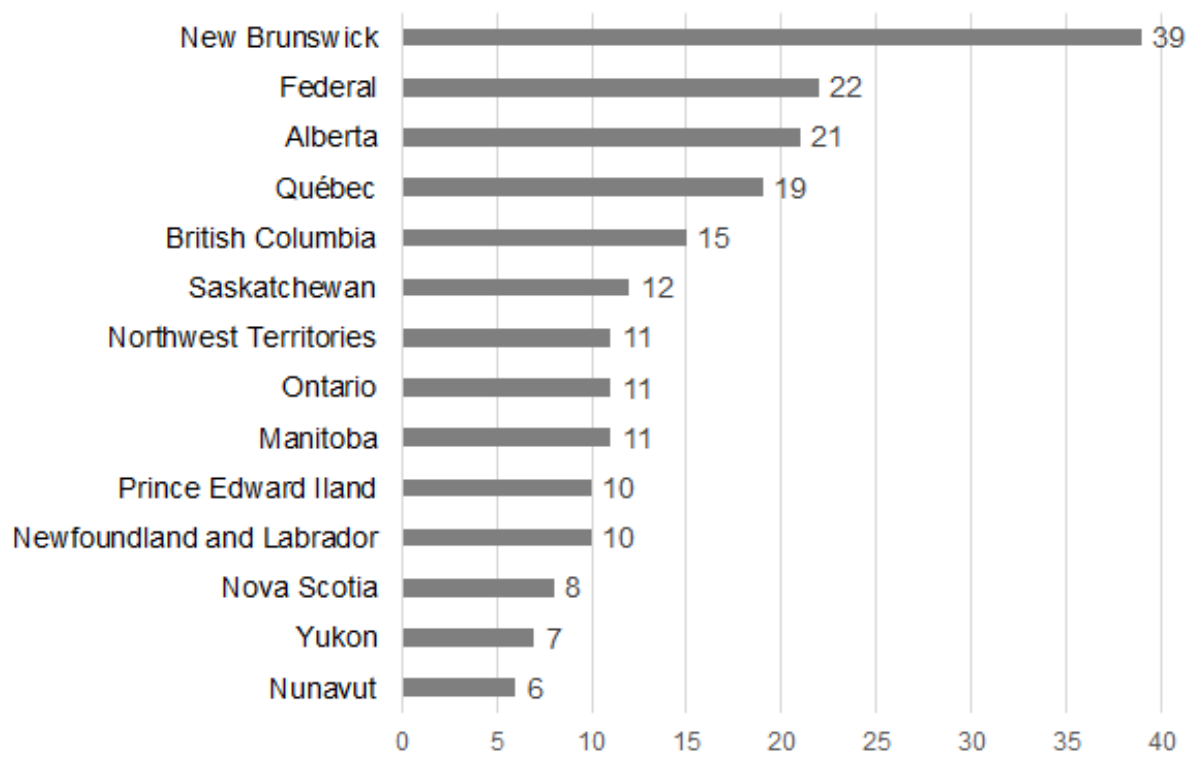
Authors' Contributions

MBO, JP, VW, IIB, and KW contributed to the design and conceptualization of the scoping review. OS, BM, RL, SA, IZ, NH, and AM conducted the data extraction. JP and MBO performed the statistical analysis and descriptive synthesis of the results. All authors contributed to the interpretation of data. JP and MBO drafted the manuscript and all authors provided critical revisions and contributed to editing of the paper.

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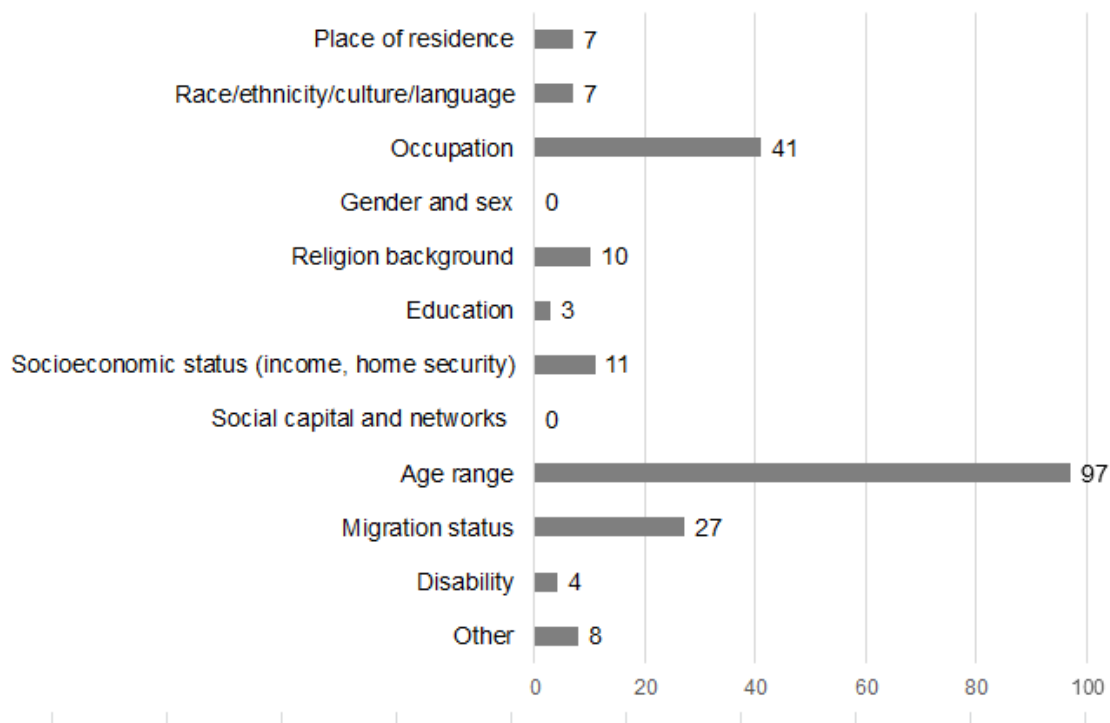
The co-authors would like to acknowledge Ms. Liz Dennett for her support in identifying the information sources to complete the scoping review.

Figure 1: Individual Public Health Measures that Scoped Priority Populations across Jurisdictions



Review only

Figure 2: Priority Populations Targeted by Public Health Measures in Canada



Review only

SUPPLEMENTAL FILE 1: DATA AND INFORMATION SOURCES BY JURISDICTION

Jurisdiction/Organization	Website
Federal	https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/canadas-reponse.html
British Columbia	https://news.gov.bc.ca/
Alberta	https://www.alberta.ca/announcements.cfm
Saskatchewan	https://www.saskatchewan.ca/government/news-and-media
Manitoba	https://news.gov.mb.ca/news/index.html
Ontario	https://news.ontario.ca/archive/en
Quebec	http://www.fil-information.gouv.qc.ca/Pages/RechercheAvancee.aspx?idMenuItem=8&lang=en
New Brunswick	https://www2.gnb.ca/content/gnb/en/news/recent_news.html
Nova Scotia	https://novascotia.ca/news/
Prince Edward Island	https://www.princeedwardisland.ca/en/news
Newfoundland & Labrador	https://www.gov.nl.ca/releases/
Nunavut	https://www.gov.nu.ca/news
Northwest Territories	https://www.gov.nt.ca/newsroom
Yukon Territory	https://yukon.ca/news

SUPPLEMENTAL FILE 2: DATA ELEMENTS EXTRACTED ON PUBLIC HEALTH MEASURES ISSUED BY FEDERAL AND PROVINCIAL/TERRITORIES GOVERNMENTS

Data Elements	Description
Name of jurisdiction	Federal (including populations covered under the federal jurisdiction: Indigenous People of Canada, federal offenders, the Canadian Armed Forces, veterans, and refugees) British Columbia Alberta Saskatchewan Manitoba Ontario Quebec Nova Scotia New Brunswick Prince Edward Island Newfoundland and Labrador Yukon Northwest Territories Nunavut
Description of each PH measure issued by provinces/territories	Narrative description
Category of PH measure (<i>available in dropdown list</i>) (PHAC categories)	<p>Individual measures</p> <ul style="list-style-type: none"> - Hand hygiene - Respiratory etiquette - Environmental cleaning (home/personal environment) - Voluntary self-isolation and home quarantine - Use of masks <p>Community measures</p> <ul style="list-style-type: none"> - Environmental cleaning (public spaces) - Physical distancing measures - School closures - University closures - Childcare closures - Cancellation of mass gatherings - Assisted living facilities - Workplace (remote work) - Health care settings - Community/Faith-based organizations - Retail/commerce restrictions - Remote and isolated communities - Border and travel measures

Data Elements	Description
	<ul style="list-style-type: none"> - Case and contact or tracing management measures - Justice services - Government services - Social services
Date(s) of PH measure announcement	Day and month
Level of implementation	Mandatory (Yes/No), Recommended (Yes/No), Unclear (Yes/No)
Target population	General public (Yes/No) Physicians/health care workers (Yes/No) Adults (17-65 years old) (Yes/No) Children (17 years and under) (Yes/No) Elderly (Seniors, >65 years old) (Yes/No) Pregnant women (Yes/No) Chronic disease populations (Yes/No) Other (Specify)
Socially disadvantaged population targeted by the PH measure	Yes/No
If yes, check whether any of the following (dropdown list):	<ul style="list-style-type: none"> - Place of residence (i.e., urban, rural) - Race/ethnicity/culture/language - Occupation - Gender and sexual orientation - Religion background - Education - Socioeconomic status (including income, housing, single-parent family, food security) - Social capital and networks (e.g., married or common-law partner, neighbourhood characteristics, community supports) - Age (range) - Migration status - Disability <p> **long term care home/retirement residence **prisons **cruise ship **Indigenous communities </p>

P/T=Provincial/territorial

SUPPLEMENTAL FILE 3: SUMMARY OF PUBLIC HEALTH MEASURES BY JURISDICTION

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
Federal	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (1)	April 9	Recommended (1)	General public (1)
	Respiratory etiquette (1)	April 9	Recommended (1)	General public (1)
	Voluntary self-isolation (4)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (4)
	Voluntary home quarantine (4)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (4)
	Use of masks (4)	March 18	Recommended (4)	General public (4)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (1)	March 18	Mandatory (1)	General public (1)
	Assisted living facilities (1)	April 12	Recommended (1)	Seniors (>65 years old) (1)
	Health care settings (2)	March 18	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	Physicians and health care workers (2)
	Government services (1)	April 7	Mandatory (1)	Indigenous peoples (1)
	Border and travel measures (21)	February 3	Mandatory (21)	General public (21)
	Case and contact management measures (1)	February 9	Mandatory (1)	General public (1)
BC	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (5)	January 31	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (1) 	<ul style="list-style-type: none"> • General public (3) • Adults (17 to 65 years old) (1) • Children (17 years old and under) (1)
	Respiratory etiquette (3)	January 31	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	<ul style="list-style-type: none"> • General public (2) • Children (17 years old and under) (1)
	Environment cleaning of individual spaces (3)	February 29	Recommended (3)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (2)
	Voluntary self-isolation (9)	January 31	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (6) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (1)
	Voluntary home quarantine (9)	January 31	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (6) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (1)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
PUBLIC HEALTH ORDERS				
	Environmental cleaning of public spaces (2)	March 24	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	General public, including Indigenous peoples (2)
	Physical distancing measures (9)	March 3	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (6) 	General public (9)
	School closures (1)	March 17	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (5)	March 3	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (2) 	<ul style="list-style-type: none"> • General public (4) • Adults (17 to 65 years old) (1)
	Assisted living facilities (2)	March 11	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	Seniors (>65 years old) (2)
	Workplace (remote work) (2)	February 29	Recommended (2)	Adults (17 to 65 years old) (2)
	Health care settings (3)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	<ul style="list-style-type: none"> • Physicians and healthcare workers (1) • Physical illness/chronic populations (2)
	Community/faith-based organizations (1)	March 7	Recommended (1)	General public (1)
	Retail and commerce restrictions (6)	March 16	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (2) 	<ul style="list-style-type: none"> • General public (4) • Adults (17 to 65 years old) (2)
	Border and travel measures (4)	February 3	Recommended (4)	General public (4)
	Case and contact management measures (6)	February 3	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (2) 	<ul style="list-style-type: none"> • General public (5) • Adults (17 to 65 years old) (1)
AB	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (1)	March 17	Mandatory (1)	General public (1)
	Voluntary self-isolation (10)	March 18	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (7) 	<ul style="list-style-type: none"> • General public (8) • Children (<17 years old) (2) • Seniors (>65 years old) (1)
	Voluntary home quarantine (9)	March 18	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (7) 	General public (9)
	Use of masks (6)	March 28	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (4) 	<ul style="list-style-type: none"> • General public (1) • Physicians and health care workers (4) • Seniors (>65 years old) (1)
PUBLIC HEALTH ORDERS				

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Environmental cleaning (public spaces) (9)	March 13	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (1) 	General public (9)
	Physical distancing (4)	March 20	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	<ul style="list-style-type: none"> • General public (3) • Seniors (>65 years old) (1)
	School closures (2)	March 15	Mandatory (2)	Children (<17 years old) (2)
	University closures (1)	April 30	Recommended (1)	Adults (17 to 65 years old) (1)
	Childcare closures (3)	March 15	Mandatory (3)	Children (<17 years old) (3)
	Cancellation of mass gatherings (5)	March 12	Mandatory (5)	General public (5)
	Assisted living facilities (10)	March 15	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (4) 	<ul style="list-style-type: none"> • Children (<17 years old) (1) • Seniors (>65 years old) (6) • Physical illness/chronic disease populations (2) • Population with mental health illness (1)
	Workplace (remote work) (1)	March 20	Mandatory (1)	Adults (17 to 65 years old) (1)
	Health care settings (13)	March 18	<ul style="list-style-type: none"> • Mandatory (11) • Recommended (2) 	<ul style="list-style-type: none"> • General public (4) • Physicians and health care workers (2) • Children (<17 years old) (1) • Seniors (>65 years old) (2) • Physical illness/chronic populations (4)
	Community/faith organizations (1)	March 15	Mandatory (1)	General public (1)
	Retail/commerce restrictions (6)	March 17	Mandatory (6)	<ul style="list-style-type: none"> • General public (3) • Adults (17 to 65 years old) (3)
	Border and travel measures (3)	March 12	Mandatory (3)	General public (3)
	Case and contact management measures (1)	April 12	Mandatory (1)	General public (1)
	Justice services (3)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (2) • Inmates (1)
	Government services (6)	March 17	Mandatory (6)	<ul style="list-style-type: none"> • General public (5) • Seniors (>65 years old) (1)
	Social services (1)	March 21	Mandatory (1)	Homeless population (1)
SK	PUBLIC COMMUNICATION AND EDUCATION			

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Voluntary self-isolation (5)	March 20	Mandatory (5)	General public (5)
	Voluntary home quarantine (5)	March 20	Mandatory (5)	General public (5)
	Use of masks (1)	April 17	Mandatory (1)	Physicians and health care workers (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (6)	April 23	Mandatory (6)	General public (6)
	Physical distancing measures (5)	March 19	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (2) 	<ul style="list-style-type: none"> • General public (3) • Physicians and healthcare workers (1) • Adults (17 to 65 years old) (1)
	School closures (2)	March 17	Mandatory (2)	Children (<17 years old) (2)
	Childcare closures (3)	March 23	Mandatory (3)	Children (<17 years old) (3)
	Cancellation of mass gatherings (6)	March 17	Mandatory (6)	General public (6)
	Assisted living facilities (2)	March 17	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Seniors (>65 years old) (1)
	Healthcare settings (6)	March 23	<ul style="list-style-type: none"> • Mandatory (5) • Recommended (1) 	<ul style="list-style-type: none"> • General public (5) • Physicians and healthcare workers (1)
	Community/faith-based organizations (1)	March 19	Mandatory (1)	General public (1)
	Retail/commerce restrictions (7)	March 19	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (1) 	General public (7)
	Border and travel measures (2)	April 24	Mandatory (2)	Indigenous peoples (2)
	Social services (1)	March 23	Mandatory (1)	General public (1)
MB	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (3)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Physicians and health care workers (2)
	Voluntary home quarantine (2)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Physicians and health care workers (2)
	Use of masks (1)	April 21	Recommended (1)	General public (1)
	PUBLIC HEALTH ORDERS			

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Environmental cleaning (public spaces) (2)	April 20	Mandatory (2)	General public (2)
	Physical distancing (8)	March 20	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (4) 	<ul style="list-style-type: none"> • General public (7) • Adults (17 to 65 years) (1)
	School closures (1)	April 20	Mandatory (1)	Children (<17 years old) (1)
	Childcare closures (1)	April 14	Recommended (1)	Children (<17 years old) (1)
	Assisted living facilities (2)	March 16	Mandatory (2)	Physical illness/chronic disease populations (2)
	Health care settings (5)	March 16	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (2) 	<ul style="list-style-type: none"> • Physicians and healthcare workers (3) • Physical illness/chronic disease populations (2)
	Community/faith-based organizations (1)	March 20	Mandatory (1)	General public (1)
	Retail/commerce restrictions (10)	March 20	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (2) 	<ul style="list-style-type: none"> • General public (9) • Adults (17 and 65 years old) (1)
	Remote and isolated communities (1)	April 17	Mandatory (1)	General public (1)
	Border and travel measures (3)	March 16	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (1) 	General public (3)
	Case and contact management (6)	April 17	Recommended (6)	General public (6)
	Justice services (3)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Inmates (2)
	Social services (1)	April 10	Recommended (1)	Homeless population (1)
ON	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary home quarantine (1)	March 30	Recommended (1)	General public (1)
	Environmental cleaning (home/personal environment) (1)	April 2	Mandatory (1)	General public (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (5)	March 15	Mandatory (5)	General public (5)
	Physical distancing (3)	March 18	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (1) 	General public (3)
	School closures (4)	March 12	Mandatory (4)	Children (<17 years old) (4)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	University closures (1)	March 13	Mandatory (1)	Adults (17 to 65 years old) (1)
	Cancellation of mass gatherings (4)	March 13	Mandatory (4)	General public (4)
	Assisted living facilities (7)	March 16	Mandatory (7)	<ul style="list-style-type: none"> • General public (1) • Physicians and healthcare workers (5) • Vulnerable populations (1)
	Workplace (remote work) (3)	March 21	Mandatory (3)	Adults (17 to 65 years old) (3)
	Health care settings (5)	March 15	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (1) 	<ul style="list-style-type: none"> • Physicians and health care workers (4) • Physical illness/chronic populations (1)
	Community/faith-based organizations (1)	April 23	Mandatory (1)	General public (1)
	Retail/commerce restrictions (3)	March 17	Mandatory (3)	General public (1)
	Case and contact management measures (4)	March 11	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (1) 	<ul style="list-style-type: none"> • General public (3) • Priority groups (details not provided) (1)
	Justice services (4)	March 13	Mandatory (4)	<ul style="list-style-type: none"> • Inmates (2) • Inmates and visitors (1) • Individuals charged with an offence (1)
	Government services (3)	March 19	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (1) • Physical illness/chronic populations (1)
	Social services (1)	April 23, 2020	Mandatory (1)	Adults (17 and 65 years old) (1)
QC	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (4)	January 30	Recommended (4)	General public (4)
	Respiratory etiquette (4)	January 30	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (3)
	Voluntary self-isolation (11)	February 7	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (3) 	<ul style="list-style-type: none"> • General public (9) • Adults (17 to 65 years old) (1) • Seniors (>65 years old) (1)
	Voluntary home quarantine (14)	February 7	<ul style="list-style-type: none"> • Mandatory (7) • Recommended (7) 	<ul style="list-style-type: none"> • General public (10) • Adults (17 to 65 years old) (1)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
				<ul style="list-style-type: none"> Seniors (>65 years old) (4)
	Use of masks (2)	April 7	Recommended (2)	General public (2)
	PUBLIC HEALTH ORDERS			
	Physical distancing (4)	March 15	<ul style="list-style-type: none"> Mandatory (3) Recommended (1) 	General public (4)
	School closures (4)	March 13	Mandatory (4)	Children (<17 years old) (4)
	University closures (1)	March 13	Mandatory (1)	Adults (17 to 65 years old) (1)
	Childcare closures (1)	April 27	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (8)	March 11	Mandatory (8)	<ul style="list-style-type: none"> General public (7) Children (<17 years old) (1)
	Assisted living facilities (6)	March 12	<ul style="list-style-type: none"> Mandatory (3) Recommended (3) 	<ul style="list-style-type: none"> General public (1) Physicians and healthcare workers (2) Seniors (>65 years old) (2) Children (<17 years old) (1)
	Workplace (remote work) (2)	March 13	Mandatory (2)	Adults (17 to 65 years old) (2)
	Health care settings (2)	March 14	Mandatory (2)	General public (2)
	Community/faith-based organizations (1)	March 16	Mandatory (1)	General public (1)
	Retail/commerce restrictions (12)	March 13	<ul style="list-style-type: none"> Mandatory (10) Recommended (2) 	<ul style="list-style-type: none"> General public (10) Adults (17 to 65 years old) (2)
	Border and travel measures (8)	March 11	<ul style="list-style-type: none"> Mandatory (6) Recommended (2) 	<ul style="list-style-type: none"> General public (7) Adults (17 to 65 years old) (1)
	Government services (4)	March 17	Mandatory (4)	<ul style="list-style-type: none"> General public (2) Adults (17 to 65 years old) (1) Children (<17 years old) (1)
	Social services (2)	March 15	Mandatory (2)	<ul style="list-style-type: none"> Children (<17 years old) (1) Victims of domestic violence (1)
NS	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (1)	March 19	Mandatory (1)	General public (1)
	Voluntary home quarantine (1)	March 22	Recommended (1)	Seniors (>65 years old) (1)
	PUBLIC HEALTH ORDERS			

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Physical distancing measures (1)	March 22	Mandatory (1)	Physicians and healthcare workers (1)
	School closures (3)	March 30	Mandatory (3)	Children (<17 years old) (3)
	University closures (1)	March 19	Mandatory (1)	Adults (17 to 65 years old) (1)
	Childcare closure (1)	April 28	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (1)	March 17	Mandatory (1)	General public (1)
	Assisted living facilities (3)	March 27	Mandatory (3)	<ul style="list-style-type: none"> Physicians and healthcare workers (1) Seniors (>65 years old) (1) Vulnerable populations (1)
	Health care settings (3)	March 18	<ul style="list-style-type: none"> Mandatory (1) Recommended (2) 	<ul style="list-style-type: none"> General public (1) Physicians and healthcare workers (2)
	Retail/commerce restrictions (7)	March 13	Mandatory (7)	<ul style="list-style-type: none"> General public (6) Adults (17 to 65 years old) (1)
	Boarder and travel measures (3)	March 4	Mandatory (3)	<ul style="list-style-type: none"> General public (1) Adults (17 to 65 years old) (2)
	Case and contact management measures (2)	April 5	Mandatory (2)	General public (2)
	Justice services (2)	March 14	Mandatory (2)	General public (2)
	Government services (2)	March 17	Mandatory (2)	Adults (17 to 65 years old) (2)
NB	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (4)	March 5	<ul style="list-style-type: none"> Mandatory (1) Recommended (3) 	<ul style="list-style-type: none"> General public (3) Clients and staff in homeless shelters (1)
	Respiratory etiquette (1)	March 5	Recommended (1)	General public (1)
	Voluntary self-isolation (16)	March 5	<ul style="list-style-type: none"> Mandatory (2) Recommended (14) 	<ul style="list-style-type: none"> General public (12) Physicians and health care workers (2) Adults (17 to 65 years old) (1) Seniors (>65 years old) (1)
	Voluntary home quarantine (16)	March 5	<ul style="list-style-type: none"> Mandatory (2) Recommended (14) 	<ul style="list-style-type: none"> General public (12) Physicians and health care workers (2) Adults (17 to 65 years old) (1) Seniors (>65 years old) (1)
	Use of masks (2)	April 1	Recommended (2)	General public (2)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
PUBLIC HEALTH ORDERS				
	Environmental cleaning (public spaces) (11)	March 13	Mandatory (11)	<ul style="list-style-type: none"> • General public (10) • Children (<17 years old) (2)
	Physical distancing measures (13)	March 12	<ul style="list-style-type: none"> • Mandatory (5) • Recommended (8) 	<ul style="list-style-type: none"> • General public (10) • Children (<17 years old) (2) • Adults (17 to 65 years old) (1)
	School closures (2)	March 13	Mandatory (2)	Children (<17 years old) (2)
	University closures (2)	March 19	Mandatory (2)	Adults (17 to 65 years old) (2)
	Childcare closures (2)	March 13	Mandatory (2)	Children (<17 years old) (2)
	Cancellation of mass gatherings (3)	March 12	Mandatory (3)	General public (3)
	Assisted living facilities (6)	March 9	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (2) 	<ul style="list-style-type: none"> • General public (2) • Physicians and healthcare workers (1) • Seniors (>65 years old) (3)
	Workplace (remote work) (5)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (4) 	Adults (17 to 65 years old) (5)
	Health care settings (10)	March 11	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (7) 	<ul style="list-style-type: none"> • General public (3) • Physicians and health care workers (7)
	Community/faith-based organizations (4)	March 12	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (4)
	Retail/commerce restrictions (9)	March 16	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (3) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (1)
	Border and travel measures (7)	March 18	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (3) 	<ul style="list-style-type: none"> • General public (6) • Adults (17 to 65 years old) (1)
	Case and contact management measures (10)	March 15	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (7) 	<ul style="list-style-type: none"> • General public (8) • Physicians and health care workers (2)
	Justice services (3)	March 13	Mandatory (3)	General public (3)
	Government services (8)	March 17	<ul style="list-style-type: none"> • Mandatory (7) • Recommended (1) 	<ul style="list-style-type: none"> • General public (7) • Children (<17 years old) (1)
	Social services (3)	March 18	Recommended (3)	• General public (1)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)	
				<ul style="list-style-type: none"> • Children (<17 years old) (9) • Homeless population (1) 	
PUBLIC COMMUNICATION AND EDUCATION					
PEI	Hand hygiene (1)	February 28	Recommended (1)	General public (1)	
	Voluntary self-isolation (10)	February 28	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (6) 	<ul style="list-style-type: none"> • General public (9) • Children (<17 years old) (9) 	
	Voluntary home quarantine (10)	February 28	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (6) 	<ul style="list-style-type: none"> • General public (9) • Children (<17 years old) (9) 	
	Use of masks (1)	April 6	Recommended (1)	General public (1)	
	PUBLIC HEALTH ORDERS				
	Environmental cleaning (public spaces) (1)	March 17	Mandatory (1)	General public (1)	
	Physical distancing measures (3)	March 13	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (1) 	General public (3)	
	School closures (2)	March 27	Mandatory (2)	Children <17 years old (2)	
	Childcare closures (3)	March 15	Mandatory (3)	Children <17 years old (3)	
	Cancellation of mass gatherings (2)	April 9	Mandatory (2)	General public (2)	
	Assisted living facilities (1)	March 15	Mandatory (1)	General public (1)	
	Workplace (remote work) (3)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	General public (3)	
	Health care settings (7)	March 15	Mandatory (7)	<ul style="list-style-type: none"> • General public (1) • Physical illness/chronic populations (3) • Population with mental health illness (3) 	
	Retail/commerce restrictions (7)	March 17	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (1) 	<ul style="list-style-type: none"> • General public (6) • Seniors (>65 years old) (1) 	
	Border and travel measures (7)	March 10	<ul style="list-style-type: none"> • Mandatory (5) • Recommended (2) 	<ul style="list-style-type: none"> • General public (6) • Children (<17 years old) (9) 	
	Case and contact management measures (1)	April 23	Mandatory (1)	Physicians and health care workers (1)	
Government services (2)	March 17	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (1) 		

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Social services (1)	March 24	Recommended (1)	General public (1)
NL	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (3)	March 22	Recommended (3)	General public (3)
	Voluntary home quarantine (3)	March 22	Recommended (3)	General public (3)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (6)	March 13	Mandatory (6)	General public (6)
	Physical distancing measures (2)	March 19	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	General public (2)
	School closures (1)	April 2	Mandatory (1)	Children (<17 years old) (1)
	Childcare closures (3)	March 16	Mandatory (3)	Children (<17 years old) (3)
	Cancellation of mass gatherings (1)	March 28	Mandatory (1)	General public (1)
	Assisted living facilities (1)	March 23	Mandatory (1)	Seniors (>65 years old) (1)
	Workplace (remote work) (2)	March 10	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	Adults (17 to 65 years old) (2)
	Health care settings (3)	March 12	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (1) 	<ul style="list-style-type: none"> • Physicians and health care providers (1) • Physical illness/chronic populations (2)
	Community/faith-based organizations (1)	March 24	Mandatory (1)	General public (1)
	Retail/commerce restrictions (10)	March 13	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (2) 	General public (10)
	Border and travel measures (5)	March 6	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (1) 	<ul style="list-style-type: none"> • General public (3) • Adults (17 to 65 years old) (2)
	Case and contact management measures (1)	March 22	Mandatory (1)	• General public (1)
	Justice services (1)	March 16	Mandatory (1)	Inmates (1)
	Government services (9)	March 15	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (1) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (1)
Social services (3)	March 23	Recommended (3)	<ul style="list-style-type: none"> • General public (1) • Seniors (>65 years old) (1) 	

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
				• Homeless population (1)
YK	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (3)	March 27	Recommended (3)	General public (3)
	Respiratory etiquette (3)	March 30	• Mandatory (1) • Recommended (2)	• General public (2) • Adults (17 to 65 years old) (1)
	Voluntary self-isolation (4)	March 27	• Mandatory (3) • Recommended (1)	General public (4)
	Voluntary home quarantine (4)	March 27	• Mandatory (3) • Recommended (1)	General public (4)
	Use of masks (1)	April 6	Recommended (1)	General public (1)
	PUBLIC HEALTH ORDERS			
	Physical distancing (12)	April 1	• Mandatory (10) • Recommended (2)	• General public (11) • Adults (17 to 65 years old) (1)
	School closures (1)	March 27	Mandatory (1)	Children (<17 years old) (1)
	Childcare closures (2)	April 7	Mandatory (2)	Children (<17 years old) (2)
	Cancellation of mass gatherings (1)	April 3	Mandatory (1)	General public (1)
	Health care settings (2)	March 27	Mandatory (2)	General public (2)
	Retail/commerce restrictions (1)	April 3	Mandatory (1)	General public (1)
	Remote and isolated communities (3)	March 30	• Mandatory (1) • Recommended (2)	General public (3)
	Border and travel measures (6)	April 1	Mandatory (6)	General public (6)
	Case and contact management measures (3)	April 6	Mandatory (3)	General public (3)
	Government services (2)	March 30	• Mandatory (1) • Recommended (1)	• General public (1) • Adults (17 to 65 years old) (1)
	Social services (1)	April 22	Recommended (1)	Adults (17 to 65 years old) (1)
NWT	PUBLIC COMMUNICATION AND EDUCATION			
	Respiratory etiquette (2)	February 5	Recommended (2)	General public (2)
	Voluntary self-isolation (13)	February 5	• Mandatory (8) • Recommended (5)	• General public (8) • Adults (17 to 65 years old) (5)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Voluntary home quarantine (13)	February 5	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (5) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (5)
	Use of masks (1)	April 27	Mandatory (1)	Adults (17 to 65 years old) (1)
PUBLIC HEALTH ORDERS				
	Environmental cleaning (public spaces) (1)	April 10	Mandatory (1)	General public (1)
	Physical distancing measures (10)	March 16	<ul style="list-style-type: none"> • Mandatory (5) • Recommended (5) 	<ul style="list-style-type: none"> • General public (7) • Adults (17 to 65 years old) (3)
	School closures (2)	March 16	Mandatory (2)	Children (<17 years old) (2)
	Childcare closures (1)	April 24	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (1)	April 10	Mandatory (1)	General public (1)
	Assisted living facilities (1)	March 16	Mandatory (1)	Physicians and healthcare workers (1)
	Workplace (remote work) (2)	March 14	Mandatory (2)	Adults (17 to 65 years old) (2)
	Health care settings (1)	March 16	Mandatory (1)	Physicians and health care workers (1)
	Retail/commerce restrictions (1)	April 10	Mandatory (1)	General public (1)
	Border and travel measures (6)	March 16	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (2) 	<ul style="list-style-type: none"> • General public (3) • Physicians and health care workers (1) • Adults (17 to 65 years old) (1) • Children (<17 years old) (1)
	Case and contact management measures (3)	March 14	Mandatory (3)	General public (3)
	Justice services (1)	April 22	Mandatory (1)	Inmates (1)
PUBLIC COMMUNICATION AND EDUCATION				
NU	Hand hygiene (1)	March 4	Recommended (1)	General public (1)
	Respiratory etiquette (1)	March 4	Recommended (1)	General public (1)
	Environmental cleaning (home/personal environment) (1)	March 11	Recommended (1)	General public (1)
	Voluntary self-isolation (2)	March 18	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (1)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Voluntary home quarantine (2)	March 18	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Students (1)
	Use of masks (1)	April 29	Recommended (1)	General public (1)
PUBLIC HEALTH ORDERS				
	Environmental cleaning (public spaces) (2)	March 13	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Adults (17 and 65 years old) (1)
	Physical distancing measures (5)	March 4	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (4) 	<ul style="list-style-type: none"> • General public (3) • Adults (17 and 65 years old) (2)
	School closures (2)	March 16	Mandatory (2)	Children (<17 years old) (2)
	Childcare closures (2)	March 16	Mandatory (2)	Children (<17 years old) (2)
	Cancellation of mass gatherings (1)	March 13	Mandatory (1)	General public (1)
	Workplace (remote work) (4)	March 16	Mandatory (4)	Adults (17 and 65 years old) (4)
	Border and travel measures (3)	March 4	Mandatory (3)	General public (3)
	Case and contact management measures (1)	April 30	Mandatory (1)	General public (1)
	Government services (1)	March 30	Mandatory (1)	General public (1)
	Social services (1)	March 19	Mandatory (1)	Homeless population (1)

AB=Alberta; BC=British Columbia; LTC=Long-term care; MB=Manitoba; NA=Not applicable; NB=New Brunswick; NL=Newfoundland and Labrador; NWT=Northwest Territories; NS=Nova Scotia; NU=Nunavut; ON=Ontario; PEI=Prince Edward Island; QC=Quebec; SK=Saskatchewan; YU=Yukon.

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Public Health Measures to Reduce the Risk of SARS-CoV-2 Transmission in Canada during the Early Days of the COVID-19 Pandemic: A Scoping Review

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5 **Public Health Measures to Reduce the Risk of SARS-CoV-2 Transmission in Canada**
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8 **during the Early Days of the COVID-19 Pandemic: A Scoping Review**
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Data Statement

Requests for data can be submitted to Dr. Julie Polisena (ORCID: 0000-0002-1560-3651).

ABSTRACT

Objectives

The main objectives of this study was to synthesize and compare pandemic preparedness strategies issued by the federal and provincial/territorial (P/T) governments in Canada and assess whether COVID-19 public health (PH) measures were tailored towards priority populations, as defined according to relevant social determinants of health.

Design

Scoping review

Data Sources

We searched the federal and P/T websites on COVID-19 pandemic preparedness strategies that were released daily between January 30 and April 30, 2020. We used the PROGRESS-Plus equity-lens framework to define priority populations.

Eligibility Criteria

The selection criteria included definitions, policies, and guidelines of public health strategies implemented by the federal and P/T governments to reduce the risk of SARS-CoV-2 transmission for the COVID-19 pandemic.

Data Extraction and Synthesis

One reviewer extracted data from press releases on the government websites for their assigned jurisdiction(s), and a second reviewer checked for the accuracy of the data extracted. A modified Public Health Agency of Canada framework for Canadian Pandemic Influenza Preparedness was

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3 applied to classify all PH measures identified.
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8 **Results**

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10 A total of 722 COVID-19 PH measures were issued during the study period. Of these, home
11 quarantine (voluntary) (n = 13.0%; 94/722) and retail/commerce restrictions (10.9%; n = 79/722)
12 were the most common measures introduced. Many COVID-19 PH measures were issued in
13 March, the PH measures targeted a variety of groups at risk of socially-produced health
14 inequalities.
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24 **Conclusion**

25
26 Most PH measures centred on limiting contact between people who were not living in the same
27 household. They were also reflective of new evidence on preventive measures emerging in the
28 earlier phase of the pandemic as observed with the use of masks. Although one-third of all
29 COVID-19 PH measures implemented were tailored towards priority groups as defined by the
30 social determinants of health, there were still unintended consequences on these populations.
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40 **Keywords:** public health measures; COVID-19; pandemic preparedness; health inequalities.
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45 **Conflict of Interest Statement:**

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47 The authors declare that they have no competing interests.
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STRENGTHS AND LIMITATIONS OF THIS STUDY

- Our study presents a comprehensive synthesis of the public health (PH) communication and outreach measures the federal and provincial/territorial (P/T) governments issued in the first 90 days of the COVID-19 pandemic.
- The results provide important insights on the categories, volume, timing, level of implementation, and consideration of equity issues of the PH measures issued by federal and P/T jurisdiction.
- The timeframe for the study precludes us from identifying possible long-term trends on the PH measures implemented during the 90-day period and their potential impact on priority populations.
- It is possible that PH measures announced through the media only may have been missed, but most announcements would have been issued by the government press releases.

INTRODUCTION:

In December 2019, a novel coronavirus was first identified among a cluster of pneumonia cases in Wuhan City, Hubei Province, China. The virus was named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and represents the causative agent of a potentially fatal infectious disease known as coronavirus disease 2019 (COVID-19).¹ The severity ranges from mild to severe illness or death for confirmed COVID-19 cases.²

On January 30, 2020, the World Health Organization (WHO) declared the COVID-19 epidemic a global health emergency, and on March 11, 2020 declared COVID-19 a global pandemic. The reproduction numbers (R_0) of the infectious disease were estimated to be between 2.24 and 3.58 in the early phases of the outbreak in mainland China, resulting in the exponential growth and subsequent spread of the virus across the world.³ As of October 6, 2020, the Public Health Agency of Canada (PHAC) reported 171,323 confirmed cases and 9,530 deaths within Canada, with large variations across jurisdictions.⁴

Canada is a high-income country located in North America with a population of approximately 37.9 million.⁵ The country is divided into 10 provinces and three territories. In Canada, the federal government is responsible for administering the national principles under the *Canada Health Act*, which are criteria and conditions for health insurance plans that the provinces and territories must meet so they can receive federal cash transfers. The Canadian government provides financial support to provincial and territorial (PT) governments to support them in the delivery of programs and services, including health care. Subsequently, the provinces and territories administer and deliver most of Canada's health care services within their jurisdiction.

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3 Health care decision-making and priority settings in the health care system are decentralized and
4 occur at various levels, including regional and local.
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10 In response to the COVID-19 pandemic, Canadian public health officials at all levels of
11 administration issued response interventions to contain and mitigate SARS-CoV-2 transmission
12 at a population level and prepare the health systems' response to the infectious disease. The
13 definitions and scope of these PH measures vary by federal and P/T governments in their
14 characteristics, target populations, time of initiation in the pandemic curve, and duration of
15 implementation since they may change over time in response to the dynamics in the epidemic
16 curve.⁶ Different strategies, however, may be warranted in response to growth curves or other
17 triggers.
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30 The pandemic situation has unveiled persisting health inequalities rooted in multiple, structural,
31 and intersecting determinants of the conditions in which people live – particularly increasing the
32 vulnerability of the most socially and economically disadvantaged groups.⁷⁻⁹ As the COVID-19
33 pandemic continues to unfold, it is important to understand which measures work under what
34 contexts, and to expand our knowledge about the potential impact of these population-level
35 mitigation and containment strategies on priority populations rooted in well-known social,
36 economic, and structural determinants of health. Racism and discrimination, income, education,
37 occupation, gender, and others are such determinants.¹⁰ Results from this work are needed to
38 inform equitable, effective and coordinated responses to future pandemics across Canada and in
39 other jurisdictions to guide the design and planning of strategies to mitigate unintended negative
40 impacts and maximize unintended positive impacts of PH measures.
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Our study objectives were: 1) to identify and systematically describe and compare the public health pandemic preparedness strategies for COVID-19 issued by the Canadian federal and P/T governments, and 2) to assess whether COVID-19 PH measures were tailored towards priority populations defined according to relevant social determinants of health in Canada.

METHODS:

Search strategy and eligibility criteria

We conducted a scoping review of COVID-19 PH measures adopted across Canadian provinces and territories.¹¹ The search strategy consisted of daily hand searching s of information on COVID-19 public health preparedness strategies released on federal and P/T websites on a daily basis between January 30 and April 30, 2020 (Supplementary File 1). Thus, electronic searches of the scientific literature was not conducted. The selection criteria of evidence included definitions, policies, and guidelines of public health strategies implemented by the federal and P/T governments to reduce the risk of SARS-CoV-2 transmission and prepare the communities for the COVID-19 pandemic. PH measures issued at the regional or municipal level were not included. Federal and P/T financial plans to individuals, families, or businesses during the COVID-19 pandemic were also excluded. Additional details on the eligibility criteria are outlined in Table 1.

Table 1: Eligibility Criteria

Criterion	Description
Population	<ul style="list-style-type: none"> General population in Canada, including pediatrics and adults.
Intervention	<ul style="list-style-type: none"> Recommendations, policy, guidance, guiding principles, or guidelines that describe PH measures to contain and/or mitigate the risk of transmission of COVID-19 in Canada. PH measures will be categorized according to the PHAC framework for a Canadian Pandemic Influenza Preparedness measures.(20)

Criterion	Description
	<ul style="list-style-type: none"> Examples of PH measures may include social or physical distancing measures, self-isolation, quarantines, school and university, daycare closures, working from home, limited visitation hours in health care or long-term facilities, or travel restrictions or bans.
Setting(s)	<ul style="list-style-type: none"> All Canadian provinces and territories
Timing	<ul style="list-style-type: none"> Documentation of PH measures implemented between January 30, 2020 and April 30, 2020

PH = Public health; PHAC = Public Health Agency of Canada

Data abstraction and synthesis of results

We used the Public Health Agency of Canada (PHAC) framework for Canadian Pandemic Influenza Preparedness to classify all PH measures identified in the search strategy.¹² We also incorporated additional measures not included in the PHAC framework, such as contact tracing and testing. COVID-19 PH measures were characterized by level of implementation (i.e., mandatory or recommended), timing (i.e., date) of implementation, and target populations.

Priority populations in the scoping review were defined as population groups at risk of socially-produced health inequities.¹³ We used the PROGRESS-Plus equity-lens framework to classify priority populations according to the following social determinants of health: place of residence, race/ethnicity/culture/language (including Indigenous identities), occupation/employment/working conditions, gender and sex, religion background, education, socioeconomic status (e.g., income, housing, single-parent family, food and home security), social capital and networks (e.g., neighbourhood characteristics, community supports). The Plus refers to other characteristics potentially associated with discrimination or features of relationships: age groups, immigration status, and disability.¹³

One reviewer extracted data from press releases on the government websites for their assigned

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3 jurisdiction(s), and a second reviewer checked for the accuracy of the data extracted. As well,
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5 one reviewer compared our data with the results of the COVID-19 Intervention Scan conducted
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7 by the Canadian Institutes for Health Information (CIHI) to verify that no PH measures were
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9 omitted.¹⁴ Supplementary File 2 lists the individual data elements that were extracted for all
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11 COVID-19 PH measures issued across Canadian jurisdictions between January 30 and April 30,
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13 2020.
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18 PH measures were classified according to two major categories: public communication and
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20 education (e.g., communication campaigns to maintain social distancing), and public health
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22 orders (e.g., prohibition on mass gatherings in excess of 50 people). Similarly, COVID-19 PH
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24 measures were described by their time of publication, and their target audience. Information
25
26 about COVID-19 PH measures and priority populations identified in the scoping review were
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28 narratively synthesized and tabulated.
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32 33 34 35 **Ethics Approval:**

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37 As the information used in our scoping review was derived from public data sources, a formal
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39 ethics approval was not required.
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43 44 45 **Role of the Funding Source:**

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47 The study sponsor(s) did not have any involvement in study design, data collection, analysis,
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49 interpretation of data, writing of the report, or in the decision to submit the paper for publication.
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52 53 54 **Patient and Public Involvement**

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3 As our study used secondary data sources, patients the public were not involved in our scoping
4 review.
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10 **RESULTS**

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12 The scoping review identified a total of 722 PH measures that were issued by federal and P/T
13 governments between January 30 and April 30, 2020.
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19 *Public communication and education:*

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21 All federal and P/T jurisdictions (N = 14) issued individual PH measures (20.6% of all measures)
22 between January 30 and April 30 that regarded home quarantine (voluntary) (n = 14/14),
23 followed by self-isolation (voluntary) (n = 13/14) (Table 2). These measures targeted individuals
24 who experienced COVID-19 symptoms or had returned from domestic or international travel.
25
26 Fewer jurisdictions communicated measures specific to or that solely focused on environmental
27 cleaning (home/personal environment) (n = 3/14) and respiratory etiquette (7/14). Home
28 quarantine (voluntary) (n = 13.0%; 94/722) was the most common PH measure targeted at
29 individuals issued by the federal and P/T governments.
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42 *Public health orders:*

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44 Public health orders on physical distancing measures (n = 13/14), border and travel measures (n
45 = 13/14), health care settings (n = 13/14), and childcare or school closures (n = 13/14) were
46 common across jurisdictions. Announcements related to environmental cleaning (public spaces)
47 (n = 12/14), assisted living facilities (e.g., group homes, private and public long-term care
48 facilities, private and public senior residences, shelters) (n = 12/14), cancellations of mass
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gatherings (n = 12/14), and case contact or tracing management measures (n = 12/14) were also relatively common. Fewer jurisdictions explicitly addressed, community/faith-based organizations (e.g., restrictions or cancellations) (n = 8/14) and workplace (e.g., workspace restrictions, remote work) (n = 9/14). Manitoba and the Yukon were the sole jurisdictions to target a PH measure related to remote and isolated communities. Many mandatory public health (PH) measures announced by the federal government centered on international border and travel restrictions given their authority to issue them. The most common public health orders issued across Canada centered on retail/commerce restrictions (10.9%; n = 79/722), closely followed by border and travel measures, including both international and inter-provincial travel (10.8%; n = 78/722).

Time of publication:

Several jurisdictions made communication and education announcements in late January on individual measures. For instance, Quebec issued a PH measure on hand hygiene respiratory etiquette on January 30, 2020. Most public communication and education measures on hand hygiene, voluntary self-isolation, and voluntary home quarantine were issued in March 2020 across numerous jurisdictions (Table 2). Communication on the use of masks was initiated in April 2020 across the P/T jurisdictions.

Many of the public health orders, such as physical distancing, cancellation of mass gatherings, school closures, or retail/commerce restrictions were introduced after March 11, 2020. Lifting of some of the public health orders in phases to reopen the economy began in April 2020 (6.5%; n = 47/722).

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Table 2: Announcement Dates of Public Health Measures by Jurisdiction

Public Health Measure	Federal	BC	AB	SK	MB	ON	QC	NS	NB	PEI	NL	YK	NWT	NU
Public Communication and Education														
Hand hygiene	Apr. 9	Jan. 31	Mar. 17				Jan. 30		Mar. 5	Feb. 28		Mar. 27	Feb. 5	Mar. 4
Respiratory etiquette	Apr. 9	Jan. 31					Jan. 30		Mar. 5			Mar. 30	Feb. 5	Mar. 4
Environmental cleaning (home/personal environment)		Feb. 29				Apr. 2								Mar. 11
Voluntary self-isolation	Mar. 16	Jan. 31	Mar. 18	Mar. 20	Mar. 16		Feb. 7	Mar. 19	Mar. 5	Feb. 28	Mar. 22	Mar. 27	Feb. 5	Mar. 18
Voluntary home quarantine	Mar. 16	Jan. 31	Mar. 18	Mar. 20	Mar. 16	Mar. 30	Feb. 7	Mar. 22	Mar. 5	Feb. 28	Mar. 22	Mar. 27	Feb. 5	Mar. 18
Use of masks	Mar. 18		Mar. 28	Apr. 17	Apr. 21		Apr. 7		Apr. 1	Apr. 6		Apr. 6	Apr. 27	Apr. 29
Public Health Orders														
Environmental cleaning (public spaces)	Mar. 18	Mar. 24	Mar. 13	Apr. 23	Apr. 20	Mar. 15			Mar. 13	Mar. 17	Mar. 13	Apr. 1	Apr. 10	Mar. 13
Physical distancing measures		Mar. 3	Mar. 20	Mar. 19	Mar. 20	Mar. 18	Mar. 15	Mar. 22	Mar. 12	Mar. 13	Mar. 19	Mar. 27	Mar. 16	Mar. 4
School closures		Mar. 17	Mar. 15	Mar. 17	Apr. 20	Mar. 12	Mar. 13	Mar. 30	Mar. 13	Mar. 27	Apr. 2	Apr. 7	Mar. 16	Mar. 16
University closures			Apr. 30			Mar. 13	Mar. 13	Mar. 19	Mar. 19					
Childcare closures			Mar. 15	Mar. 23	Apr. 14		Apr. 27	Apr. 28	Mar. 13	Mar. 15	Mar. 16	Apr. 6	Apr. 24	Mar. 16
Cancellation of mass gatherings		Mar. 3	Mar. 12	Mar. 17		Mar. 13	Mar. 11	Mar. 17	Mar. 12	Apr. 9	Mar. 28	Apr. 3	Apr. 10	Mar. 13
Assisted living facilities	Apr. 12	Mar. 11	Mar. 15	Mar. 17	Mar. 16	Mar. 16	Mar. 12	Mar. 27	Mar. 9	Mar. 15	Mar. 23		Mar. 16	
Workplace (remote work)		Feb. 29	Mar. 20			Mar. 21	Mar. 13		Mar. 16	Mar. 16	Mar. 10		Mar. 14	Mar. 16
Health care settings	Mar. 18	Mar. 16	Mar. 18	Mar. 23	Mar. 16	Mar. 15	Mar. 14	Mar. 18	Mar. 11	Mar. 15	Mar. 12	Mar. 27	Mar. 16	

Public Health Measure	Federal	BC	AB	SK	MB	ON	QC	NS	NB	PEI	NL	YK	NWT	NU
Community/faith-based organizations		Mar. 7	Mar. 15	Mar. 19	Mar. 20	Apr. 23	Mar. 16		Mar. 12		Mar. 24			
Retail/commerce restrictions		Mar. 16	Mar. 17	Mar. 19	Mar. 20	Mar. 17	Mar. 13	Mar. 13	Mar. 16	Mar. 17	Mar. 13	Apr. 3	Apr. 10	
Remote and isolated communities					Apr. 17							Mar. 30		
Border and travel measures	Feb. 3	Feb. 3	Mar. 12	Apr. 24	Mar. 16		Mar. 11	Mar. 4	Mar. 18	Mar. 10	Mar. 6	Apr. 1	Mar. 16	Mar. 4
Case and contact or tracing management measures	Feb. 9	Feb. 3	Apr. 12		Apr. 17	Mar. 11		Apr. 5	Mar. 15	Apr. 23	Mar. 22	Apr. 6	Mar. 14	Apr. 30
Justice services			Mar. 16		Mar. 16	Mar. 13		Mar. 14	Mar. 13		Mar. 16		Apr. 22	
Government services	Apr. 7		Mar. 17			Mar. 19	Mar. 17	Mar. 17	Mar. 17	Mar. 17	Mar. 15	Mar. 30		Mar. 30
Social services			Mar. 21	Mar. 23	Apr. 10	Apr. 23	Mar. 15		Mar. 18	Mar. 24	Mar. 23	Apr. 22		Mar. 19

AB=Alberta; BC=British Columbia; LTC=Long-term care; MB=Manitoba; NB=New Brunswick; NL=Newfoundland and Labrador; NWT=Northwest Territories; S=Nova Scotia; NU=Nunavut; ON=Ontario; PEI=Prince Edward Island; QC=Quebec; SK=Saskatchewan; YU=Yukon.

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Level of intervention:

Based on the language used in the press releases, 68% (n = 491) of the COVID-19 public health announcements were deemed as mandatory, while 32% (n = 231) were recommendations.

Although many of the measures classified as public communication and education were deemed to be recommendations by the governments, measures related to voluntary self-isolation and home quarantine were primarily mandatory (Supplemental File 3).

The majority of public health orders that focused on cancellation of mass gatherings, school closures, and assisted living facilities were mandatory. While numerous boarder and travel measures and retail/commerce restrictions were mandatory, several related measures were recommendations.

Target population:

The general public was the target for 68% (n = 490/722) of the issued COVID-19 PH measures.

Other targets included children aged < 17 years (8.4%, n=61/722), health care provider groups (7.1%, n = 51/722), individuals aged > 65 years (5.0%, n = 35/722), and those with physical disabilities (4.4%, n = 32/722) and mental health problems (1.1%, n = 8/722).

Public health measures tailored towards priority populations

Of the 722 PH measures identified in the scoping review (28%, n = 202/722) were tailored to priority populations. Figure 1 shows the distribution of PH measures that scoped priority populations across jurisdictions. The PH measures targeted a variety of groups defined by major social determinants of health (Figure 2). Of all 722 PH measures, 13.4% (n = 97/722) were

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3 tailored to groups defined by age, while COVID-19 PH measures were less frequently tailored
4 towards groups based on occupations (5.7%, n=41/722) or migration status (3.7%, n = 27/722).
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6 Other priority groups that were less frequently targeted included those defined by income and
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8 home security conditions (1.5%, n = 11/722), religion background (1.4%, n = 10/722), race,
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10 ethnicity and/or language (1%, n = 7/722), including Indigenous populations (n = 5) and
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12 individuals with disabilities (0.5%, n = 4/722). Other COVID-19 PH measures targeted
13
14 “vulnerable” populations that were not further defined (1.1%, n = 8/722). None of the measures
15
16 targeted populations defined by sex or gender.
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24 **DISCUSSION**

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26 Our scoping review is a descriptive study, and a quantitative assessment of the impact of public
27 health measures was outside of scope. Furthermore, our objective was to identify, describe,
28
29 classify, and compare the experiences in implementing PH measures at the national and P/T
30
31 levels during the early stages of the pandemic. The results present a comprehensive synthesis of
32
33 the public health communication, outreach activities and orders in Canada by jurisdiction. The
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35 results provide insights on the categories, volume, timing, level of implementation, and
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37 consideration in equity issues of the PH measures issued by the federal and P/T governments.
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45 This scoping review identified a total of 722 PH measures that were implemented by federal and
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47 P/T governments across Canada during the first 90 days of the COVID-19 pandemic. These
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49 measures were implemented to slow the growth rate of infections and to reduce the risk of an
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51 overburdened health care system.¹⁵ The study results showed that many of the measures focused
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3 on home quarantine (voluntary) and retail/commerce restrictions which targeted the general
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5 public.
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10 From an equity-based perspective, one-third of all COVID-19 PH measures implemented in
11 federal and P/T jurisdictions were specifically tailored towards priority groups defined by the
12 social determinants of health.^{16,17} None of the PH measures specifically targeted sex/gender
13 (Figure 2), but some of the PH measures in place, such as school closures, disproportionately
14 affected women both at home and in the workplace.¹⁸ Although social capital and networks
15 impact the spread of COVID-19, our review did not identify any PH measures issued in the early
16 phase of the pandemic that targeted this domain.¹⁹ Other PH measures focused on the restrictions
17 of large gatherings for targeted groups or in specific locations. For instance, PH measures on
18 religion background centered on prohibiting large gatherings through closures of places of
19 worship or cancellations of religious festivities.
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35 Similar to our scoping review, the results of a descriptive study on non-pharmaceutical
36 interventions (NPI) implemented in Canada reported that jurisdictions issued many of their PH
37 measures after March 11, 2020.⁶ This date coincides with the WHO's pandemic declaration. The
38 authors also observed some consistency with Europe and Asia in the order of NPI
39 implementation and less variation across Canada in the implementation of NPIs compared with
40 the United States.
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51 As new evidence on preventive measures emerged for this novel coronavirus, recommendations
52 on the use of face masks were revised from limiting their use to frontline health care workers,
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3 individuals who were experiencing symptoms, and their caregivers to include the general
4 public.²⁰ This observation is evident in Table 2, where initial communication on face mask use
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6 began in April in many jurisdictions. Our findings indicate that geography influenced the timing
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8 of the introduction of the PH measures. As the first outbreak of COVID-19 was reported in
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10 China, British Columbia, which borders the Pacific Ocean, issued measures that restricted large
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12 gatherings or travel in early February or March. British Columbia was the first province to
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14 introduce contact tracing measures on March 3rd, while the other Canadian jurisdictions issued a
15
16 similar measure later in March or as late as April 30th. The data also supported the idea that the
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18 virus was highly contagious and thrived on close interactions in an enclosed space where
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20 physical distancing is not feasible. As such, PH orders were issued mostly in March across
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22 Canada that influenced human behaviours outside the individual's personal environment, and,
23
24 thus, lowering the risk of exposure. As well, the timing of the PH measures plays an important
25
26 role in curbing the spread of the virus. For instance, questions have been raised on whether
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28 Canada could have acted sooner in closing its international borders to non-essential travel. This
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30 delay may have resulted in time misused during the earlier days of the pandemic.²¹

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40 Obtaining real-time epidemiological data about the number of individuals who have the disease,
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42 their demographic and clinical characteristics, including age, sex, ethnicity, and co-morbidities
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44 remains a priority. To help address this gap, CIHI proposed an interim ethnicity-based data
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46 collection standard to help harmonize and facilitate quality data collection.²² In contrast to
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48 uniform PH measures, this data can provide insights on the measures that need to be customized
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50 to incorporate social and economic inequities among priority populations to effectively lower
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52 their risk of infection and disease severity.²³ Furthermore, this data can help to inform which
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3 measures were less effective in mitigating or containing the novel coronavirus in order to revise
4 the policies accordingly.²⁴ This is particularly relevant as growing evidence about how lockdown
5 measures and the closing of essential businesses has disproportionately affected low income and
6 other vulnerable groups.²⁵
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14 Public communication and education (e.g., physical distancing, hand hygiene and use of masks)
15 as well as other augmented public health orders (i.e., case and contact management or tracing
16 management) that were in place in the early stages of the pandemic to slow the virus
17 transmission must be continue to be part of the strategy to lifting restrictions (e.g., re-opening of
18 businesses and restaurants). There has been improvements in testing and contact tracing as well
19 as increased availability of personal protective equipment in Canada since the beginning of the
20 pandemic.²⁶ In addition to self-isolation and support, increased testing capacity and faster
21 turnaround times of test results coupled with sufficient resources for efficient and timely contact
22 tracing are necessary to closely monitor the virus transmission and take appropriate actions to
23 contain the spread.²⁷ Although outbreaks will occur, they will not necessarily lead to lockdown
24 measures that were issued in March 2020.²⁶ Overall, the adherence and investment in the
25 fundamental pillars of epidemic response are essential to keeping COVID-19 at bay.²⁷
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45 Inequalities are a long-standing challenge that have been documented during the current COVID-
46 19 pandemic and other health crisis in the past.^{28,29} An increasing body of evidence is emerging
47 in relation to the unequal impacts of the COVID-19 pandemic on infection and mortality rates
48 towards priority groups defined by social determinants of health.^{8,9} While the role of social
49 inequalities in the dynamics of the COVID-19 pandemic remains to be elucidated, future PH
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3 measures should explicitly and consistently adopt an equity lens to promote intersectional and
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5 multifaceted strategies for pandemic preparedness and response actions that prioritize the needs
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7 of vulnerable groups.
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11 12 **Limitations**

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14 Our study timeframe precludes us from identifying possible long-term trends on the PH
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16 measures implemented during the 90-day period and their potential impact on priority
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18 populations. It is possible that PH measures announced through the media only may have been
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20 missed in our study. Most announcements, however, would have been issued by the government
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22 press releases. As most of the public measures identified issued by the federal or P/T
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24 governments did not seem to target priority populations, the authors acknowledge that public
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26 health orders at the regional or municipal levels may have addressed these gaps. The authors also
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28 recognize that PH measures issued at the municipal level are important contributions to contain
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30 and mitigate COVID-19 transmission since they have the ability to police social distancing or
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32 bans of mass gatherings, and mobilize community centres for quarantine orders and the
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34 homeless. The volume of measures collectively provided by the municipalities, however,
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36 precluded us from collecting data and gathering information at the local level in the specified
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38 timeframe. Moreover, our scoping review did not assess enforcement measures, strategies to
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40 adhere to the mandatory public health orders, or if sick leave benefits for stay-at-home orders
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42 among individuals in quarantine were in place in the early stages of the pandemic; thus, further
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44 investigation is merited.
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54 **Directions for Future Research**

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3 Due to the novelty of the virus, data continue to be collected and verified. A better understanding
4 of the transmission dynamics is important for the planning, development and evaluation of
5 effective control policies.³⁰ As such, a comparative analysis on the evolution of the COVID-19
6 public health orders within Canada versus to other countries as the pandemic progresses is
7 warranted. A focus on intended and unintended consequences for priority populations over a
8 longer period, and an investigation on epidemiological indicators of COVID-19 changes before
9 and after the implementation of PH measures in Canada would complement the findings in this
10 study.
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23 CONCLUSIONS

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26 In the absence of an effective treatment or vaccine for SARS-CoV-2 during the early phase of
27 the pandemic, the federal and P/T governments could only introduce PH measures to mitigate the
28 adverse effects of COVID-19. Our findings indicate that PH measures were influenced, in part,
29 by the availability of the evolving evidence, geographical location of the jurisdiction; and the
30 aim to modify human behaviours outside an individual's personal environment. While most PH
31 measures centred on limiting contact between people who are not living in the same household,
32 they were also reflective of new evidence on preventive measures emerging in the earlier phase
33 of the pandemic – as observed with the use of masks. Although one-third of all COVID-19 PH
34 measures implemented were tailored towards priority groups defined by the social determinants
35 of health, none were specific to sex/gender or social capital/networks. Several of the PH
36 measures issued though would have resulted in unintended consequences for these populations.
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38 While the role of social inequalities in the COVID-19 pandemic remains to be elucidated, future
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3 PH measures should adopt an equity lens as the data continue to be collected that prioritize the
4 needs of priority populations.
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15 **FIGURE CAPTIONS:**

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17 Figure 1. Individual Public Health Measures that Scoped Priority Populations across
18 Jurisdictions: Number of Public Health Measures Issued that Target Priority Populations
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21 Figure 2: Priority Populations Targets by COVID-19 Public Health Measures in Canada:
22 Number of Public Health Measures Issued for Each Priority Population Identified
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DECLARATIONS

Ethics approval and consent to participate

Not applicable. No ethical approval required for this systematic scoping review of secondary data sources.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Authors' Contributions

JP, MBO, VW, IIB, and KW contributed to the design and conceptualization of the scoping review. OS, BM, RL, SA, IZ, NH, and AM conducted the data extraction. JP and MBO performed the statistical analysis and descriptive synthesis of the results. All authors contributed to the interpretation of data. JP and MBO drafted the manuscript and all authors provided critical revisions and contributed to editing of the paper.

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Figure 1: Individual Public Health Measures that Scoped Priority Populations across Jurisdictions

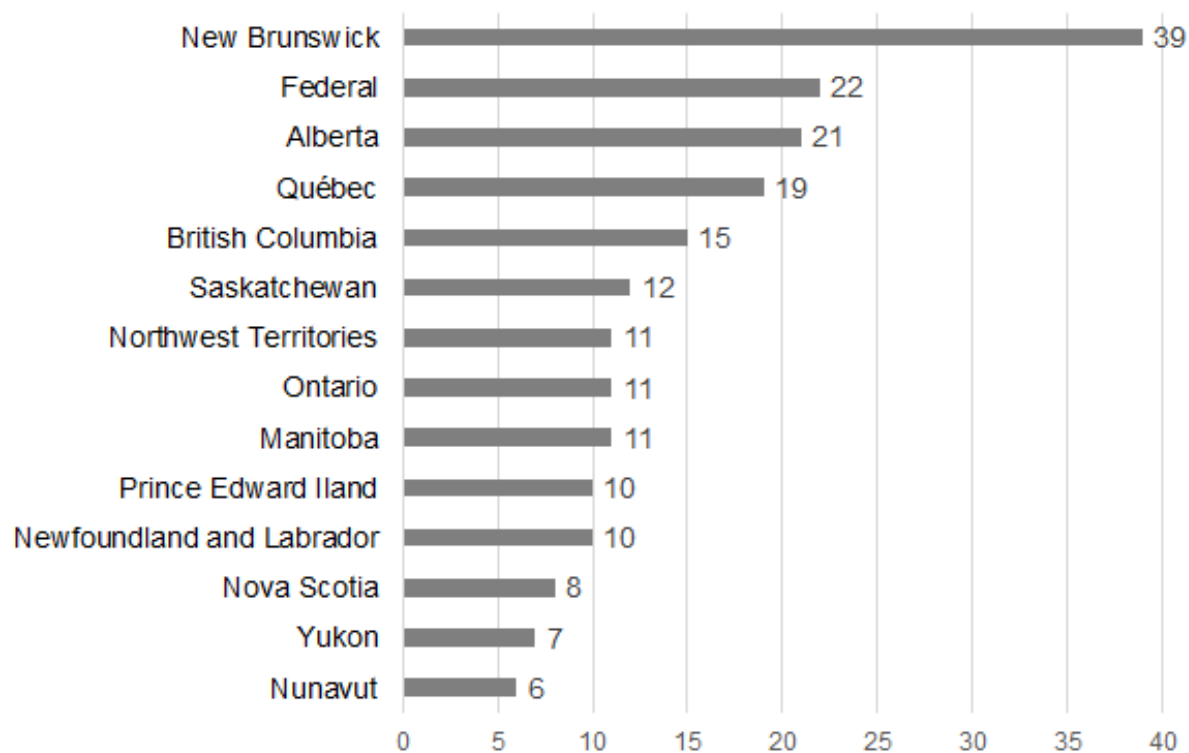
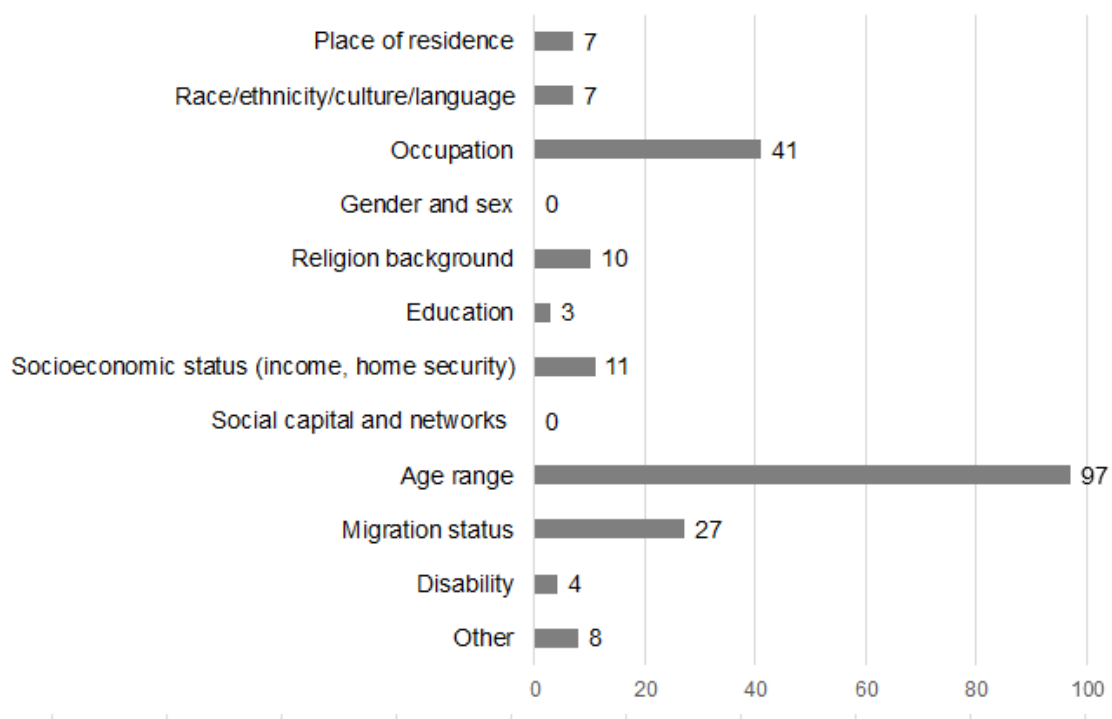


Figure 2: Priority Populations Targeted by Public Health Measures in Canada



Review only

SUPPLEMENTAL FILE 1: DATA AND INFORMATION SOURCES BY JURISDICTION

Jurisdiction/Organization	Website
Federal	https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/canadas-reponse.html
British Columbia	https://news.gov.bc.ca/
Alberta	https://www.alberta.ca/announcements.cfm
Saskatchewan	https://www.saskatchewan.ca/government/news-and-media
Manitoba	https://news.gov.mb.ca/news/index.html
Ontario	https://news.ontario.ca/archive/en
Quebec	http://www.fil-information.gouv.qc.ca/Pages/RechercheAvancee.aspx?idMenuItem=8&lang=en
New Brunswick	https://www2.gnb.ca/content/gnb/en/news/recent_news.html
Nova Scotia	https://novascotia.ca/news/
Prince Edward Island	https://www.princeedwardisland.ca/en/news
Newfoundland & Labrador	https://www.gov.nl.ca/releases/
Nunavut	https://www.gov.nu.ca/news
Northwest Territories	https://www.gov.nt.ca/newsroom
Yukon Territory	https://yukon.ca/news

SUPPLEMENTAL FILE 2: DATA ELEMENTS EXTRACTED ON PUBLIC HEALTH MEASURES ISSUED BY FEDERAL AND PROVINCIAL/TERRITORIES GOVERNMENTS

Data Elements	Description
Name of jurisdiction	Federal (including populations covered under the federal jurisdiction: Indigenous People of Canada, federal offenders, the Canadian Armed Forces, veterans, and refugees) British Columbia Alberta Saskatchewan Manitoba Ontario Quebec Nova Scotia New Brunswick Prince Edward Island Newfoundland and Labrador Yukon Northwest Territories Nunavut
Description of each PH measure issued by provinces/territories	Narrative description
Category of PH measure (<i>available in dropdown list</i>) (PHAC categories)	Individual measures - Hand hygiene - Respiratory etiquette - Environmental cleaning (home/personal environment) - Voluntary self-isolation and home quarantine - Use of masks Community measures - Environmental cleaning (public spaces) - Physical distancing measures - School closures - University closures - Childcare closures - Cancellation of mass gatherings - Assisted living facilities - Workplace (remote work) - Health care settings - Community/Faith-based organizations - Retail/commerce restrictions - Remote and isolated communities - Border and travel measures

Data Elements	Description
	<ul style="list-style-type: none"> - Case and contact or tracing management measures - Justice services - Government services - Social services
Date(s) of PH measure announcement	Day and month
Level of implementation	Mandatory (Yes/No), Recommended (Yes/No), Unclear (Yes/No)
Target population	General public (Yes/No) Physicians/health care workers (Yes/No) Adults (17-65 years old) (Yes/No) Children (17 years and under) (Yes/No) Elderly (Seniors, >65 years old) (Yes/No) Pregnant women (Yes/No) Chronic disease populations (Yes/No) Other (Specify)
Socially disadvantaged population targeted by the PH measure	Yes/No
If yes, check whether any of the following (dropdown list):	<ul style="list-style-type: none"> - Place of residence (i.e., urban, rural) - Race/ethnicity/culture/language - Occupation - Gender and sexual orientation - Religion background - Education - Socioeconomic status (including income, housing, single-parent family, food security) - Social capital and networks (e.g., married or common-law partner, neighbourhood characteristics, community supports) - Age (range) - Migration status - Disability <p>**long term care home/retirement residence **prisons **cruise ship **Indigenous communities</p>

P/T=Provincial/territorial

SUPPLEMENTAL FILE 3: SUMMARY OF PUBLIC HEALTH MEASURES BY JURISDICTION

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
Federal	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (1)	April 9	Recommended (1)	General public (1)
	Respiratory etiquette (1)	April 9	Recommended (1)	General public (1)
	Voluntary self-isolation (4)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (4)
	Voluntary home quarantine (4)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (4)
	Use of masks (4)	March 18	Recommended (4)	General public (4)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (1)	March 18	Mandatory (1)	General public (1)
	Assisted living facilities (1)	April 12	Recommended (1)	Seniors (>65 years old) (1)
	Health care settings (2)	March 18	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	Physicians and health care workers (2)
	Government services (1)	April 7	Mandatory (1)	Indigenous peoples (1)
	Border and travel measures (21)	February 3	Mandatory (21)	General public (21)
	Case and contact management measures (1)	February 9	Mandatory (1)	General public (1)
BC	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (5)	January 31	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (1) 	<ul style="list-style-type: none"> • General public (3) • Adults (17 to 65 years old) (1) • Children (17 years old and under) (1)
	Respiratory etiquette (3)	January 31	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	<ul style="list-style-type: none"> • General public (2) • Children (17 years old and under) (1)
	Environment cleaning of individual spaces (3)	February 29	Recommended (3)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (2)
	Voluntary self-isolation (9)	January 31	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (6) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (1)
	Voluntary home quarantine (9)	January 31	<ul style="list-style-type: none"> • Mandatory (3) 	<ul style="list-style-type: none"> • General public (8)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
			• Recommended (6)	• Adults (17 to 65 years old) (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning of public spaces (2)	March 24	• Mandatory (1) • Recommended (1)	General public, including Indigenous peoples (2)
	Physical distancing measures (9)	March 3	• Mandatory (3) • Recommended (6)	General public (9)
	School closures (1)	March 17	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (5)	March 3	• Mandatory (3) • Recommended (2)	• General public (4) • Adults (17 to 65 years old) (1)
	Assisted living facilities (2)	March 11	• Mandatory (1) • Recommended (1)	Seniors (>65 years old) (2)
	Workplace (remote work) (2)	February 29	Recommended (2)	Adults (17 to 65 years old) (2)
	Health care settings (3)	March 16	• Mandatory (1) • Recommended (2)	• Physicians and healthcare workers (1) • Physical illness/chronic populations (2)
	Community/faith-based organizations (1)	March 7	Recommended (1)	General public (1)
	Retail and commerce restrictions (6)	March 16	• Mandatory (4) • Recommended (2)	• General public (4) • Adults (17 to 65 years old) (2)
	Border and travel measures (4)	February 3	Recommended (4)	General public (4)
	Case and contact management measures (6)	February 3	• Mandatory (4) • Recommended (2)	• General public (5) • Adults (17 to 65 years old) (1)
AB	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (1)	March 17	Mandatory (1)	General public (1)
	Voluntary self-isolation (10)	March 18	• Mandatory (3) • Recommended (7)	• General public (8) • Children (<17 years old) (1) • Seniors (>65 years old) (1)
	Voluntary home quarantine (9)	March 18	• Mandatory (2) • Recommended (7)	General public (9)
	Use of masks (6)	March 28	• Mandatory (2) • Recommended (4)	• General public (1) • Physicians and health care workers (4) • Seniors (>65 years old) (1)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
PUBLIC HEALTH ORDERS				
	Environmental cleaning (public spaces) (9)	March 13	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (1) 	General public (9)
	Physical distancing (4)	March 20	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	<ul style="list-style-type: none"> • General public (3) • Seniors (>65 years old) (1)
	School closures (2)	March 15	Mandatory (2)	Children (<17 years old) (2)
	University closures (1)	April 30	Recommended (1)	Adults (17 to 65 years old) (1)
	Childcare closures (3)	March 15	Mandatory (3)	Children (<17 years old) (3)
	Cancellation of mass gatherings (5)	March 12	Mandatory (5)	General public (5)
	Assisted living facilities (10)	March 15	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (4) 	<ul style="list-style-type: none"> • Children (<17 years old) (1) • Seniors (>65 years old) (6) • Physical illness/chronic disease populations (2) • Population with mental health illness (1)
	Workplace (remote work) (1)	March 20	Mandatory (1)	Adults (17 to 65 years old) (1)
	Health care settings (13)	March 18	<ul style="list-style-type: none"> • Mandatory (11) • Recommended (2) 	<ul style="list-style-type: none"> • General public (4) • Physicians and health care workers (2) • Children (<17 years old) (1) • Seniors (>65 years old) (2) • Physical illness/chronic populations (4)
	Community/faith organizations (1)	March 15	Mandatory (1)	General public (1)
	Retail/commerce restrictions (6)	March 17	Mandatory (6)	<ul style="list-style-type: none"> • General public (3) • Adults (17 to 65 years old) (3)
	Border and travel measures (3)	March 12	Mandatory (3)	General public (3)
	Case and contact management measures (1)	April 12	Mandatory (1)	General public (1)
	Justice services (3)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (2) • Inmates (1)
	Government services (6)	March 17	Mandatory (6)	<ul style="list-style-type: none"> • General public (5) • Seniors (>65 years old) (1)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Social services (1)	March 21	Mandatory (1)	Homeless population (1)
SK	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (5)	March 20	Mandatory (5)	General public (5)
	Voluntary home quarantine (5)	March 20	Mandatory (5)	General public (5)
	Use of masks (1)	April 17	Mandatory (1)	Physicians and health care workers (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (6)	April 23	Mandatory (6)	General public (6)
	Physical distancing measures (5)	March 19	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (2) 	<ul style="list-style-type: none"> • General public (3) • Physicians and health care workers (1) • Adults (17 to 65 years old) (1)
	School closures (2)	March 17	Mandatory (2)	Children (<17 years old) (2)
	Childcare closures (3)	March 23	Mandatory (3)	Children (<17 years old) (3)
	Cancellation of mass gatherings (6)	March 17	Mandatory (6)	General public (6)
	Assisted living facilities (2)	March 17	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Seniors (>65 years old) (1)
	Healthcare settings (6)	March 23	<ul style="list-style-type: none"> • Mandatory (5) • Recommended (1) 	<ul style="list-style-type: none"> • General public (5) • Physicians and health care workers (1)
	Community/faith-based organizations (1)	March 19	Mandatory (1)	General public (1)
	Retail/commerce restrictions (7)	March 19	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (1) 	General public (7)
	Border and travel measures (2)	April 24	Mandatory (2)	Indigenous peoples (2)
Social services (1)	March 23	Mandatory (1)	General public (1)	
MB	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (3)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Physicians and health care workers (2)
	Voluntary home quarantine (2)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Physicians and health care workers (2)
	Use of masks (1)	April 21	Recommended (1)	General public (1)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (2)	April 20	Mandatory (2)	General public (2)
	Physical distancing (8)	March 20	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (4) 	<ul style="list-style-type: none"> • General public (7) • Adults (17 to 65 years) (1)
	School closures (1)	April 20	Mandatory (1)	Children (<17 years old) (1)
	Childcare closures (1)	April 14	Recommended (1)	Children (<17 years old) (1)
	Assisted living facilities (2)	March 16	Mandatory (2)	Physical illness/chronic disease populations (2)
	Health care settings (5)	March 16	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (2) 	<ul style="list-style-type: none"> • Physicians and healthcare workers (3) • Physical illness/chronic disease populations (2)
	Community/faith-based organizations (1)	March 20	Mandatory (1)	General public (1)
	Retail/commerce restrictions (10)	March 20	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (2) 	<ul style="list-style-type: none"> • General public (9) • Adults (17 and 65 years old) (1)
	Remote and isolated communities (1)	April 17	Mandatory (1)	General public (1)
	Border and travel measures (3)	March 16	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (1) 	General public (3)
	Case and contact management (6)	April 17	Recommended (6)	General public (6)
	Justice services (3)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Inmates (2)
	Social services (1)	April 10	Recommended (1)	Homeless population (1)
ON	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary home quarantine (1)	March 30	Recommended (1)	General public (1)
	Environmental cleaning (home/personal environment) (1)	April 2	Mandatory (1)	General public (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (5)	March 15	Mandatory (5)	General public (5)
	Physical distancing (3)	March 18	<ul style="list-style-type: none"> • Mandatory (2) 	General public (3)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
			• Recommended (1)	
	School closures (4)	March 12	Mandatory (4)	Children (<17 years old) (4)
	University closures (1)	March 13	Mandatory (1)	Adults (17 to 65 years old) (1)
	Cancellation of mass gatherings (4)	March 13	Mandatory (4)	General public (4)
	Assisted living facilities (7)	March 16	Mandatory (7)	<ul style="list-style-type: none"> • General public (1) • Physicians and healthcare workers (5) • Vulnerable populations (1)
	Workplace (remote work) (3)	March 21	Mandatory (3)	Adults (17 to 65 years old) (3)
	Health care settings (5)	March 15	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (1) 	<ul style="list-style-type: none"> • Physicians and health care workers (4) • Physical illness/chronic populations (1)
	Community/faith-based organizations (1)	April 23	Mandatory (1)	General public (1)
	Retail/commerce restrictions (3)	March 17	Mandatory (3)	General public (1)
	Case and contact management measures (4)	March 11	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (1) 	<ul style="list-style-type: none"> • General public (3) • Priority groups (details not provided) (1)
	Justice services (4)	March 13	Mandatory (4)	<ul style="list-style-type: none"> • Inmates (2) • Inmates and visitors (1) • Individuals charged with an offence (1)
	Government services (3)	March 19	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (1) • Physical illness/chronic populations (1)
	Social services (1)	April 23, 2020	Mandatory (1)	Adults (17 and 65 years old) (1)
QC	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (4)	January 30	Recommended (4)	General public (4)
	Respiratory etiquette (4)	January 30	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (3)
	Voluntary self-isolation (11)	February 7	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (3) 	<ul style="list-style-type: none"> • General public (9) • Adults (17 to 65 years old) (1)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
				• Seniors (>65 years old) (1)
	Voluntary home quarantine (14)	February 7	• Mandatory (7) • Recommended (7)	• General public (10) • Adults (17 to 65 years old) (1) • Seniors (>65 years old) (4)
	Use of masks (2)	April 7	Recommended (2)	General public (2)
PUBLIC HEALTH ORDERS				
	Physical distancing (4)	March 15	• Mandatory (3) • Recommended (1)	General public (4)
	School closures (4)	March 13	Mandatory (4)	Children (<17 years old) (4)
	University closures (1)	March 13	Mandatory (1)	Adults (17 to 65 years old) (1)
	Childcare closures (1)	April 27	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (8)	March 11	Mandatory (8)	• General public (7) • Children (<17 years old) (1)
	Assisted living facilities (6)	March 12	• Mandatory (3) • Recommended (3)	• General public (1) • Physicians and healthcare workers (2) • Seniors (>65 years old) (2) • Children (<17 years old) (1)
	Workplace (remote work) (2)	March 13	Mandatory (2)	Adults (17 to 65 years old) (2)
	Health care settings (2)	March 14	Mandatory (2)	General public (2)
	Community/faith-based organizations (1)	March 16	Mandatory (1)	General public (1)
	Retail/commerce restrictions (12)	March 13	• Mandatory (10) • Recommended (2)	• General public (10) • Adults (17 to 65 years old) (2)
	Border and travel measures (8)	March 11	• Mandatory (6) • Recommended (2)	• General public (7) • Adults (17 to 65 years old) (1)
	Government services (4)	March 17	Mandatory (4)	• General public (2) • Adults (17 to 65 years old) (1) • Children (<17 years old) (1)
	Social services (2)	March 15	Mandatory (2)	• Children (<17 years old) (1) • Victims of domestic violence (1)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
NS	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (1)	March 19	Mandatory (1)	General public (1)
	Voluntary home quarantine (1)	March 22	Recommended (1)	Seniors (>65 years old) (1)
	PUBLIC HEALTH ORDERS			
	Physical distancing measures (1)	March 22	Mandatory (1)	Physicians and healthcare workers (1)
	School closures (3)	March 30	Mandatory (3)	Children (<17 years old) (3)
	University closures (1)	March 19	Mandatory (1)	Adults (17 to 65 years old) (1)
	Childcare closure (1)	April 28	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (1)	March 17	Mandatory (1)	General public (1)
	Assisted living facilities (3)	March 27	Mandatory (3)	<ul style="list-style-type: none"> Physicians and healthcare workers (1) Seniors (>65 years old) (1) Vulnerable populations (1)
	Health care settings (3)	March 18	<ul style="list-style-type: none"> Mandatory (1) Recommended (2) 	<ul style="list-style-type: none"> General public (1) Physicians and healthcare workers (2)
	Retail/commerce restrictions (7)	March 13	Mandatory (7)	<ul style="list-style-type: none"> General public (6) Adults (17 to 65 years old) (1)
	Boarder and travel measures (3)	March 4	Mandatory (3)	<ul style="list-style-type: none"> General public (1) Adults (17 to 65 years old) (2)
	Case and contact management measures (2)	April 5	Mandatory (2)	General public (2)
	Justice services (2)	March 14	Mandatory (2)	General public (2)
	Government services (2)	March 17	Mandatory (2)	Adults (17 to 65 years old) (2)
NB	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (4)	March 5	<ul style="list-style-type: none"> Mandatory (1) Recommended (3) 	<ul style="list-style-type: none"> General public (3) Clients and staff in homeless shelters (1)
	Respiratory etiquette (1)	March 5	Recommended (1)	General public (1)
	Voluntary self-isolation (16)	March 5	<ul style="list-style-type: none"> Mandatory (2) Recommended (14) 	<ul style="list-style-type: none"> General public (12) Physicians and health care workers (2) Adults (17 to 65 years old) (1) Seniors (>65 years old) (1)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Voluntary home quarantine (16)	March 5	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (14) 	<ul style="list-style-type: none"> • General public (12) • Physicians and health care workers (2) • Adults (17 to 65 years old) (1) • Seniors (>65 years old) (1)
	Use of masks (2)	April 1	Recommended (2)	General public (2)
PUBLIC HEALTH ORDERS				
	Environmental cleaning (public spaces) (11)	March 13	Mandatory (11)	<ul style="list-style-type: none"> • General public (10) • Children (<17 years old) (1)
	Physical distancing measures (13)	March 12	<ul style="list-style-type: none"> • Mandatory (5) • Recommended (8) 	<ul style="list-style-type: none"> • General public (10) • Children (<17 years old) (1) • Adults (17 to 65 years old) (1)
	School closures (2)	March 13	Mandatory (2)	Children (<17 years old) (2)
	University closures (2)	March 19	Mandatory (2)	Adults (17 to 65 years old) (2)
	Childcare closures (2)	March 13	Mandatory (2)	Children (<17 years old) (2)
	Cancellation of mass gatherings (3)	March 12	Mandatory (3)	General public (3)
	Assisted living facilities (6)	March 9	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (2) 	<ul style="list-style-type: none"> • General public (2) • Physicians and health care workers (1) • Seniors (>65 years old) (3)
	Workplace (remote work) (5)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (4) 	Adults (17 to 65 years old) (5)
	Health care settings (10)	March 11	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (7) 	<ul style="list-style-type: none"> • General public (3) • Physicians and health care workers (7)
	Community/faith-based organizations (4)	March 12	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (4)
	Retail/commerce restrictions (9)	March 16	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (3) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (1)
	Border and travel measures (7)	March 18	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (3) 	<ul style="list-style-type: none"> • General public (6) • Adults (17 to 65 years old) (1)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Case and contact management measures (10)	March 15	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (7) 	<ul style="list-style-type: none"> • General public (8) • Physicians and health care workers (2)
	Justice services (3)	March 13	Mandatory (3)	General public (3)
	Government services (8)	March 17	<ul style="list-style-type: none"> • Mandatory (7) • Recommended (1) 	<ul style="list-style-type: none"> • General public (7) • Children (<17 years old) (1)
	Social services (3)	March 18	Recommended (3)	<ul style="list-style-type: none"> • General public (1) • Children (<17 years old) (1) • Homeless population (1)
PEI	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (1)	February 28	Recommended (1)	General public (1)
	Voluntary self-isolation (10)	February 28	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (6) 	<ul style="list-style-type: none"> • General public (9) • Children (<17 years old) (1)
	Voluntary home quarantine (10)	February 28	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (6) 	<ul style="list-style-type: none"> • General public (9) • Children (<17 years old) (1)
	Use of masks (1)	April 6	Recommended (1)	General public (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (1)	March 17	Mandatory (1)	General public (1)
	Physical distancing measures (3)	March 13	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (1) 	General public (3)
	School closures (2)	March 27	Mandatory (2)	Children <17 years old (2)
	Childcare closures (3)	March 15	Mandatory (3)	Children <17 years old (3)
	Cancellation of mass gatherings (2)	April 9	Mandatory (2)	General public (2)
	Assisted living facilities (1)	March 15	Mandatory (1)	General public (1)
	Workplace (remote work) (3)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	General public (3)
Health care settings (7)	March 15	Mandatory (7)	<ul style="list-style-type: none"> • General public (1) • Physical illness/chronic populations (3) • Population with mental health illness (3) 	

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Retail/commerce restrictions (7)	March 17	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (1) 	<ul style="list-style-type: none"> • General public (6) • Seniors (>65 years old) (1)
	Border and travel measures (7)	March 10	<ul style="list-style-type: none"> • Mandatory (5) • Recommended (2) 	<ul style="list-style-type: none"> • General public (6) • Children (<17 years old) (1)
	Case and contact management measures (1)	April 23	Mandatory (1)	Physicians and health care workers (1)
	Government services (2)	March 17	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (1)
	Social services (1)	March 24	Recommended (1)	General public (1)
NL	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (3)	March 22	Recommended (3)	General public (3)
	Voluntary home quarantine (3)	March 22	Recommended (3)	General public (3)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (6)	March 13	Mandatory (6)	General public (6)
	Physical distancing measures (2)	March 19	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	General public (2)
	School closures (1)	April 2	Mandatory (1)	Children (<17 years old) (1)
	Childcare closures (3)	March 16	Mandatory (3)	Children (<17 years old) (3)
	Cancellation of mass gatherings (1)	March 28	Mandatory (1)	General public (1)
	Assisted living facilities (1)	March 23	Mandatory (1)	Seniors (>65 years old) (1)
	Workplace (remote work) (2)	March 10	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	Adults (17 to 65 years old) (2)
	Health care settings (3)	March 12	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (1) 	<ul style="list-style-type: none"> • Physicians and health care providers (1) • Physical illness/chronic populations (2)
	Community/faith-based organizations (1)	March 24	Mandatory (1)	General public (1)
Retail/commerce restrictions (10)	March 13	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (2) 	General public (10)	

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Border and travel measures (5)	March 6	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (1) 	<ul style="list-style-type: none"> • General public (3) • Adults (17 to 65 years old) (2)
	Case and contact management measures (1)	March 22	Mandatory (1)	<ul style="list-style-type: none"> • General public (1)
	Justice services (1)	March 16	Mandatory (1)	Inmates (1)
	Government services (9)	March 15	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (1) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (1)
	Social services (3)	March 23	Recommended (3)	<ul style="list-style-type: none"> • General public (1) • Seniors (>65 years old) (1) • Homeless population (1)
YK	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (3)	March 27	Recommended (3)	General public (3)
	Respiratory etiquette (3)	March 30	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	<ul style="list-style-type: none"> • General public (2) • Adults (17 to 65 years old) (1)
	Voluntary self-isolation (4)	March 27	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (1) 	General public (4)
	Voluntary home quarantine (4)	March 27	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (1) 	General public (4)
	Use of masks (1)	April 6	Recommended (1)	General public (1)
	PUBLIC HEALTH ORDERS			
	Physical distancing (12)	April 1	<ul style="list-style-type: none"> • Mandatory (10) • Recommended (2) 	<ul style="list-style-type: none"> • General public (11) • Adults (17 to 65 years old) (1)
	School closures (1)	March 27	Mandatory (1)	Children (<17 years old) (1)
	Childcare closures (2)	April 7	Mandatory (2)	Children (<17 years old) (2)
	Cancellation of mass gatherings (1)	April 3	Mandatory (1)	General public (1)
	Health care settings (2)	March 27	Mandatory (2)	General public (2)
	Retail/commerce restrictions (1)	April 3	Mandatory (1)	General public (1)
Remote and isolated communities (3)	March 30	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	General public (3)	

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Border and travel measures (6)	April 1	Mandatory (6)	General public (6)
	Case and contact management measures (3)	April 6	Mandatory (3)	General public (3)
	Government services (2)	March 30	<ul style="list-style-type: none"> Mandatory (1) Recommended (1) 	<ul style="list-style-type: none"> General public (1) Adults (17 to 65 years old) (1)
	Social services (1)	April 22	Recommended (1)	Adults (17 to 65 years old) (1)
NWT	PUBLIC COMMUNICATION AND EDUCATION			
	Respiratory etiquette (2)	February 5	Recommended (2)	General public (2)
	Voluntary self-isolation (13)	February 5	<ul style="list-style-type: none"> Mandatory (8) Recommended (5) 	<ul style="list-style-type: none"> General public (8) Adults (17 to 65 years old) (5)
	Voluntary home quarantine (13)	February 5	<ul style="list-style-type: none"> Mandatory (8) Recommended (5) 	<ul style="list-style-type: none"> General public (8) Adults (17 to 65 years old) (5)
	Use of masks (1)	April 27	Mandatory (1)	Adults (17 to 65 years old) (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (1)	April 10	Mandatory (1)	General public (1)
	Physical distancing measures (10)	March 16	<ul style="list-style-type: none"> Mandatory (5) Recommended (5) 	<ul style="list-style-type: none"> General public (7) Adults (17 to 65 years old) (3)
	School closures (2)	March 16	Mandatory (2)	Children (<17 years old) (2)
	Childcare closures (1)	April 24	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (1)	April 10	Mandatory (1)	General public (1)
	Assisted living facilities (1)	March 16	Mandatory (1)	Physicians and healthcare workers (1)
	Workplace (remote work) (2)	March 14	Mandatory (2)	Adults (17 to 65 years old) (2)
	Health care settings (1)	March 16	Mandatory (1)	Physicians and health care workers (1)
	Retail/commerce restrictions (1)	April 10	Mandatory (1)	General public (1)
Border and travel measures (6)	March 16	<ul style="list-style-type: none"> Mandatory (4) Recommended (2) 	<ul style="list-style-type: none"> General public (3) Physicians and health care workers (1) Adults (17 to 65 years old) (1) Children (<17 years old) (1) 	

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Case and contact management measures (3)	March 14	Mandatory (3)	General public (3)
	Justice services (1)	April 22	Mandatory (1)	Inmates (1)
NU	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (1)	March 4	Recommended (1)	General public (1)
	Respiratory etiquette (1)	March 4	Recommended (1)	General public (1)
	Environmental cleaning (home/personal environment) (1)	March 11	Recommended (1)	General public (1)
	Voluntary self-isolation (2)	March 18	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (1)
	Voluntary home quarantine (2)	March 18	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Students (1)
	Use of masks (1)	April 29	Recommended (1)	General public (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (2)	March 13	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Adults (17 and 65 years old) (1)
	Physical distancing measures (5)	March 4	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (4) 	<ul style="list-style-type: none"> • General public (3) • Adults (17 and 65 years old) (2)
	School closures (2)	March 16	Mandatory (2)	Children (<17 years old) (2)
	Childcare closures (2)	March 16	Mandatory (2)	Children (<17 years old) (2)
	Cancellation of mass gatherings (1)	March 13	Mandatory (1)	General public (1)
	Workplace (remote work) (4)	March 16	Mandatory (4)	Adults (17 and 65 years old) (4)
	Border and travel measures (3)	March 4	Mandatory (3)	General public (3)
	Case and contact management measures (1)	April 30	Mandatory (1)	General public (1)
	Government services (1)	March 30	Mandatory (1)	General public (1)
	Social services (1)	March 19	Mandatory (1)	Homeless population (1)

AB=Alberta; BC=British Columbia; LTC=Long-term care; MB=Manitoba; NA=Not applicable; NB=New Brunswick; NL=Newfoundland and Labrador; NWT=Northwest Territories; NS=Nova Scotia; NU=Nunavut; ON=Ontario; PEI=Prince Edward Island; QC=Quebec; SK=Saskatchewan; YU=Yukon.

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BMJ Open

Public Health Measures to Reduce the Risk of SARS-CoV-2 Transmission in Canada during the Early Days of the COVID-19 Pandemic: A Scoping Review

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5 **Public Health Measures to Reduce the Risk of SARS-CoV-2 Transmission in Canada**
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8 **during the Early Days of the COVID-19 Pandemic: A Scoping Review**
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Abstract:

Objective

The main objectives of this study were to synthesize and compare pandemic preparedness strategies issued by the federal and provincial/territorial (P/T) governments in Canada and assess whether COVID-19 public health (PH) measures were tailored towards priority populations, as defined by relevant social determinants of health.

Methods

This scoping review searched federal and P/T websites on daily COVID-19 pandemic preparedness strategies between January 30 and April 30, 2020. The PROGRESS-Plus equity-lens framework was used to define priority populations. All definitions, policies, and guidelines of PH strategies implemented by the federal and P/T governments to reduce risk of SARS-CoV-2 transmission were included. PH measures were classified using a modified Public Health Agency of Canada Framework for Canadian Pandemic Influenza Preparedness.

Results

A total of 722 COVID-19 PH measures were issued during the study period. Of these, home quarantine (voluntary) (n = 13.0%; 94/722) and retail/commerce restrictions (10.9%; n = 79/722) were the most common measures introduced. Many of the PH orders, including physical distancing, cancellation of mass gatherings, school closures, or retail/commerce restrictions began to be introduced after March 11, 2020. Lifting of some of the PH orders in phases to reopen the economy began in April 2020 (6.5%; n = 47/722). The majority of COVID-19 PH announcements were deemed mandatory 68% (n = 491/722) while 32% (n = 231/722) were

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3 recommendations. Several PH measures (28.0%, n = 202/722) targeted a variety of groups at risk
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5 of socially produced health inequalities, such as age, religion, occupation, and migration status.
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10 **Conclusions**

11 Most PH measures centred on limiting contact between people who were not from the same
12 household. PH measures were evolutionary in nature, reflecting new evidence that emerged
13 throughout the pandemic. Although ~30% of all implemented COVID-19 PH measures were
14 tailored towards priority groups, there were still unintended consequences on these populations.
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41 **Keywords:** public health measures; COVID-19; pandemic preparedness; health inequalities.
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STRENGTHS AND LIMITATIONS OF THIS STUDY

- Our study presents a comprehensive synthesis of the public health (PH) communication and outreach measures the federal and provincial/territorial (P/T) governments issued in the first 90 days of the COVID-19 pandemic.
- The results provide important insights on the categories, volume, timing, level of implementation, and consideration of equity issues of the PH measures issued by federal and P/T jurisdiction.
- The timeframe for the study precludes us from identifying possible long-term trends on the PH measures implemented during the 90-day period and their potential impact on priority populations.
- It is possible that PH measures announced only through media releases may have been missed, but most announcements would have been issued by the government press releases.

INTRODUCTION:

In December 2019, a novel coronavirus was first identified among a cluster of pneumonia cases in Wuhan City, Hubei Province, China. The virus was named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and represents the causative agent of a potentially fatal infectious disease known as coronavirus disease 2019 (COVID-19).¹ The severity ranges from mild to severe illness or death for confirmed COVID-19 cases.²

On January 30, 2020, the World Health Organization (WHO) declared the COVID-19 epidemic a global health emergency, and by March 11, 2020 declared COVID-19 a global pandemic. The reproduction numbers (R_0) of the infectious disease were estimated to be between 2.24 and 3.58 in the early phases of the outbreak in mainland China, resulting in the exponential growth and subsequent spread of the virus across the world.³ As of January 26, 2021, the Public Health Agency of Canada (PHAC) reported 757,022 confirmed cases and 19,403 deaths within Canada, with large variations across jurisdictions.⁴

Canada is a high-income country located in North America with a population of approximately 37.9 million.⁵ The country is divided into 10 provinces and three territories. In Canada, the federal government is responsible for administering the national principles under the *Canada Health Act*, which are criteria and conditions for health insurance plans that the provinces and territories must meet so they can receive federal cash transfers. The Canadian government provides financial support to provincial and territorial (P/T) governments to aid in the delivery of programs and services, including health care. The provinces and territories therefore administer and deliver most of Canada's health care services within their jurisdiction. Health care decision-

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3 making and priority settings in the health care system are decentralized and occur at various
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5 levels, including regional and local.
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10 In response to the COVID-19 pandemic, Canadian public health officials at all levels of
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12 administration issued response interventions to contain and mitigate SARS-CoV-2 transmission
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14 at a population level and prepare the health systems' response to the infectious disease. The
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16 definitions and scope of these PH measures vary by federal and P/T governments in their
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18 characteristics, target populations, time of initiation in the pandemic curve, and duration of
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20 implementation since they may change over time in response to the dynamics in the epidemic
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22 curve.⁶ Different strategies, however, may be warranted in response to growth curves or other
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24 triggers.
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30 The pandemic situation unveiled persisting health inequalities rooted in multiple, structural, and
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32 intersecting determinants of the conditions in which people live – particularly increasing the
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34 vulnerability of the most socially and economically disadvantaged groups.⁷⁻⁹ As the COVID-19
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36 pandemic continues to unfold, it is important to understand which measures work under specific
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38 circumstances. We must also expand our knowledge about the potential impact of these
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40 population-level mitigation and containment strategies on priority populations rooted in well-
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42 known social, economic, and structural determinants of health. Racism and discrimination,
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44 income, education, occupation, gender, and others are such determinants.¹⁰ Results from this
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46 work can help to inform equitable, effective, and coordinated responses to future pandemics
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48 across Canada and in other jurisdictions in the design and planning of strategies to mitigate
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50 negative impacts and maximize positive impacts of PH measures.
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Our study objectives were twofold: 1) to identify and systematically describe and compare the public health pandemic preparedness strategies for COVID-19 issued by the Canadian federal and P/T governments; and 2) to assess whether COVID-19 PH measures were tailored towards priority populations, as defined by relevant social determinants of health in Canada.

METHODS:

Search strategy and eligibility criteria

We conducted a scoping review of COVID-19 PH measures adopted across Canadian provinces and territories.¹¹ The search strategy consisted of daily hand searching of information on COVID-19 public health preparedness strategies released on federal and P/T websites on a daily basis between January 30 and April 30, 2020 (Supplementary File 1). For our study, electronic searches of the scientific literature were not conducted. The selection criteria of evidence included definitions, policies, and guidelines of public health strategies implemented by the federal and P/T governments to reduce the risk of SARS-CoV-2 transmission and prepare the communities for the COVID-19 pandemic. PH measures issued at the regional or municipal level were not included. Federal and P/T financial plans to individuals, families, or businesses during the COVID-19 pandemic were also excluded. Additional details on eligibility criteria are outlined in Table 1.

Table 1: Eligibility Criteria

Criterion	Description
Population	<ul style="list-style-type: none"> General population in Canada, including pediatrics and adults.
Intervention	<ul style="list-style-type: none"> Recommendations, policy, guidance, guiding principles, or guidelines that describe PH measures to contain and/or mitigate the risk of transmission of COVID-19 in Canada. PH measures were categorized according to the PHAC framework for Canadian Pandemic Influenza Preparedness measures.¹²

Criterion	Description
	<ul style="list-style-type: none"> Examples of PH measures may include: social or physical distancing measures; self-isolation; quarantines; school, university, or daycare closures; working from home; limited visitation hours in health care or long-term facilities; or travel restrictions and bans.
Setting(s)	<ul style="list-style-type: none"> All Canadian provinces and territories
Timing	<ul style="list-style-type: none"> Documentation of PH measures implemented between January 30, 2020 and April 30, 2020

PH = Public health; PHAC = Public Health Agency of Canada

Data abstraction and synthesis of results

We used the PHAC framework for Canadian Pandemic Influenza Preparedness to classify all PH measures identified in the search strategy.¹² We also incorporated additional measures not included in the PHAC framework, such as contact tracing and testing. COVID-19 PH measures were characterized by level of implementation (i.e., mandatory or recommended), timing (i.e., date) of implementation, and target populations.

Priority populations in this scoping review were defined as population groups at risk of socially produced health inequities.¹³ We used the PROGRESS-Plus equity-lens framework to classify these populations according to the following social determinants of health: place of residence; race/ethnicity/culture/language (including Indigenous identities); occupation/employment/working conditions; gender and sex; religion background; education; socioeconomic status (e.g., income, housing, single-parent family, food and home security); and social capital and networks (e.g., neighbourhood characteristics, community supports). The Plus refers to other characteristics potentially associated with discrimination: age groups; immigration status; and disability.¹³

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3 One reviewer extracted data from press releases on the government websites for their assigned
4 jurisdiction(s), and a second reviewer checked for the accuracy of the extracted data. As well, a
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6 reviewer compared our data with the results of the COVID-19 Intervention Scan conducted by
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8 the Canadian Institutes for Health Information (CIHI) to verify that no PH measures were
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10 omitted.¹⁴ Supplementary File 2 lists the individual data elements that were extracted for all
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12 COVID-19 PH measures issued across Canadian jurisdictions between January 30 and April 30,
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21 PH measures were classified according to two major categories: PH communication and
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23 education (e.g., communication campaigns to maintain social distancing) and PH orders (e.g.,
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25 prohibition on mass gatherings in excess of 50 people). Similarly, COVID-19 PH measures
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27 were described by their time of publication and target audience. Information about COVID-19
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29 PH measures and priority populations identified in the scoping review were narratively
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31 synthesized and tabulated.
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38 **Ethics Approval:**

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40 As the information used in our scoping review was derived from public data sources, a formal
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42 ethics approval was not required.
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47 **Role of the Funding Source:**

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49 The study sponsor(s) did not have any involvement in study design, data collection, analysis,
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51 interpretation of data, writing of the report, or in the decision to submit the paper for publication.
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Patient and Public Involvement

As our study used secondary data sources, patients the public were not involved in our scoping review.

RESULTS

The scoping review identified a total of 722 PH measures issued by federal and P/T governments between January 30 and April 30, 2020.

Public health communication and education:

All federal and P/T jurisdictions (N = 14) issued individual PH measures (20.6% of all measures) between January 30 and April 30 with respects to home quarantine (voluntary) (n = 14/14), followed by self-isolation (voluntary) (n = 13/14) (Table 2). These measures targeted individuals who experienced COVID-19 symptoms or had returned from domestic or international travel. Fewer jurisdictions communicated measures specific to, or solely focused on, environmental cleaning (home/personal environment) (n = 3/14) or respiratory etiquette (7/14). Home quarantine (voluntary) (n = 13.0%; 94/722) was the most common PH measure issued by the federal and P/T governments that targeted COVID-19 spread at the individual level.

Public health orders:

PH orders on physical distancing measures (n = 13/14), border and travel measures (n = 13/14), health care settings (n = 13/14), and childcare or school closures (n = 13/14) were common across jurisdictions. Announcements related to environmental cleaning (public spaces) (n = 12/14), assisted living facilities (e.g., group homes, private and public long-term care facilities,

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3 private and public senior residences, shelters) (n = 12/14), cancellations of mass gatherings (n =
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5 12/14), and case contact or tracing management measures (n = 12/14) were also relatively
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7 common. Fewer jurisdictions explicitly addressed community/faith-based organizations (e.g.,
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9 restrictions or cancellations) (n = 8/14) or workplace functioning (e.g., workspace restrictions,
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11 remote work) (n = 9/14). Manitoba and the Yukon were the sole jurisdictions to release a PH
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13 measure related to remote and isolated communities. Many mandatory PH measures announced
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15 by the federal government centered on international border and travel restrictions given their
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17 authority to issue them. The most common PH orders issued across Canada centered on
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19 retail/commerce restrictions (10.9%; n = 79/722), closely followed by border and travel
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21 measures, including both international and inter-provincial travel (10.8%; n = 78/722).
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28 *Time of publication:*

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31 Several jurisdictions made communication and education announcements in late January on
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33 individual measures. For instance, Quebec issued a PH measure on hand hygiene respiratory
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35 etiquette on January 30, 2020. Most PH communication and education measures on hand
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37 hygiene, voluntary self-isolation, and voluntary home quarantine were issued in March 2020
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39 across numerous jurisdictions (Table 2). Communication on the use of masks was initiated in
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41 April 2020 across the P/T jurisdictions.
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47 Many of the PH orders, such as physical distancing, cancellation of mass gatherings, school
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49 closures, and retail/commerce restrictions were introduced after March 11, 2020. Lifting of some
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51 of the PH orders in phases to reopen the economy began in April 2020 (6.5%; n = 47/722).
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Table 2: Announcement Dates of Public Health Measures by Jurisdiction

Public Health Measure	Federal	BC	AB	SK	MB	ON	QC	NS	NB	PEI	NL	YK	NWT	NU
Public Health Communication and Education														
Hand hygiene	Apr. 9	Jan. 31	Mar. 17				Jan. 30		Mar. 5	Feb. 28		Mar. 27	Feb. 5	Mar. 4
Respiratory etiquette	Apr. 9	Jan. 31					Jan. 30		Mar. 5			Mar. 30	Feb. 5	Mar. 4
Environmental cleaning (home/personal environment)		Feb. 29				Apr. 2								Mar. 11
Voluntary self-isolation	Mar. 16	Jan. 31	Mar. 18	Mar. 20	Mar. 16		Feb. 7	Mar. 19	Mar. 5	Feb. 28	Mar. 22	Mar. 27	Feb. 5	Mar. 18
Voluntary home quarantine	Mar. 16	Jan. 31	Mar. 18	Mar. 20	Mar. 16	Mar. 30	Feb. 7	Mar. 22	Mar. 5	Feb. 28	Mar. 22	Mar. 27	Feb. 5	Mar. 18
Use of masks	Mar. 18		Mar. 28	Apr. 17	Apr. 21		Apr. 7		Apr. 1	Apr. 6		Apr. 6	Apr. 27	Apr. 29
Public Health Orders														
Environmental cleaning (public spaces)	Mar. 18	Mar. 24	Mar. 13	Apr. 23	Apr. 20	Mar. 15			Mar. 13	Mar. 17	Mar. 13	Apr. 1	Apr. 10	Mar. 13
Physical distancing measures		Mar. 3	Mar. 20	Mar. 19	Mar. 20	Mar. 18	Mar. 15	Mar. 22	Mar. 12	Mar. 13	Mar. 19	Mar. 27	Mar. 16	Mar. 4
School closures		Mar. 17	Mar. 15	Mar. 17	Apr. 20	Mar. 12	Mar. 13	Mar. 30	Mar. 13	Mar. 27	Apr. 2	Apr. 7	Mar. 16	Mar. 16
University closures			Apr. 30			Mar. 13	Mar. 13	Mar. 19	Mar. 19					
Childcare closures			Mar. 15	Mar. 23	Apr. 14		Apr. 27	Apr. 28	Mar. 13	Mar. 15	Mar. 16	Apr. 6	Apr. 24	Mar. 16
Cancellation of mass gatherings		Mar. 3	Mar. 12	Mar. 17		Mar. 13	Mar. 11	Mar. 17	Mar. 12	Apr. 9	Mar. 28	Apr. 3	Apr. 10	Mar. 13
Assisted living facilities	Apr. 12	Mar. 11	Mar. 15	Mar. 17	Mar. 16	Mar. 16	Mar. 12	Mar. 27	Mar. 9	Mar. 15	Mar. 23		Mar. 16	
Workplace (remote work)		Feb. 29	Mar. 20			Mar. 21	Mar. 13		Mar. 16	Mar. 16	Mar. 10		Mar. 14	Mar. 16
Health care settings	Mar. 18	Mar. 16	Mar. 18	Mar. 23	Mar. 16	Mar. 15	Mar. 14	Mar. 18	Mar. 11	Mar. 15	Mar. 12	Mar. 27	Mar. 16	

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Public Health Measure	Federal	BC	AB	SK	MB	ON	QC	NS	NB	PEI	NL	YK	NWT	NU
Community/faith-based organizations		Mar. 7	Mar. 15	Mar. 19	Mar. 20	Apr. 23	Mar. 16		Mar. 12		Mar. 24			
Retail/commerce restrictions		Mar. 16	Mar. 17	Mar. 19	Mar. 20	Mar. 17	Mar. 13	Mar. 13	Mar. 16	Mar. 17	Mar. 13	Apr. 3	Apr. 10	
Remote and isolated communities					Apr. 17							Mar. 30		
Border and travel measures	Feb. 3	Feb. 3	Mar. 12	Apr. 24	Mar. 16		Mar. 11	Mar. 4	Mar. 18	Mar. 10	Mar. 6	Apr. 1	Mar. 16	Mar. 4
Case and contact or tracing management measures	Feb. 9	Feb. 3	Apr. 12		Apr. 17	Mar. 11		Apr. 5	Mar. 15	Apr. 23	Mar. 22	Apr. 6	Mar. 14	Apr. 30
Justice services			Mar. 16		Mar. 16	Mar. 13		Mar. 14	Mar. 13		Mar. 16		Apr. 22	
Government services	Apr. 7		Mar. 17			Mar. 19	Mar. 17	Mar. 17	Mar. 17	Mar. 17	Mar. 15	Mar. 30		Mar. 30
Social services			Mar. 21	Mar. 23	Apr. 10	Apr. 23	Mar. 15		Mar. 18	Mar. 24	Mar. 23	Apr. 22		Mar. 19

AB=Alberta; BC=British Columbia; LTC=Long-term care; MB=Manitoba; NB=New Brunswick; NL=Newfoundland and Labrador; NWT=Northwest Territories; S=Nova Scotia; NU=Nunavut; ON=Ontario; PEI=Prince Edward Island; QC=Quebec; SK=Saskatchewan; YU=Yukon.

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Level of intervention:

Based on the language used in the press releases, 68% (n = 491) of the COVID-19 PH announcements were deemed as mandatory, while 32% (n = 231) were recommendations.

Although many of the measures classified as PH communication and education were determined to be recommendations by governments, measures related to voluntary self-isolation and home quarantine were primarily mandatory (Supplemental File 3).

The majority of PH orders that focused on cancellation of mass gatherings, school closures, and assisted living facilities were mandatory. While numerous border and travel measures and retail/commerce restrictions were considered mandatory, several related measures were recommendations.

Target population:

The general public was the target for 68% (n = 490/722) of the issued COVID-19 PH measures.

Other targets included children aged < 17 years (8.4%, n = 61/722), health care provider groups (7.1%, n = 51/722), individuals aged > 65 years (5.0%, n = 35/722), and those with physical disabilities (4.4%, n = 32/722) and mental health problems (1.1%, n = 8/722).

Public health measures tailored towards priority populations

Of the 722 PH measures identified in the scoping review, 28.0% (n = 202/722) were tailored to priority populations. Figure 1 shows the distribution of PH measures that scoped priority populations across jurisdictions. The PH measures targeted a variety of groups defined by major social determinants of health (Figure 2). Of all 722 PH measures, 13.4% (n = 97/722) were

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3 tailored to groups defined by age, while COVID-19 PH measures were less frequently tailored
4 towards groups based on occupation (5.7%, n=41/722) or migration status (3.7%, n = 27/722).
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6 Other priority groups less frequently targeted included those defined by income and home
7 security conditions (1.5%, n = 11/722); religious background (1.4%, n = 10/722); race, ethnicity,
8 and/or language groups (1.0%, n = 7/722), including Indigenous populations (0.7%, n = 5/722);
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10 and individuals with disabilities (0.5%, n = 4/722). Other COVID-19 PH measures targeted
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12 “vulnerable” populations that were not further defined (1.1%, n = 8/722). None of the measures
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14 targeted populations defined by sex and gender.
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24 **DISCUSSION**

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26 Our scoping review is a descriptive study, so a quantitative assessment of the impact of PH
27 measures was outside the scope. Furthermore, our objective was to identify, describe, classify,
28 and compare the experiences in implementing PH measures at the national and P/T levels during
29 the early stages of the pandemic. The results present a comprehensive synthesis of the PH
30 communication, outreach activities, and PH orders in Canada by jurisdiction. They also provide
31 insights on the categories, volume, timing, level of implementation, and consideration in equity
32 issues of the PH measures issued by the federal and P/T governments.
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44 This scoping review identified a total of 722 PH measures that were implemented by federal and
45 P/T governments across Canada during the first 90 days of the COVID-19 pandemic. These
46 measures were implemented to slow the growth rate of infections and to reduce the risk of an
47 overburdened health care system.¹⁵ The study results showed that many of the measures focused
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3 on home quarantine (voluntary) and retail/commerce restrictions, targeted towards the general
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5 public.
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10 From an equity-based perspective, approximately one-third of all COVID-19 PH measures
11 implemented in federal and P/T jurisdictions were specifically tailored towards priority groups as
12 defined by the social determinants of health.^{16,17} None of the PH measures specifically targeted
13 sex and gender (Figure 2), but some of the PH measures in place, such as school closures,
14 disproportionately affected women both at home and in the workplace.¹⁸ Although social capital
15 and networks impact the spread of COVID-19, our review did not identify any PH measures
16 issued in the early days of the pandemic that targeted this domain.¹⁹ Other PH measures focused
17 on restrictions of large gatherings for targeted groups or in specific locations. For instance, PH
18 measures targeting religious groups centered on prohibiting large gatherings through closures of
19 places of worship or cancellations of religious festivities.
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35 Similar to our scoping review, the results of a descriptive study on non-pharmaceutical
36 interventions (NPI) implemented in Canada reported that jurisdictions issued many of their PH
37 measures after March 11, 2020.⁶ This date coincides with the WHO's pandemic declaration. The
38 authors also observed some consistency with Europe and Asia in the order of NPI
39 implementation, and less variation across Canada in the implementation of NPIs compared with
40 the United States.⁶
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51 As new evidence on preventive measures emerged for this novel coronavirus, recommendations
52 on the use of face masks were revised from limiting their use to frontline health care worker,
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3 symptomatic individuals, and caregivers to include the general public.²⁰ This observation is
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5 evident in Table 2, where initial communication on face mask use began in April in many
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7 jurisdictions. Our findings indicate that geography also influenced the timing of the introduction
8
9 of the PH measures. As the first outbreak of COVID-19 was reported in China, British
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11 Columbia, which borders the Pacific Ocean, issued measures that restricted large gatherings or
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13 travel in early February or March. British Columbia was the first province to introduce contact
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15 tracing measures on March 3rd, while the other Canadian jurisdictions issued similar measures
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17 later in March or as late as April 30th. In addition, the data support the idea that the virus is
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19 highly contagious and thrives on close interactions in enclosed spaces where physical distancing
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21 is not feasible. As such, PH orders that influenced human behaviours outside the individual's
22
23 personal environment were issued mostly in March across Canada, and, thus, targeted lowering
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25 risk of exposure. Finally, the timing of the PH measures plays an important role in curbing the
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27 spread of the virus. For instance, questions have been raised as to whether Canada could have
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29 acted sooner in closing its international borders to non-essential travel. This delay may have
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31 resulted in missed opportunities to curb viral spread during the earlier days of the pandemic.²¹
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40 Obtaining real-time epidemiological data about the number of individuals who have the disease,
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42 and their demographic and clinical characteristics, including age, sex, ethnicity, and co-
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44 morbidities remains a priority. To help address this gap, CIHI proposed an interim ethnicity-
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46 based data collection standard to help harmonize and facilitate quality data collection.²² In
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48 contrast to uniform PH measures, this data system can provide insights on necessary measures
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50 customized to incorporate social and economic inequities among priority populations, helping to
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52 effectively lower their risk of infection and disease severity.²³ Moreover, this data system can
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3 help inform ineffective measures in mitigating or containing the novel coronavirus, in order to
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5 revise future policies accordingly.²⁴ This approach is particularly crucial in light of the growing
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7 body of evidence on how lockdown measures and the closing of essential businesses have
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10 disproportionately affected low income and other vulnerable groups.²⁵
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14 PH communication and education (e.g., physical distancing, hand hygiene and use of masks) as
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16 well as other augmented PH orders (i.e., case and contact management or tracing management)
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18 that were in place in the early stages of the pandemic to slow the virus transmission must
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20 continue to be part of the strategy to lifting restrictions (e.g., re-opening of businesses and
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22 restaurants). Some improvements in testing and contact tracing were observed, as well as
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24 increased availability of personal protective equipment in Canada since the beginning of the
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26 pandemic.²⁶ In addition to self-isolation and support, increased testing capacity and faster
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28 turnaround times of test results coupled with sufficient resources for efficient and timely contact
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30 tracing are necessary to closely monitor the virus transmission and take appropriate actions to
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32 contain the spread.²⁷ Although outbreaks will continue to occur, they need not necessarily lead to
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34 full lockdown measures, such as those issued in March 2020.²⁶ Overall, the adherence and
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36 investment in the fundamental pillars of epidemic response are essential to keeping COVID-19 at
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38 bay.²⁷
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47 Inequalities are a long-standing challenge that have been documented during the current COVID-
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49 19 pandemic and other health crises in the past.^{28,29} An increasing body of evidence is emerging
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51 in relation to the unequal impacts of the COVID-19 pandemic on infection and mortality rates
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53 towards priority groups defined by social determinants of health.^{8,9} While the role of social
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3 inequalities in the dynamics of the COVID-19 pandemic remains to be elucidated, future PH
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5 measures should explicitly and consistently adopt an equity-lens to promote intersectional and
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7 multifaceted strategies for pandemic preparedness and response actions that prioritize the needs
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9 of vulnerable groups.
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14 **Limitations**

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16 Our study timeframe precludes us from identifying possible long-term trends on the PH
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18 measures implemented during the 90-day period, and their potential impact on priority
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20 populations. It is possible that PH measures announced only through the media may have been
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22 missed in our study. Most announcements, however, would have been issued by the government
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24 press releases. As the majority of the identified PH measures issued by the federal or P/T
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26 governments did not seem to target priority populations, the authors acknowledge that PH orders
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28 at the regional or municipal levels may have addressed these gaps. The authors also recognize
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30 that PH measures issued at the municipal level are important contributions to contain and
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32 mitigate COVID-19 transmission since they have the ability to police social distancing or bans of
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34 mass gatherings and mobilize community centres for quarantine orders and homeless
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36 populations. The volume of measures collectively provided by the municipalities, however,
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38 precluded us from collecting data and gathering information at the local level in the specified
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40 timeframe. Moreover, our scoping review did not assess enforcement measures, strategies to
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42 adhere to the mandatory PH orders, or if sick leave benefits for stay-at-home orders among
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44 individuals in quarantine that were in place in the early stages of the pandemic; thus, further
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46 investigation is merited.
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Directions for Future Research

The results of our scoping review can be used to compare Canada's initial response to the pandemic with the PH measures issued in other countries during the same period. Due to the novelty of the virus, data continue to be collected and verified. A better understanding of the transmission dynamics is important for the planning, development, and evaluation of effective control policies.³⁰ As such, a comparative analysis on the evolution of the COVID-19 PH orders within Canada compared to other countries as the pandemic progresses is warranted. Once the data on the number of hospitalizations, admissions to the intensive care unit, and mortality rates become available for research purposes, an investigation on epidemiological indicators of COVID-19 before and after the implementation of PH measures by jurisdiction would complement the findings in our study. A focus on intended and unintended consequences for priority populations of these PH measures over a longer period merits additional research. For instance, school closures and work from home measures were intended to help reduce the spread of the virus, but these prolonged measures have also resulted in social isolation and increased mental health morbidities in households.

CONCLUSIONS

In the absence of an effective treatment or vaccine for SARS-CoV-2 during the early phase of the pandemic, the federal and P/T governments relied on the introduction of PH measures to mitigate the adverse effects of COVID-19. Our findings indicate that PH measures were influenced, in part, by the availability of the evolving evidence, geographical location of the jurisdiction, and the aim to modify human behaviours outside an individual's personal environment. While most PH measures centred on limiting contact between people who are not

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3 living in the same household, they were also reflective of new evidence on preventive measures
4 emerging in the earlier phase of the pandemic – as highlighted by direction on mask use.
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7 Although nearly one-third of all implemented COVID-19 PH measures were tailored towards
8 priority groups, none were specific to sex and gender or social capital and networks. However,
9 several of the PH measures issued would have resulted in unintended consequences for these
10 populations, such as deterioration in mental health. While the role of social inequalities in the
11 COVID-19 pandemic remains to be elucidated, future PH measures should adopt an equity-lens
12 as data continues to be collected that prioritizes the needs of priority populations.
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28 **FIGURE CAPTIONS:**

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31 Figure 1. Individual Public Health Measures that Scoped Priority Populations across
32 Jurisdictions: Number of Public Health Measures Issued that Target Priority Populations
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35 Figure 2: Priority Populations Targets by COVID-19 Public Health Measures in Canada:
36 Number of Public Health Measures Issued for Each Priority Population Identified
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DECLARATIONS

Contributorship statement

JP, MBO, VW, IIB, and KW contributed to the design and conceptualization of the scoping review. OS, BM, RL, SA, IZ, NH, and AM conducted the data extraction. JP and MBO performed the statistical analysis and descriptive synthesis of the results. All authors contributed to the interpretation of data. JP and MBO drafted the manuscript and all authors provided critical revisions and contributed to editing of the paper.

Competing interests

The authors declare that they have no competing interests.

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Data sharing statement

Requests for data can be submitted to Dr. Julie Polisena (ORCID: 0000-0002-1560-3651).

Ethics approval and consent to participate

Not applicable. No ethical approval required for this systematic scoping review of secondary data sources.

Consent for publication

Not applicable.

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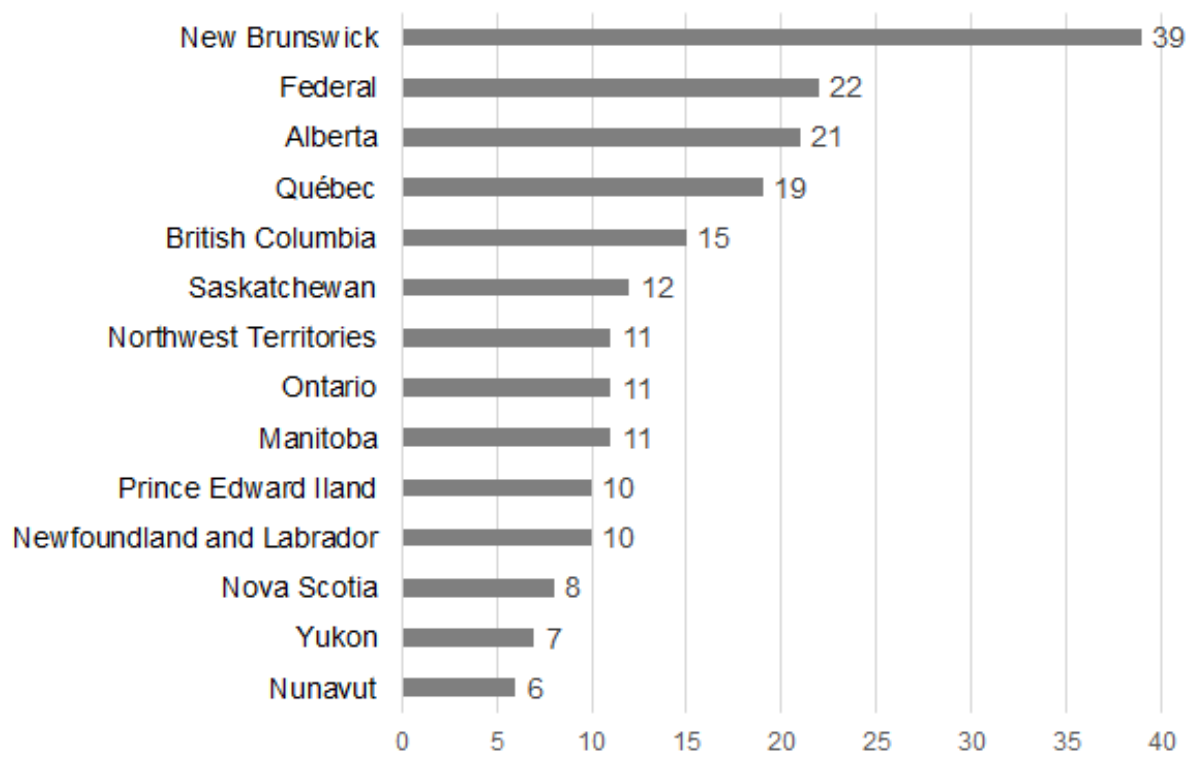
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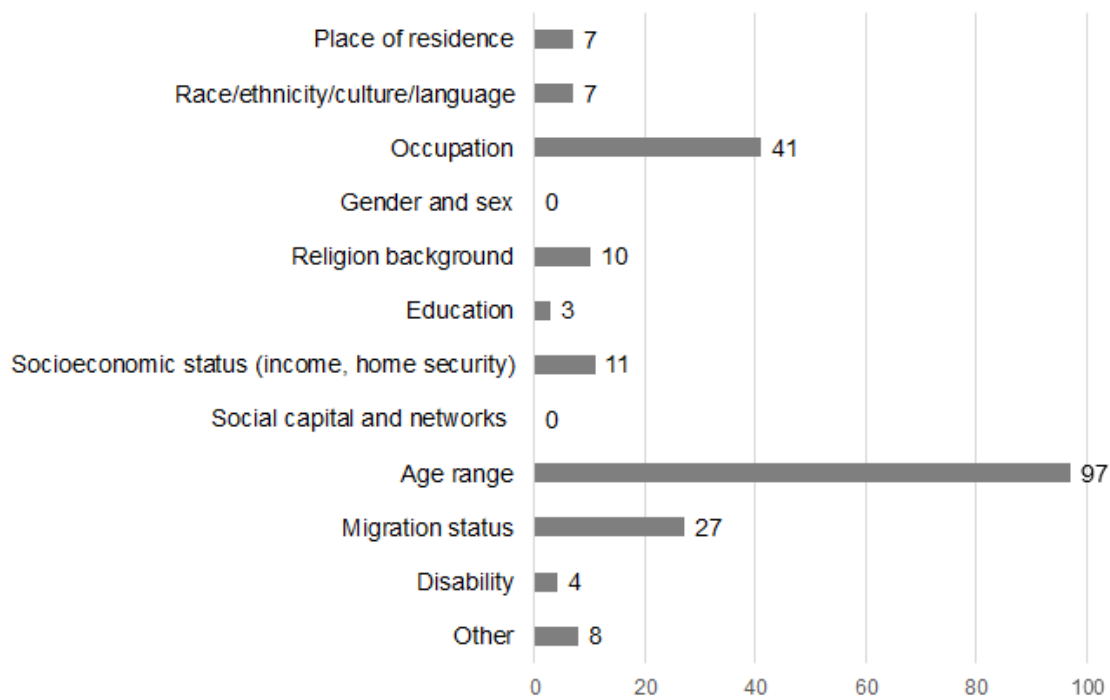
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Figure 1: Individual Public Health Measures that Scoped Priority Populations across Jurisdictions



Review only

Figure 2: Priority Populations Targeted by Public Health Measures in Canada



Review only

SUPPLEMENTAL FILE 1: DATA AND INFORMATION SOURCES BY JURISDICTION

Jurisdiction/Organization	Website
Federal	https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/canadas-reponse.html
British Columbia	https://news.gov.bc.ca/
Alberta	https://www.alberta.ca/announcements.cfm
Saskatchewan	https://www.saskatchewan.ca/government/news-and-media
Manitoba	https://news.gov.mb.ca/news/index.html
Ontario	https://news.ontario.ca/archive/en
Quebec	http://www.fil-information.gouv.qc.ca/Pages/RechercheAvancee.aspx?idMenuItem=8&lang=en
New Brunswick	https://www2.gnb.ca/content/gnb/en/news/recent_news.html
Nova Scotia	https://novascotia.ca/news/
Prince Edward Island	https://www.princeedwardisland.ca/en/news
Newfoundland & Labrador	https://www.gov.nl.ca/releases/
Nunavut	https://www.gov.nu.ca/news
Northwest Territories	https://www.gov.nt.ca/newsroom
Yukon Territory	https://yukon.ca/news

SUPPLEMENTAL FILE 2: DATA ELEMENTS EXTRACTED ON PUBLIC HEALTH MEASURES ISSUED BY FEDERAL AND PROVINCIAL/TERRITORIES GOVERNMENTS

Data Elements	Description
Name of jurisdiction	Federal (including populations covered under the federal jurisdiction: Indigenous People of Canada, federal offenders, the Canadian Armed Forces, veterans, and refugees) British Columbia Alberta Saskatchewan Manitoba Ontario Quebec Nova Scotia New Brunswick Prince Edward Island Newfoundland and Labrador Yukon Northwest Territories Nunavut
Description of each PH measure issued by provinces/territories	Narrative description
Category of PH measure (<i>available in dropdown list</i>) (PHAC categories)	Individual measures - Hand hygiene - Respiratory etiquette - Environmental cleaning (home/personal environment) - Voluntary self-isolation and home quarantine - Use of masks Community measures - Environmental cleaning (public spaces) - Physical distancing measures - School closures - University closures - Childcare closures - Cancellation of mass gatherings - Assisted living facilities - Workplace (remote work) - Health care settings - Community/Faith-based organizations - Retail/commerce restrictions - Remote and isolated communities - Border and travel measures

Data Elements	Description
	<ul style="list-style-type: none"> - Case and contact or tracing management measures - Justice services - Government services - Social services
Date(s) of PH measure announcement	Day and month
Level of implementation	Mandatory (Yes/No), Recommended (Yes/No), Unclear (Yes/No)
Target population	General public (Yes/No) Physicians/health care workers (Yes/No) Adults (17-65 years old) (Yes/No) Children (17 years and under) (Yes/No) Elderly (Seniors, >65 years old) (Yes/No) Pregnant women (Yes/No) Chronic disease populations (Yes/No) Other (Specify)
Socially disadvantaged population targeted by the PH measure	Yes/No
If yes, check whether any of the following (dropdown list):	<ul style="list-style-type: none"> - Place of residence (i.e., urban, rural) - Race/ethnicity/culture/language - Occupation - Gender and sexual orientation - Religion background - Education - Socioeconomic status (including income, housing, single-parent family, food security) - Social capital and networks (e.g., married or common-law partner, neighbourhood characteristics, community supports) - Age (range) - Migration status - Disability <p> **long term care home/retirement residence **prisons **cruise ship **Indigenous communities </p>

P/T=Provincial/territorial

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SUPPLEMENTAL FILE 3: SUMMARY OF PUBLIC HEALTH MEASURES BY JURISDICTION

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
Federal	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (1)	April 9	Recommended (1)	General public (1)
	Respiratory etiquette (1)	April 9	Recommended (1)	General public (1)
	Voluntary self-isolation (4)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (4)
	Voluntary home quarantine (4)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (4)
	Use of masks (4)	March 18	Recommended (4)	General public (4)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (1)	March 18	Mandatory (1)	General public (1)
	Assisted living facilities (1)	April 12	Recommended (1)	Seniors (>65 years old) (1)
	Health care settings (2)	March 18	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	Physicians and health care workers (2)
	Government services (1)	April 7	Mandatory (1)	Indigenous peoples (1)
	Border and travel measures (21)	February 3	Mandatory (21)	General public (21)
	Case and contact management measures (1)	February 9	Mandatory (1)	General public (1)
BC	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (5)	January 31	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (1) 	<ul style="list-style-type: none"> • General public (3) • Adults (17 to 65 years old) (1) • Children (17 years old and under) (1)
	Respiratory etiquette (3)	January 31	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	<ul style="list-style-type: none"> • General public (2) • Children (17 years old and under) (1)
	Environment cleaning of individual spaces (3)	February 29	Recommended (3)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (2)
	Voluntary self-isolation (9)	January 31	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (6) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (1)
	Voluntary home quarantine (9)	January 31	• Mandatory (3)	• General public (8)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
			• Recommended (6)	• Adults (17 to 65 years old) (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning of public spaces (2)	March 24	• Mandatory (1) • Recommended (1)	General public, including Indigenous peoples (2)
	Physical distancing measures (9)	March 3	• Mandatory (3) • Recommended (6)	General public (9)
	School closures (1)	March 17	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (5)	March 3	• Mandatory (3) • Recommended (2)	• General public (4) • Adults (17 to 65 years old) (1)
	Assisted living facilities (2)	March 11	• Mandatory (1) • Recommended (1)	Seniors (>65 years old) (2)
	Workplace (remote work) (2)	February 29	Recommended (2)	Adults (17 to 65 years old) (2)
	Health care settings (3)	March 16	• Mandatory (1) • Recommended (2)	• Physicians and healthcare workers (1) • Physical illness/chronic populations (2)
	Community/faith-based organizations (1)	March 7	Recommended (1)	General public (1)
	Retail and commerce restrictions (6)	March 16	• Mandatory (4) • Recommended (2)	• General public (4) • Adults (17 to 65 years old) (2)
	Border and travel measures (4)	February 3	Recommended (4)	General public (4)
	Case and contact management measures (6)	February 3	• Mandatory (4) • Recommended (2)	• General public (5) • Adults (17 to 65 years old) (1)
AB	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (1)	March 17	Mandatory (1)	General public (1)
	Voluntary self-isolation (10)	March 18	• Mandatory (3) • Recommended (7)	• General public (8) • Children (<17 years old) (1) • Seniors (>65 years old) (1)
	Voluntary home quarantine (9)	March 18	• Mandatory (2) • Recommended (7)	General public (9)
	Use of masks (6)	March 28	• Mandatory (2) • Recommended (4)	• General public (1) • Physicians and health care workers (4) • Seniors (>65 years old) (1)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
PUBLIC HEALTH ORDERS				
	Environmental cleaning (public spaces) (9)	March 13	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (1) 	General public (9)
	Physical distancing (4)	March 20	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	<ul style="list-style-type: none"> • General public (3) • Seniors (>65 years old) (1)
	School closures (2)	March 15	Mandatory (2)	Children (<17 years old) (2)
	University closures (1)	April 30	Recommended (1)	Adults (17 to 65 years old) (1)
	Childcare closures (3)	March 15	Mandatory (3)	Children (<17 years old) (3)
	Cancellation of mass gatherings (5)	March 12	Mandatory (5)	General public (5)
	Assisted living facilities (10)	March 15	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (4) 	<ul style="list-style-type: none"> • Children (<17 years old) (1) • Seniors (>65 years old) (6) • Physical illness/chronic disease populations (2) • Population with mental health illness (1)
	Workplace (remote work) (1)	March 20	Mandatory (1)	Adults (17 to 65 years old) (1)
	Health care settings (13)	March 18	<ul style="list-style-type: none"> • Mandatory (11) • Recommended (2) 	<ul style="list-style-type: none"> • General public (4) • Physicians and health care workers (2) • Children (<17 years old) (1) • Seniors (>65 years old) (2) • Physical illness/chronic populations (4)
	Community/faith organizations (1)	March 15	Mandatory (1)	General public (1)
	Retail/commerce restrictions (6)	March 17	Mandatory (6)	<ul style="list-style-type: none"> • General public (3) • Adults (17 to 65 years old) (3)
	Border and travel measures (3)	March 12	Mandatory (3)	General public (3)
	Case and contact management measures (1)	April 12	Mandatory (1)	General public (1)
	Justice services (3)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (2) • Inmates (1)
	Government services (6)	March 17	Mandatory (6)	<ul style="list-style-type: none"> • General public (5) • Seniors (>65 years old) (1)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Social services (1)	March 21	Mandatory (1)	Homeless population (1)
SK	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (5)	March 20	Mandatory (5)	General public (5)
	Voluntary home quarantine (5)	March 20	Mandatory (5)	General public (5)
	Use of masks (1)	April 17	Mandatory (1)	Physicians and health care workers (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (6)	April 23	Mandatory (6)	General public (6)
	Physical distancing measures (5)	March 19	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (2) 	<ul style="list-style-type: none"> • General public (3) • Physicians and healthcare workers (1) • Adults (17 to 65 years old) (1)
	School closures (2)	March 17	Mandatory (2)	Children (<17 years old) (2)
	Childcare closures (3)	March 23	Mandatory (3)	Children (<17 years old) (3)
	Cancellation of mass gatherings (6)	March 17	Mandatory (6)	General public (6)
	Assisted living facilities (2)	March 17	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Seniors (>65 years old) (1)
	Healthcare settings (6)	March 23	<ul style="list-style-type: none"> • Mandatory (5) • Recommended (1) 	<ul style="list-style-type: none"> • General public (5) • Physicians and healthcare workers (1)
	Community/faith-based organizations (1)	March 19	Mandatory (1)	General public (1)
	Retail/commerce restrictions (7)	March 19	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (1) 	General public (7)
	Border and travel measures (2)	April 24	Mandatory (2)	Indigenous peoples (2)
Social services (1)	March 23	Mandatory (1)	General public (1)	
MB	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (3)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Physicians and health care workers (2)
	Voluntary home quarantine (2)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Physicians and health care workers (2)
	Use of masks (1)	April 21	Recommended (1)	General public (1)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (2)	April 20	Mandatory (2)	General public (2)
	Physical distancing (8)	March 20	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (4) 	<ul style="list-style-type: none"> • General public (7) • Adults (17 to 65 years) (1)
	School closures (1)	April 20	Mandatory (1)	Children (<17 years old) (1)
	Childcare closures (1)	April 14	Recommended (1)	Children (<17 years old) (1)
	Assisted living facilities (2)	March 16	Mandatory (2)	Physical illness/chronic disease populations (2)
	Health care settings (5)	March 16	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (2) 	<ul style="list-style-type: none"> • Physicians and healthcare workers (3) • Physical illness/chronic disease populations (2)
	Community/faith-based organizations (1)	March 20	Mandatory (1)	General public (1)
	Retail/commerce restrictions (10)	March 20	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (2) 	<ul style="list-style-type: none"> • General public (9) • Adults (17 and 65 years old) (1)
	Remote and isolated communities (1)	April 17	Mandatory (1)	General public (1)
	Border and travel measures (3)	March 16	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (1) 	General public (3)
	Case and contact management (6)	April 17	Recommended (6)	General public (6)
	Justice services (3)	March 16	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Inmates (2)
	Social services (1)	April 10	Recommended (1)	Homeless population (1)
ON	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary home quarantine (1)	March 30	Recommended (1)	General public (1)
	Environmental cleaning (home/personal environment) (1)	April 2	Mandatory (1)	General public (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (5)	March 15	Mandatory (5)	General public (5)
	Physical distancing (3)	March 18	<ul style="list-style-type: none"> • Mandatory (2) 	General public (3)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
			• Recommended (1)	
	School closures (4)	March 12	Mandatory (4)	Children (<17 years old) (4)
	University closures (1)	March 13	Mandatory (1)	Adults (17 to 65 years old) (1)
	Cancellation of mass gatherings (4)	March 13	Mandatory (4)	General public (4)
	Assisted living facilities (7)	March 16	Mandatory (7)	<ul style="list-style-type: none"> • General public (1) • Physicians and healthcare workers (5) • Vulnerable populations (1)
	Workplace (remote work) (3)	March 21	Mandatory (3)	Adults (17 to 65 years old) (3)
	Health care settings (5)	March 15	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (1) 	<ul style="list-style-type: none"> • Physicians and health care workers (4) • Physical illness/chronic populations (1)
	Community/faith-based organizations (1)	April 23	Mandatory (1)	General public (1)
	Retail/commerce restrictions (3)	March 17	Mandatory (3)	General public (1)
	Case and contact management measures (4)	March 11	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (1) 	<ul style="list-style-type: none"> • General public (3) • Priority groups (details not provided) (1)
	Justice services (4)	March 13	Mandatory (4)	<ul style="list-style-type: none"> • Inmates (2) • Inmates and visitors (1) • Individuals charged with an offence (1)
	Government services (3)	March 19	Mandatory (3)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (1) • Physical illness/chronic populations (1)
	Social services (1)	April 23, 2020	Mandatory (1)	Adults (17 and 65 years old) (1)
QC	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (4)	January 30	Recommended (4)	General public (4)
	Respiratory etiquette (4)	January 30	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (3)
	Voluntary self-isolation (11)	February 7	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (3) 	<ul style="list-style-type: none"> • General public (9) • Adults (17 to 65 years old) (1)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
				<ul style="list-style-type: none"> Seniors (>65 years old) (1)
	Voluntary home quarantine (14)	February 7	<ul style="list-style-type: none"> Mandatory (7) Recommended (7) 	<ul style="list-style-type: none"> General public (10) Adults (17 to 65 years old) (1) Seniors (>65 years old) (4)
	Use of masks (2)	April 7	Recommended (2)	General public (2)
PUBLIC HEALTH ORDERS				
	Physical distancing (4)	March 15	<ul style="list-style-type: none"> Mandatory (3) Recommended (1) 	General public (4)
	School closures (4)	March 13	Mandatory (4)	Children (<17 years old) (4)
	University closures (1)	March 13	Mandatory (1)	Adults (17 to 65 years old) (1)
	Childcare closures (1)	April 27	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (8)	March 11	Mandatory (8)	<ul style="list-style-type: none"> General public (7) Children (<17 years old) (1)
	Assisted living facilities (6)	March 12	<ul style="list-style-type: none"> Mandatory (3) Recommended (3) 	<ul style="list-style-type: none"> General public (1) Physicians and healthcare workers (2) Seniors (>65 years old) (2) Children (<17 years old) (1)
	Workplace (remote work) (2)	March 13	Mandatory (2)	Adults (17 to 65 years old) (2)
	Health care settings (2)	March 14	Mandatory (2)	General public (2)
	Community/faith-based organizations (1)	March 16	Mandatory (1)	General public (1)
	Retail/commerce restrictions (12)	March 13	<ul style="list-style-type: none"> Mandatory (10) Recommended (2) 	<ul style="list-style-type: none"> General public (10) Adults (17 to 65 years old) (2)
	Border and travel measures (8)	March 11	<ul style="list-style-type: none"> Mandatory (6) Recommended (2) 	<ul style="list-style-type: none"> General public (7) Adults (17 to 65 years old) (1)
	Government services (4)	March 17	Mandatory (4)	<ul style="list-style-type: none"> General public (2) Adults (17 to 65 years old) (1) Children (<17 years old) (1)
	Social services (2)	March 15	Mandatory (2)	<ul style="list-style-type: none"> Children (<17 years old) (1) Victims of domestic violence (1)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
NS	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (1)	March 19	Mandatory (1)	General public (1)
	Voluntary home quarantine (1)	March 22	Recommended (1)	Seniors (>65 years old) (1)
	PUBLIC HEALTH ORDERS			
	Physical distancing measures (1)	March 22	Mandatory (1)	Physicians and healthcare workers (1)
	School closures (3)	March 30	Mandatory (3)	Children (<17 years old) (3)
	University closures (1)	March 19	Mandatory (1)	Adults (17 to 65 years old) (1)
	Childcare closure (1)	April 28	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (1)	March 17	Mandatory (1)	General public (1)
	Assisted living facilities (3)	March 27	Mandatory (3)	<ul style="list-style-type: none"> Physicians and healthcare workers (1) Seniors (>65 years old) (1) Vulnerable populations (1)
	Health care settings (3)	March 18	<ul style="list-style-type: none"> Mandatory (1) Recommended (2) 	<ul style="list-style-type: none"> General public (1) Physicians and healthcare workers (2)
	Retail/commerce restrictions (7)	March 13	Mandatory (7)	<ul style="list-style-type: none"> General public (6) Adults (17 to 65 years old) (1)
	Boarder and travel measures (3)	March 4	Mandatory (3)	<ul style="list-style-type: none"> General public (1) Adults (17 to 65 years old) (2)
	Case and contact management measures (2)	April 5	Mandatory (2)	General public (2)
	Justice services (2)	March 14	Mandatory (2)	General public (2)
	Government services (2)	March 17	Mandatory (2)	Adults (17 to 65 years old) (2)
NB	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (4)	March 5	<ul style="list-style-type: none"> Mandatory (1) Recommended (3) 	<ul style="list-style-type: none"> General public (3) Clients and staff in homeless shelters (1)
	Respiratory etiquette (1)	March 5	Recommended (1)	General public (1)
	Voluntary self-isolation (16)	March 5	<ul style="list-style-type: none"> Mandatory (2) Recommended (14) 	<ul style="list-style-type: none"> General public (12) Physicians and health care workers (2) Adults (17 to 65 years old) (1) Seniors (>65 years old) (1)

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Voluntary home quarantine (16)	March 5	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (14) 	<ul style="list-style-type: none"> • General public (12) • Physicians and health care workers (2) • Adults (17 to 65 years old) (1) • Seniors (>65 years old) (1)
	Use of masks (2)	April 1	Recommended (2)	General public (2)
PUBLIC HEALTH ORDERS				
	Environmental cleaning (public spaces) (11)	March 13	Mandatory (11)	<ul style="list-style-type: none"> • General public (10) • Children (<17 years old) (1)
	Physical distancing measures (13)	March 12	<ul style="list-style-type: none"> • Mandatory (5) • Recommended (8) 	<ul style="list-style-type: none"> • General public (10) • Children (<17 years old) (1) • Adults (17 to 65 years old) (1)
	School closures (2)	March 13	Mandatory (2)	Children (<17 years old) (2)
	University closures (2)	March 19	Mandatory (2)	Adults (17 to 65 years old) (2)
	Childcare closures (2)	March 13	Mandatory (2)	Children (<17 years old) (2)
	Cancellation of mass gatherings (3)	March 12	Mandatory (3)	General public (3)
	Assisted living facilities (6)	March 9	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (2) 	<ul style="list-style-type: none"> • General public (2) • Physicians and health care workers (1) • Seniors (>65 years old) (3)
	Workplace (remote work) (5)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (4) 	Adults (17 to 65 years old) (5)
	Health care settings (10)	March 11	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (7) 	<ul style="list-style-type: none"> • General public (3) • Physicians and health care workers (7)
	Community/faith-based organizations (4)	March 12	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (3) 	General public (4)
	Retail/commerce restrictions (9)	March 16	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (3) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (1)
	Border and travel measures (7)	March 18	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (3) 	<ul style="list-style-type: none"> • General public (6) • Adults (17 to 65 years old) (1)

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Case and contact management measures (10)	March 15	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (7) 	<ul style="list-style-type: none"> • General public (8) • Physicians and health care workers (2)
	Justice services (3)	March 13	Mandatory (3)	General public (3)
	Government services (8)	March 17	<ul style="list-style-type: none"> • Mandatory (7) • Recommended (1) 	<ul style="list-style-type: none"> • General public (7) • Children (<17 years old) (1)
	Social services (3)	March 18	Recommended (3)	<ul style="list-style-type: none"> • General public (1) • Children (<17 years old) (1) • Homeless population (1)
PEI	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (1)	February 28	Recommended (1)	General public (1)
	Voluntary self-isolation (10)	February 28	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (6) 	<ul style="list-style-type: none"> • General public (9) • Children (<17 years old) (1)
	Voluntary home quarantine (10)	February 28	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (6) 	<ul style="list-style-type: none"> • General public (9) • Children (<17 years old) (1)
	Use of masks (1)	April 6	Recommended (1)	General public (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (1)	March 17	Mandatory (1)	General public (1)
	Physical distancing measures (3)	March 13	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (1) 	General public (3)
	School closures (2)	March 27	Mandatory (2)	Children <17 years old (2)
	Childcare closures (3)	March 15	Mandatory (3)	Children <17 years old (3)
	Cancellation of mass gatherings (2)	April 9	Mandatory (2)	General public (2)
	Assisted living facilities (1)	March 15	Mandatory (1)	General public (1)
	Workplace (remote work) (3)	March 16	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	General public (3)
Health care settings (7)	March 15	Mandatory (7)	<ul style="list-style-type: none"> • General public (1) • Physical illness/chronic populations (3) • Population with mental health illness (3) 	

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Retail/commerce restrictions (7)	March 17	<ul style="list-style-type: none"> • Mandatory (6) • Recommended (1) 	<ul style="list-style-type: none"> • General public (6) • Seniors (>65 years old) (1)
	Border and travel measures (7)	March 10	<ul style="list-style-type: none"> • Mandatory (5) • Recommended (2) 	<ul style="list-style-type: none"> • General public (6) • Children (<17 years old) (1)
	Case and contact management measures (1)	April 23	Mandatory (1)	Physicians and health care workers (1)
	Government services (2)	March 17	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (1)
	Social services (1)	March 24	Recommended (1)	General public (1)
NL	PUBLIC COMMUNICATION AND EDUCATION			
	Voluntary self-isolation (3)	March 22	Recommended (3)	General public (3)
	Voluntary home quarantine (3)	March 22	Recommended (3)	General public (3)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (6)	March 13	Mandatory (6)	General public (6)
	Physical distancing measures (2)	March 19	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	General public (2)
	School closures (1)	April 2	Mandatory (1)	Children (<17 years old) (1)
	Childcare closures (3)	March 16	Mandatory (3)	Children (<17 years old) (3)
	Cancellation of mass gatherings (1)	March 28	Mandatory (1)	General public (1)
	Assisted living facilities (1)	March 23	Mandatory (1)	Seniors (>65 years old) (1)
	Workplace (remote work) (2)	March 10	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (1) 	Adults (17 to 65 years old) (2)
	Health care settings (3)	March 12	<ul style="list-style-type: none"> • Mandatory (2) • Recommended (1) 	<ul style="list-style-type: none"> • Physicians and health care providers (1) • Physical illness/chronic populations (2)
	Community/faith-based organizations (1)	March 24	Mandatory (1)	General public (1)
Retail/commerce restrictions (10)	March 13	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (2) 	General public (10)	

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Border and travel measures (5)	March 6	<ul style="list-style-type: none"> • Mandatory (4) • Recommended (1) 	<ul style="list-style-type: none"> • General public (3) • Adults (17 to 65 years old) (2)
	Case and contact management measures (1)	March 22	Mandatory (1)	<ul style="list-style-type: none"> • General public (1)
	Justice services (1)	March 16	Mandatory (1)	Inmates (1)
	Government services (9)	March 15	<ul style="list-style-type: none"> • Mandatory (8) • Recommended (1) 	<ul style="list-style-type: none"> • General public (8) • Adults (17 to 65 years old) (1)
	Social services (3)	March 23	Recommended (3)	<ul style="list-style-type: none"> • General public (1) • Seniors (>65 years old) (1) • Homeless population (1)
YK	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (3)	March 27	Recommended (3)	General public (3)
	Respiratory etiquette (3)	March 30	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	<ul style="list-style-type: none"> • General public (2) • Adults (17 to 65 years old) (1)
	Voluntary self-isolation (4)	March 27	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (1) 	General public (4)
	Voluntary home quarantine (4)	March 27	<ul style="list-style-type: none"> • Mandatory (3) • Recommended (1) 	General public (4)
	Use of masks (1)	April 6	Recommended (1)	General public (1)
	PUBLIC HEALTH ORDERS			
	Physical distancing (12)	April 1	<ul style="list-style-type: none"> • Mandatory (10) • Recommended (2) 	<ul style="list-style-type: none"> • General public (11) • Adults (17 to 65 years old) (1)
	School closures (1)	March 27	Mandatory (1)	Children (<17 years old) (1)
	Childcare closures (2)	April 7	Mandatory (2)	Children (<17 years old) (2)
	Cancellation of mass gatherings (1)	April 3	Mandatory (1)	General public (1)
	Health care settings (2)	March 27	Mandatory (2)	General public (2)
	Retail/commerce restrictions (1)	April 3	Mandatory (1)	General public (1)
Remote and isolated communities (3)	March 30	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (2) 	General public (3)	

Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Border and travel measures (6)	April 1	Mandatory (6)	General public (6)
	Case and contact management measures (3)	April 6	Mandatory (3)	General public (3)
	Government services (2)	March 30	<ul style="list-style-type: none"> Mandatory (1) Recommended (1) 	<ul style="list-style-type: none"> General public (1) Adults (17 to 65 years old) (1)
	Social services (1)	April 22	Recommended (1)	Adults (17 to 65 years old) (1)
NWT	PUBLIC COMMUNICATION AND EDUCATION			
	Respiratory etiquette (2)	February 5	Recommended (2)	General public (2)
	Voluntary self-isolation (13)	February 5	<ul style="list-style-type: none"> Mandatory (8) Recommended (5) 	<ul style="list-style-type: none"> General public (8) Adults (17 to 65 years old) (5)
	Voluntary home quarantine (13)	February 5	<ul style="list-style-type: none"> Mandatory (8) Recommended (5) 	<ul style="list-style-type: none"> General public (8) Adults (17 to 65 years old) (5)
	Use of masks (1)	April 27	Mandatory (1)	Adults (17 to 65 years old) (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (1)	April 10	Mandatory (1)	General public (1)
	Physical distancing measures (10)	March 16	<ul style="list-style-type: none"> Mandatory (5) Recommended (5) 	<ul style="list-style-type: none"> General public (7) Adults (17 to 65 years old) (3)
	School closures (2)	March 16	Mandatory (2)	Children (<17 years old) (2)
	Childcare closures (1)	April 24	Mandatory (1)	Children (<17 years old) (1)
	Cancellation of mass gatherings (1)	April 10	Mandatory (1)	General public (1)
	Assisted living facilities (1)	March 16	Mandatory (1)	Physicians and healthcare workers (1)
	Workplace (remote work) (2)	March 14	Mandatory (2)	Adults (17 to 65 years old) (2)
	Health care settings (1)	March 16	Mandatory (1)	Physicians and health care workers (1)
	Retail/commerce restrictions (1)	April 10	Mandatory (1)	General public (1)
Border and travel measures (6)	March 16	<ul style="list-style-type: none"> Mandatory (4) Recommended (2) 	<ul style="list-style-type: none"> General public (3) Physicians and health care workers (1) Adults (17 to 65 years old) (1) Children (<17 years old) (1) 	

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Province/ Territory	Category of related public health measures (n)	Date of initial public health measurement announcement	Level of implementation (n)	Target Population (n)
	Case and contact management measures (3)	March 14	Mandatory (3)	General public (3)
	Justice services (1)	April 22	Mandatory (1)	Inmates (1)
NU	PUBLIC COMMUNICATION AND EDUCATION			
	Hand hygiene (1)	March 4	Recommended (1)	General public (1)
	Respiratory etiquette (1)	March 4	Recommended (1)	General public (1)
	Environmental cleaning (home/personal environment) (1)	March 11	Recommended (1)	General public (1)
	Voluntary self-isolation (2)	March 18	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Adults (17 to 65 years old) (1)
	Voluntary home quarantine (2)	March 18	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Students (1)
	Use of masks (1)	April 29	Recommended (1)	General public (1)
	PUBLIC HEALTH ORDERS			
	Environmental cleaning (public spaces) (2)	March 13	Mandatory (2)	<ul style="list-style-type: none"> • General public (1) • Adults (17 and 65 years old) (1)
	Physical distancing measures (5)	March 4	<ul style="list-style-type: none"> • Mandatory (1) • Recommended (4) 	<ul style="list-style-type: none"> • General public (3) • Adults (17 and 65 years old) (2)
	School closures (2)	March 16	Mandatory (2)	Children (<17 years old) (2)
	Childcare closures (2)	March 16	Mandatory (2)	Children (<17 years old) (2)
	Cancellation of mass gatherings (1)	March 13	Mandatory (1)	General public (1)
	Workplace (remote work) (4)	March 16	Mandatory (4)	Adults (17 and 65 years old) (4)
	Border and travel measures (3)	March 4	Mandatory (3)	General public (3)
	Case and contact management measures (1)	April 30	Mandatory (1)	General public (1)
	Government services (1)	March 30	Mandatory (1)	General public (1)
	Social services (1)	March 19	Mandatory (1)	Homeless population (1)

AB=Alberta; BC=British Columbia; LTC=Long-term care; MB=Manitoba; NA=Not applicable; NB=New Brunswick; NL=Newfoundland and Labrador; NWT=Northwest Territories; NS=Nova Scotia; NU=Nunavut; ON=Ontario; PEI=Prince Edward Island; QC=Quebec; SK=Saskatchewan; YU=Yukon.

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