

Appendices for COVID-19 Living Evidence Profile #4

(Version 2: 15 June 2021)

Appendix 1: Methodological details

We use a standard protocol for preparing living evidence profiles (LEP) to ensure that our approach to identifying research evidence as well as experiences from Canadian provinces and territories are as systematic and transparent as possible in the time we were given to prepare the profile. However, given that it was unlikely that we would find evidence syntheses and many empirical studies, we adapted the protocol to give greater attention to single studies and to include opinion pieces that justify the position(s) taken in ways described below.

Identifying research evidence

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

- 1) full systematic reviews;
- 2) rapid reviews;
- 3) protocols for reviews or rapid reviews that are underway;
- 4) titles/questions for reviews that are being planned; and
- 5) single studies.

In this case, we searched primarily for:

- 1) single empirical studies, including those published in the peer-reviewed literature, as pre-prints, and in the 'grey' literature; and
- 2) opinion pieces, specifically those that justify the position(s) taken with one or more of:
 - a. explicit assessment of the pros and cons of a course of action compared to the alternatives available,
 - b. cited data and/or evidence that was explicitly used in deriving lessons learned,
 - c. documented stakeholder-engagement process to elicit lessons learned, and
 - d. endorsement of lessons learned by a formal group (e.g., Canadian academies) or a large, informal group of signatories to a statement describing lessons learned.

To complement the databases containing COVID-19-specific single studies that are listed in the COVID-END [guide to key COVID-19 evidence sources](#), we also searched EMBASE and select grey-literature sources to identify any relevant empirical studies and opinion pieces. The grey-literature sources include:

- 1) websites of international agencies (Organisation for Economic Cooperation and Development and World Bank) and Canadian agencies (Canadian Institutes of Health Research, Canadian Institute for Health Information, Public Health Agency of Canada, and Statistics Canada);
- 2) databases of government reports (Federal Sciences Library, Office of the Auditor General, Office of the Parliamentary Budget Officer, and Policy Horizons Canada); and
- 3) grey-literature databases (Canadian Public Policy Collection, Canadian Research Index, and OAIster).

Each source for these documents is assigned to one team member who conducts hand searches (when a source contains a smaller number of documents) or keyword searches to identify potentially

relevant documents. A final inclusion assessment is performed both by the person who did the initial screening and the lead author of the living evidence profile, with disagreements resolved by consensus or with the input of a third reviewer on the team. The team uses a dedicated virtual channel to discuss and iteratively refine inclusion/exclusion criteria throughout the process, which provides a running list of considerations that all members can consult during the first stages of assessment. For this update, we conducted searches in English. For next month's update we will conduct searches using French-language terms.

We do not exclude documents based on the language of a document. However, we are not able to extract key findings from documents that are written in languages other than Chinese, English, French or Spanish. We provide any documents that do not have content available in these languages in an appendix containing documents excluded at the final stages of reviewing.

Identifying experiences from other countries and from Canadian provinces and territories

For each LEP, we collectively decide on what countries to examine based on the question posed. However, since this LEP was only focused on what went well and what could have gone better in the COVID-19 response in Canada, we did not include other countries in the jurisdictional scan. For the scan of Canadian provinces and territories, we search relevant sources included in our continually updated guide to key COVID-19 evidence sources. These sources include government-response trackers that document national responses to the pandemic. In addition, we search websites from relevant federal and provincial governments and agencies (e.g., public-health agencies and auditor-general offices). If municipally relevant documents appeared while conducting the searches they were included.

Assessing relevance and quality of evidence

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

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

(STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.

We also identified the methodology of included empirical studies deemed to be highly relevant and undertook quality assessments for quasi-experimental studies using the [Maryland Scientific Methods Scale](#). The Maryland Scientific Methods Scale is a five-point scale ranging from 1, for evaluation based on simple cross-sectional correlations, to 5, for randomized control trials. We were prepared to complete quality assessments for experimental studies using the Cochrane risk of bias assessment had we found any. For the next update of this LEP, we will present quality appraisals for highly relevant quantitative observational studies, (using ROBINS-I) and highly relevant qualitative studies (using either CASP or JBI).

Preparing the profile

Each included document is hyperlinked to its original source to facilitate easy retrieval. For all included evidence syntheses, empirical studies and opinion pieces a small number of bullet points that provide a brief summary of the key findings, which are used to summarize key messages in the text. Protocols and titles/questions have their titles hyperlinked given that findings are not yet available. We then draft a brief summary that highlights the total number of different types of highly relevant documents identified (organized by document), as well as their key findings, date of last search (or date last updated or published), and methodological quality.

Organizing framework

For this living evidence profile, we organized our results by COVID-19 response type and by part of the question being addressed using an explicit equity lens.

The first organizing framework is for type of COVID-19 response:

- cross-cutting by federal vs provincial (vs municipal) and by shift in policy instrument (and/or condition, treatment, sector, or population);
- public health measures (e.g., stockpiling personal-protective equipment), by federal vs provincial (vs municipal) and by shift in policy instrument;
- clinical management, by condition and/or treatment (typically provincial for topics like drug formularies);
- health-system arrangements, by sector (e.g., long-term care) and population (e.g., essential workers and racialized communities) and by federal/pan-Canadian/cross-provincial vs provincial) and by shift in policy instrument;
 - governance arrangements (e.g., dividing up or keeping public-health functions together),
 - financial arrangements,
 - delivery arrangements; and
- economic and social, by sector and by federal (vs provincial) (vs municipal) and by shift in policy instrument.

The second organizing framework is for the three parts of the question:

- what went well;
- what could have gone better; and
- recommendations on what will need to go well in the future given any available foresight work being conducted.

Appendix 2: Highlights from highly relevant evidence documents and experiences from Canadian provinces and territories

Response type	Lessons from evidence documents	Lessons from government reports and analyses
Cross-cutting	<p><i>Lesson for the provincial level</i></p> <ul style="list-style-type: none"> A single study summarized COVID-19 responses among Canadian provinces and territories and found that there was no formally coordinated approach to pandemic, poor communication from the government, and information fatigue with the public, which contributed to varied recovery and reopening plans with mixed levels of success 	
Public health measures		<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> A report from the Auditor General of Canada to the Parliament of Canada determined that the Public Health Agency of Canada (PHAC), Health Canada, and Public Services and Procurement Canada helped to meet the needs of provincial and territorial governments for selected PPE (i.e., N95 masks and medical gowns) and medical devices (i.e., testing swabs and ventilators) during the pandemic <ul style="list-style-type: none"> Despite unaddressed long-standing issues with the National Emergency Strategic Stockpile, PHAC improved its procurement and distribution systems (e.g., moving to bulk purchasing and outsourcing warehousing and logistical support), modified equipment supplier license applications, and accepted risk to procure large quantities
Clinical management	<p><i>Lessons for the provincial level</i></p> <ul style="list-style-type: none"> In Ontario the COVID-19 pandemic has had substantial impact on cervical cancer screening and related services <ul style="list-style-type: none"> The authors of one study highlight key considerations as the pandemic continues such as: facility- or regional-level strategies to optimize resources to manage colposcopy backlog, implementation of a centralized referral intake and waitlists, monitoring of local data 	<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> Structural changes to both essential and non-essential service industries led to strong labour productivity growth in Canadian business sector during the COVID-19 pandemic The widespread adoption of work-from-home arrangements may be a long-lasting change, as according to an impact report on Canada's productivity growth,

	during recovery phase, and resumption of patient reminders	<p>some industries have experience cost savings from less demand for office space and equipment</p> <ul style="list-style-type: none"> ○ However, additional research is needed to determine the overall impact of work from home on business productivity ● A Statistics Canada report found an increase in the number of young people (between 15 and 29) not in employment, education or training throughout the pandemic ● According to a Statistics Canada report the Canadian Emergency Response Benefit was well targeted and most likely to be paid out to workers in industries severely affected by the pandemic, individuals in minority groups, Indigenous workers, younger workers, and low wage workers, most of whom were at a higher risk of being exposed to COVID-19 at work or becoming unemployed
Health-system arrangements		<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> ● According to a report of the Auditor General of Canada to the Parliament of Canada, Indigenous Services Canada adapted quickly to expand access to PPE and health workforce (e.g., nurses and paramedics) to help Indigenous communities and organizations respond to the COVID-19 pandemic, but the department did not meet more than half of the requests for extra contract nurses and paramedics <ul style="list-style-type: none"> ○ The report recommended that partnerships should continue between the Indigenous Services Canada and Indigenous communities and organizations in order to develop approaches to address the ongoing shortage of nurses in remote or isolated First Nations communities and to improve access to nursing and paramedic support in these communities
Economic and social	<p><i>Lessons for the provincial level</i></p> <ul style="list-style-type: none"> ● An Ontario-based modelling study predicted elementary school learning shortfalls due to COVID-19, where the authors recommended that schools should: 	

	<ul style="list-style-type: none">○ offer high-quality and targeted supplementary interventions (e.g., six-week programs) in the summer and continue into 2022 and beyond in order to reduce learning losses○ offer real-time interactions between students and teachers within online instruction models during the COVID-19 pandemic and future emergency responses	
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Appendix 3: Highlights from highly relevant evidence documents and experiences identified in previous updates

Response type	Lessons from evidence documents	Lessons from government reports and analyses
Cross-cutting responses	<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> • A primary study conducting a comparative analysis of policy responses in three countries found that decentralized decision-making in Canada between the federal and provincial levels was associated with fragmented responses and unequal epidemiological success across provinces and territories <ul style="list-style-type: none"> ○ Greater centralization of pandemic preparations and planning can support a more coordinated response (last updated September 2020) • A survey of G7 country communications and responses conducted in March 2020 found most Canadians strongly approved of the government's response, felt the communication was very or fairly good, and reported trust in future government decisions (last updated November 2020) • One opinion piece by the Canadian Public Health Association reviewing Canada's initial response to the pandemic identified four areas that went well: <ul style="list-style-type: none"> ○ Early and decisive response to the pandemic managed to avoid overwhelming the acute healthcare system ○ The federal government intervening to ensure the availability of personal protective equipment ensured shortages in select provinces were quickly remedied ○ Residents and businesses largely respected the direction provided by public health ○ Income supports have helped to address the needs of the employed and unemployed (last updated February 2021) • The same opinion piece noted some areas where the response could have been improved, including: 	<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> • The Auditor General of Canada reported that the pandemic preparedness could have been improved through: <ul style="list-style-type: none"> ○ Improvements in health surveillance information to promote timely risk assessments of pandemic threats ○ Updated and tested pandemic response plans and guidance <p><i>Lessons for the provincial level</i></p> <ul style="list-style-type: none"> • The Office of the Auditor General of Ontario released a six-part report that describes in detail Ontario's COVID-19 response: 1) Emergency Management in Ontario; 2) Outbreak Planning and Decision-Making; 3) Laboratory Testing, Case Management and Contact Tracing; 4) Management of Health-Related COVID-19 Expenditures; 5) Pandemic Readiness and Response in Long-term Care; and 6) Personal Protective Equipment [soon to be released], and select lessons include: <ul style="list-style-type: none"> ○ Lessons and strategies from the SARS outbreak were not implemented prior to the COVID-19 pandemic, and lessons learned from the previous waves of the pandemic have not been applied consistently ○ Communication with external stakeholders was inconsistent and not timely ○ The need for timely communication of information about the number of travelers entering Ontario given that it was viewed that there was limited or inaccurate information from the federal government early in the pandemic • The Auditor General of Prince Edward Island has requested a full examination of the provincial government's response to COVID-19, which will be released in August 2021

	<ul style="list-style-type: none"> ○ Lack of timely release of national guidelines for managing cases in long-term care homes ○ Lack of national data-collection standards resulting in inconsistencies in how surveillance data is reported, particularly as they relate to reporting on income levels and race-based data ○ Backlogs in testing and rigid testing criteria challenged understanding the full epidemiological picture ○ Lack of human resources to undertake contact tracing limited further containment of the virus ○ Limited supports available for those experiencing housing insecurity and homelessness, and including these considerations in public-health guidelines (last updated February 2021) 	
Public-health measures	<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> • A qualitative study reported that most news releases and communications aligned with the tone and timing of messages from Chief Medical Officers of Health and changing epidemiological status of COVID-19 (i.e., prescriptive and conveyed appropriate recommendations and mandates) (last updated September 2020) • An opinion piece by the Canadian Centre for Policy Alternatives (a non-partisan research institute) described the challenges of applying public-health guidelines in First Nations communities, which were primarily due to existing inequities in access to water and housing (last updated May 2020) • An opinion piece by the Canadian Centre for Policy Alternatives described the challenges of applying public-health guidelines in First Nations communities and recommended that future guidance should include the voices of the Indigenous communities, and that appropriate funding should be allocated to address challenges 	<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> • Statistics Canada reported that implementation of physical-distancing guidelines during the pandemic led to increased outdoor activity, including road closures in favour of pedestrian and cyclist use and park visitation, as it was crucial to optimizing mental health • CIHI's evaluation of COVID-19's impact on long-term care found that provincial-level recommendations included implementing mandatory infection-control practices, PPE and training provision, response planning with rapid testing and contact tracing strategies, and reducing crowds in LTC homes • CIHI's report comparing Canada and other countries' pandemic experience in the long-term care sector found that countries that implemented mandatory prevention measures, stay-at-home orders, and closures of public places had fewer COVID-19 infections and deaths in LTC • A Statistics Canada report indicated that children's learning activities varied based on household income and parental-engagement levels

	<p>that have been compounded during the pandemic. (last updated May 2020)</p> <p><i>Lessons for the provincial level</i></p> <ul style="list-style-type: none"> • A primary study that compared non-pharmaceutical interventions used by Canadian governments found that British Columbia was the first province to enact the most rigorous measures before the pandemic declaration by the WHO, whereas the other provinces implemented measures following the declaration (last updated August 2020) • A primary study about best practices of COVID-19 outbreak management in long-term care homes in British Columbia found that rapid testing, implementation of public-health measures (e.g., visitor restrictions, cohorting, single-site restriction for staff), external assistance from infection-prevention and control support teams, adequate access to personal protective equipment, team-based approaches, and coordinated communication between support teams were essential to control and manage COVID-19 outbreaks (last updated March 2021) • A primary study evaluated a virtual education program called the Elderly-Long-Term Care (COE-LTC) COVID-19, and found that it is useful tool to deliver new best practices for healthcare delivery by healthcare providers in long-term care (last updated February 2021) • A primary study analyzed survey results from individuals involved in the hospital-based Infection Prevention and Control (IPAC)-SWAT team, and found that 93.5% of respondents felt the team improved the management of COVID-19 outbreaks at long-term care homes in Ontario (last updated Feb 2021) • An economic modelling study reported that a rebound in household spending and GDP growth 	<ul style="list-style-type: none"> ○ Lower-income households may lack access to personal computers for children’s learning activities, and parental engagement may be affected by competing work obligations • The Auditor General of Canada found that emergency orders to prohibit entry of foreign nationals were quickly implemented by the Canada Border Service Agency, and PHAC did not meet its target to verify arriving travellers completed mandatory 14-day quarantine ○ Reviewing the decisions made by border-service officers and improving systems and processes of verifying compliance to mandatory quarantine can address gaps in border-control measures • The Chief Public Health Officer of Canada’s report highlighted that Canada’s healthcare system was protected due to increased public-health measures and healthcare capacity undertaken by provinces and territories between April and August 2020 <p><i>Lessons for the provincial level</i></p> <ul style="list-style-type: none"> • An evidence brief on the economic impacts due to public-health measures in response and recovery during and after COVID-19 published by Public Health Ontario recommends: <ul style="list-style-type: none"> ○ A data-driven, regional or provincial approach (instead of a reactive and local approach) to support a sustainable transition from response to recovery as vaccination rates increase in Ontario ○ Lockdown strategies that maintain a moderate lockdown level are more effective than oscillating between strict and mild lockdowns according to published modelling studies cited in the brief ○ Early action with stringent public-health measures can be less costly for the economy than multiple less-intense, shorter duration lockdowns ○ Basic income for individuals affected by lockdowns should be in place
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	<p>may increase in 2021 following the impacts of social distancing from 2020 (last updated March 2020)</p> <ul style="list-style-type: none"> • An economic modelling study reported that Canada's economy will expand by 5.8% by the end of 2021 and 4.0% in 2022 due to vaccine roll-out and gradual reopening of the economy (last updated March 2021) • A cross-sectional survey that assessed the preparedness of Ontario's long-term care sector found that there were concerns regarding the feasibility of implementing public-health measures • A cross-sectional survey that assessed the preparedness of Ontario's long-term care sector stated the need for better engagement with long-term care system leaders to coordinate better pandemic responses (last updated October 2020) • A primary study about best practices of COVID-19 outbreak management in long-term care homes in British Columbia reported that reducing the delay in identifying cases, implementing control measures, addressing harms related to isolating residents, addressing staff shortages, and improving communication between support teams were areas of future improvement (last updated March 2021) • A modelling study compared trends in COVID-19 cases in Canada and Italy and found that it is imperative to take immediate action by implementing a comprehensive strategy consisting of multiple public-health interventions (last updated March 2020) 	<ul style="list-style-type: none"> • An evaluation based on modelling data assessing the impact of social-distancing policies in British Columbia found that social interaction was reduced to 30% of normal levels and returning to 80% and 60% of pre-COVID-19 social interactions and physical distancing would result in significant and steady increases in cases, respectively • A recovery plan by the Government of British Columbia assessed that 62% of total jobs lost were restored by August 2020 as businesses were allowed to reopen • A survey conducted by the Government of Saskatchewan reported that 17% of residents expressed confusion over COVID-19 public-health orders and restrictions • The Office of the Auditor General of Ontario released a six-part report describing areas that delayed Ontario's COVID-19 response, to address: <ul style="list-style-type: none"> ○ The insufficient exercise of powers by the Chief Medical Officer of Health of Ontario and delays in early decisive actions ○ The lack of coordination and diminished role by Public Health Ontario in overall provincial response, leading to confusion on roles and responsibilities among local medical officers of health ○ The variations in management and operations among public-health units, delays in modernizing public-health information systems and lack of race-based information collection and consideration in decision-making • The Institut national de santé publique du Québec released preliminary data analysis showing that provision of one dose of mRNA vaccines reduced COVID-19 cases among LTC residents, with significant reductions in case numbers observed 28 days post-vaccination and 95% reduction in COVID-19 related deaths in March 2021 compared to December 2020
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		<ul style="list-style-type: none"> • Preliminary data shows a significant reduction in COVID-19 cases among healthcare workers as vaccination roll-out expanded to this group
Clinical management	No evidence documents were found addressing lessons learned from clinical management of COVID-19	<p><i>Lessons for the provincial level</i></p> <ul style="list-style-type: none"> • Ontario Health released recommendations on optimizing care during COVID-19 according to lessons learned from Ontario's first wave that included: <ul style="list-style-type: none"> ○ Providing care to all types of patients and clients ○ Avoid deferring emergency, urgent, and time-sensitive care ○ Emphasize equitable and person-centred approaches with full continuum of care that engages patients and their care partners ○ Improve oversight and coordination of care activities at regional/sub-regional levels and increase collaboration with health and social services ○ Accelerate services to reduce backlogs ○ Continue testing, contact tracing and isolating ○ Integrate health equity considerations • Ontario Health also released recommendations for regional healthcare delivery during COVID-19, including for outpatient care, primary care, home and community care, and for supplying PPE based on requirements from previous waves of COVID-19 that included: <ul style="list-style-type: none"> ○ Conducting virtual visits when possible and providing in-person care only when necessary ○ Comprehensive IPAC approaches should be taken when in-person care is provided ○ Making appropriate PPE available to staff ○ Assessing human resources and ensuring adequate staffing ○ Local, regional, provider and patient/client collaboration to improve service delivery ○ Monitor the level of COVID-19 and adapt service delivery as necessary ○ Communicate regularly with patients/clients and caregivers

		<ul style="list-style-type: none"> ○ Adopt a strategy for ethical prioritization of patient/client care activities
Health-system arrangements	<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> • Three next steps were identified in a stakeholder dialogue designed to systematically elicit stakeholder views on identifying and harnessing the potential of technology in long-term care across Canada, both in general and in relation to COVID-19 <ul style="list-style-type: none"> ○ Harnessing technologies that enable person-centred care and support in long-term care ○ Implementing policy and organizational processes in the sector that support making small yet rapid changes that are centred on residents, caregivers and families ○ Using funding models that enable ways of doing things differently • A study evaluating the changes to the operation of cancer treatment centres across Canada during the first wave of the pandemic found that cancer screening reduced significantly because of a reduction in the availability of practitioners and measures to limit screenings <ul style="list-style-type: none"> ○ Providing telemedicine as a substitute for in-person cancer screening was found to have many limitations and therefore was not an effective solution ○ Outreach programs may be needed in the coming months and years to catch up on the backlog of cancer screenings and reduce delays in diagnoses and treatment (published 28 February 2021) • An opinion piece from the Centre for Policy Alternatives examined the conditions that were central to the crisis experienced in long-term care homes across Canada, which included labour force challenges, punitive regulations focused on physical structures and workers rather than working 	<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> • Canadian Institute for Health Information's analysis of pandemic data from the first wave of the COVID-19 pandemic (March 1 to August 31, 2020) concluded that long-term care residents across Canada received fewer physician visits and opportunities for hospital transfers, had to wait longer to be discharged back to their homes, and had fewer visits from family when compared to the same period in 2019 <ul style="list-style-type: none"> ○ The analysis found that there was also a significant drop in new admissions to long-term care homes ○ Recommendations to improve the long-term care response across provinces and territories included increasing staff levels and retention programs for long-term care workers, improving home inspection and enforcement processes, improving accountability among staff within each home and system-wide, and increasing communication and coordination across all parts of the system • A survey conducted by Statistics Canada indicated that improvements were made in providing infection-prevention and control equipment and support to Canadians working in healthcare settings by the second wave of the pandemic <ul style="list-style-type: none"> ○ The survey results demonstrated that respirators were always available on the job for more than 60% of respondents who required them, and more than half of the respondents said that they received formal IPAC training and were supported by their employers when they were sick and needed to stay home <p><i>Lessons for the provincial level</i></p> <ul style="list-style-type: none"> • An evaluation of the effects of the COVID-19 pandemic on mental health in Saskatchewan found that the uptake of online/phone supports was lower than anticipated,

	<p>conditions, ownership and employer practices, positioning of LTC and residential care homes outside of what is included in the Canada Health Act, and deficiencies in the physical structures of LTC homes (published April 2020)</p> <p><i>Lessons for the provincial level</i></p> <ul style="list-style-type: none"> • A primary study comparing the approaches of British Columbia and Ontario in long-term care homes found that British Columbia responded faster than Ontario with actions that included a single-site working policy, standardization of staff wages, support for homes in outbreak through specialized response teams regardless of governance or facility ownership, a universal masking requirement from the outset, the setting of a single case as the outbreak threshold, and implementing testing and screening for all asymptomatic residents (last updated 23 November 2020) <ul style="list-style-type: none"> ○ The same study also found that British Columbia had stronger links between long-term care and public health (last updated 23 November 2020) • A cross-sectional study assessing the preparedness of Ontario's long-term care sector for the COVID-19 pandemic from a clinician perspective found that while communication and implementation of the province's recommendations was evident in the long-term care sector, concerns about feasibility of implementing the recommendations were raised by clinicians <ul style="list-style-type: none"> ○ long-term care clinicians identified a need for better engagement with long-term care leaders to plan a more coordinated pandemic response (published 22 October 2020) • One observational study found that collaboration between a nursing home and an acute-care hospital 	<p>resulting in a significant number of people with existing mental health disorders no longer being treated</p> <ul style="list-style-type: none"> • The Auditor General of Ontario's Special Report on Outbreak Planning and Decision-Making provided nine recommendations with 29 action items to address: <ul style="list-style-type: none"> ○ The diminished role of public-health expertise at the Ontario Health Command Table that was often cited as complex and confusing ○ The significant leadership changeover, outdated emergency plans, lack of involvement, inadequate communications and record-keeping, and lack of sufficient staff to implement a provincial response structure that was demonstrated by Ontario's Provincial Emergency Management Office ○ The insufficient amount of scientific expert advice during decision-making • The Auditor General of Ontario's Special Report on Pandemic Readiness and Response in Long-Term Care described 16 key recommendations with 55 action items to address: <ul style="list-style-type: none"> ○ The LTC sector's facility, staffing, and infection-prevention and control issues that existed before the pandemic ○ The disconnect between long-term care and other care services ○ The unintended consequences on long-term care staff and residents caused by the pandemic response ○ Unclear communication, lack of enforcement and oversight that affected containment of COVID-19 • The Ontario Long-term Care COVID-19 Commission report found that the province's lack of pandemic preparedness (e.g., no simulations for a pandemic or tracking of PPE supplies in LTC), poor leadership, and the existing poor state of the long-term care sector (e.g., insufficient trained workforce and improper home infrastructure) led to the current devastation
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	<p>in Toronto, Ontario was effective at managing a large COVID-19 outbreak early in the pandemic</p> <ul style="list-style-type: none"> ○ Key features of the collaboration included building trust, having a robust clinical and operations team, and a non-hierarchical structure to working with nursing home staff (published May 2020) • An observational study assessing changes to the mobility of long-term care home staff in Ontario both before and after the implementation of a one-site policy found that mobility of nursing home staff reduced significantly after the policy was implemented, where nursing home staff with a connection to another home fell by 70.3% ○ The reduction of staff mobility should be a focus of risk-reduction efforts during a state of emergency (26 January 2021) • The effectiveness of a virtual education program for healthcare providers of long-term care residents in Ontario during the pandemic was evaluated in a study which found that the ECHO Care of the Elderly-Long-Term Care: COVID-19 program increased confidence amongst participants in providing clinical care, promoting integration of knowledge in clinical care, and promoting knowledge dissemination of best practices ○ The study concluded that the program can be an innovative tool to educate providers in long-term care homes and provide time-sensitive and rapidly evolving information (published February 2021) • One study reported on the impact of an acute-care hospital's Infection Prevention and Control SWAT team (IPAC-SWAT) that was mobilized to several long-term care and retirement homes in Ontario to assess the homes' IPAC preparedness and manage outbreaks 	<ul style="list-style-type: none"> ○ Best practices that were reportedly applied in some LTC settings included decisive and effective leadership, support for staff, pandemic planning, robust IPAC practices, and relationships with other health partners • The Ontario Patient Ombudsman provided four key recommendations based on 250 complaints related to long-term care homes during the COVID-19 pandemic: <ul style="list-style-type: none"> ○ Backstops and contingency plans for all healthcare providers ○ Visitation policy changes ○ Dedicated resources for communication ○ Enhanced whistleblower protection • A report from Northwood Quality-improvement Review Committee in Nova Scotia identified key drivers for the largest nursing home outbreak in the province and 17 recommendations for the local and provincial leadership to be acted on in the short (three months or less) and the long term (more than three months) • Nova Scotia's Department of Health and Wellness and Nova Scotia Health Authority published a report on long-term care Infection Prevention and Control (IPAC) teams during the first wave of the COVID-19 pandemic <ul style="list-style-type: none"> ○ Recommendations and actions should be formalized to continue through subsequent waves of the pandemic
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	<ul style="list-style-type: none"> ○ The study found that after the IPAC-SWAT team implemented intervention strategies in the LTC and retirement homes, the majority of the staff in the homes found that their ability to manage an outbreak improved, and they believed that routine huddles and discussions helped improve the site's ability to manage ○ The intervention strategies used included an initial assessment using staff interviews, education and training on COVID-19 transmission and IPAC practices, routine follow-up visits and outbreak meetings, post-outbreak management to assist with reopening, visitor policies, contingency planning, second wave readiness assessments, and the implementation of IPAC champions to promote sustainability of best IPAC practices ○ The interventions proved to be effective given that after 80 days following cessation of outbreaks, no new COVID-19 transmission occurred in the settings with previous cases (published 22 February 2021) 	
Economic and social responses	<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> • An opinion piece from the Canadian Centre for Policy Alternatives notes that the Canada Emergency Response Benefit and expansions to unemployment insurance programs have been valuable in supporting women economically (last updated March 2021) • A joint opinion piece from the Canadian Centre for Policy Alternatives, Canadian Women's Foundation, and Ontario Nonprofit Network as well as another opinion piece from the Canadian Centre for Policy Alternatives highlight the negative impact the pandemic and associated responses (such as the closure of childcare centres) have had on the participation of women in the economy 	<p><i>Lessons for the federal level</i></p> <ul style="list-style-type: none"> • Statistics Canada published a report highlighting that the financial resilience of Canadians has improved as the pandemic has progressed, in part due to financial supports from the Canadian government and financial institutions as well as consumer behaviour changes • A report by the Auditor General of Canada on the Canada Emergency Response Benefit (CERB) found that, despite the drastically shortened time period available for the design process (a few hours or overnight compared to other processes that are conducted over many months), the program design process was conducted robustly with full considerations of its cost and the need for flexibility to best serve Canadian residents facing financial impacts from the pandemic

	<ul style="list-style-type: none"> ○ The joint opinion piece proposes advancing women's participation and inclusion in the economy by mandating intersectional gender-based 'plus' analyses in policy and program development (last updated September 2020) ○ The opinion piece from the Canadian Centre for Policy Alternatives points to a number of areas where additional supports are needed, including affordable childcare (particularly for essential workers) and income supports for those who do not qualify for CERB (last updated March 2021) ● An opinion piece from the Canadian Centre for Policy Alternatives found that lower childcare fees (such as those found in Quebec) have been associated with a lesser degree of withdrawal of children from childcare during the pandemic when compared to other provinces with higher fees ○ This opinion piece points to the importance of considering the childcare sector as an essential service during the economic recovery from the pandemic, and considering ways to reduce the burden of childcare on parents 	<ul style="list-style-type: none"> ○ The report highlighted several pre-existing controls vital to the successful roll-out of the CERB, including automated pre-payment in existing systems, Social Insurance Number confirmation, confirmation that applicant was not deceased, confirmation of applicant age, and confirmation that applicant was not in a correctional facility ○ The report recommended that Employment and Social Development Canada and the Canada Revenue Agency (CRA) finalize and implement their plans for post-payment verification of the CERB ● The Auditor General also conducted an audit of the Canada Emergency Wage Subsidy (CEWS) program that found that although the CRA delivered wage subsidy payments quickly, it lacked tighter controls and sub-annual earnings to efficiently assess applications ● The report made several recommendations including that a full economic evaluation of the CEWS program be conducted and published, tax compliance efforts for GST/HST be strengthened, automated validations using unique identifiers be used, and targeted audits of the CEWS be conducted using business intelligence information as it becomes available ● An economic analysis of the impact of travel restrictions during the pandemic concluded that the longer travel restrictions remain in place, the greater their impact on the economy, and that lifting travel restrictions was necessary for the recovery of the tourism industry and the broader economy <p><i>Lessons for the provincial level</i></p> <ul style="list-style-type: none"> ● The Office of the Auditor General of Manitoba is in the process of conducting an audit of educational approaches for K-12 education during COVID-19
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Appendix 4: Key findings from new evidence documents related to what went well and what could have gone better in the COVID-19 response, as well as what will need to go well in the future given available foresight work

Type of document	Relevance to question	Key findings	Recency or status
Rapid reviews	<ul style="list-style-type: none"> Public health measures Health-system arrangements 	<ul style="list-style-type: none"> In this review, the impact of surgical training disruptions during the COVID-19 pandemic and the mitigation efforts carried out in Canada, the U.K., the U.S., Australia, and New Zealand were studied Findings highlighted that international surgical training bodies were agile and resident centred in their collective response <ul style="list-style-type: none"> Non-urgent elective surgeries were completely stopped in the U.K. for a minimum of three months while health officials in the U.S. and Canada recommended a reduction of elective surgical activity on a regional level based on local healthcare need; Australia and New Zealand were the first countries to reopen surgical services in May 2020 Recruitment and selection for 2020 residency went ahead in all countries but the recruitment system in the U.K. was greatly impacted by the pandemic and in turn had to rely solely on self-assessment scores submitted with applications In all countries, flexibility was given to board examination participants who had their examinations cancelled or postponed because of pandemic restrictions to reschedule examination dates or meet the requirements for their training programs in an alternative way Canada's surgical residency training is notably unique in that it has a larger portfolio of competency-based rather than time-based residency programmes, which were more negatively impacted by evolving pandemic restrictions Videoconferencing was used in Canada to conduct interviews remotely for training programs, and this convenience may be useful for recruitment and teaching after the pandemic Source (AMSTAR rating 2/9) 	Literature last searched 9 June 2020

Protocols for reviews that are underway	<ul style="list-style-type: none"> Public health measures Clinical management 	<ul style="list-style-type: none"> Learning from public health and hospital resilience to the SARS-CoV-2 pandemic: protocol for a multiple case study (Brazil, Canada, China, France, Japan, and Mali) Source	Published 6 May 2021
Single studies	<ul style="list-style-type: none"> Economic and social 	<ul style="list-style-type: none"> An Ontario-based modelling study predicted elementary school learning shortfalls due to COVID-19 In the best-case scenario, students were not impacted by COVID-19 and had comparable learning levels prior to COVID-19 In the worst-case scenario, students had a three-month learning shortfall compared to a regular school year The authors concluded with two recommendations, including: <ul style="list-style-type: none"> Offer high-quality and targeted supplementary interventions (e.g., six-week programs) in the summer and continue into 2022 and beyond in order to reduce learning losses Offer real-time interactions between students and teachers within online instruction models during the COVID-19 pandemic and future emergency responses Source	Published 26 May 2021
	<ul style="list-style-type: none"> Clinical management 	<ul style="list-style-type: none"> A population-based retrospective observational study conducted in Ontario found that the COVID-19 pandemic has had substantial impact on cervical cancer screening and related services The authors highlighted key considerations as the pandemic continues such as: facility- or regional-level strategies to optimize resources to manage colposcopy backlog, implementation of a centralized referral intake and waitlists, monitoring of local data during recovery phase, and resumption of patient reminders Source	Published 13 May 2021
	<ul style="list-style-type: none"> Cross-cutting Public-health measures 	<ul style="list-style-type: none"> Study summarizes and explains the divergent responses across Canadian provinces and territories Key findings from the study include: <ul style="list-style-type: none"> No formally coordinated approach to pandemic across provinces and territories led to varied recovery and reopening plans with varied level of success 	Published March 2021

		<ul style="list-style-type: none"> ○ The use of vague and indefinite language and wording over the course of the pandemic has resulted in significant confusion for residents, especially when it comes to policy communication ○ Across all provinces, mobility data revealed that an alert fatigue has taken place where there is an inability to comprehend or comply with constantly changing rules <p>Source</p>	
	<ul style="list-style-type: none"> ● Public-health responses 	<ul style="list-style-type: none"> ● During May and June 2020, COVID-19 and associated public health measures appear to have had a similar impact on the mental health of Canadian older veterans compared to the general population <p>Source</p>	Published 27 April 2021
	<ul style="list-style-type: none"> ● Public-health responses 	<ul style="list-style-type: none"> ● Using a load estimation approach, a study in Saskatchewan found that non-critical business and school closures due to COVID-19 lowered energy consumption between 18 March to mid-July 2020 and since the 4th phase of re-opening in mid-July 2020, the load consumption pattern has begun to more closely resemble the expected pattern if COVID-19 had not occurred ● COVID-19 containment measures and reopening phases resulted in a reduction of CO₂ emissions caused by coal-fired generation (>25%) and gas-fired generation (6%) between 18 March and 1 September 2020 compared to the same date range in 2019, and was associated with an increase in the proportion of wind and hydro generation from 15% to 32% <p>Source</p>	Published 25 November 2020
Opinion pieces	<ul style="list-style-type: none"> ● Public-health responses 	<ul style="list-style-type: none"> ● By December 2020, permanent resident admissions and temporary admissions in Canada fell by 56% and 33%, respectively, because of COVID-19 and related restrictions ● The impact of COVID-19 on permanent resident admissions has been greater in some regions such as Atlantic Canada while locations where immigrants have traditionally settled have been proportionally less affected <p>Source</p>	Published 20 May 2021

Appendix 5: Key findings from highly relevant evidence documents identified in previous updates related to what went well and what could have gone better in the COVID-19 response, as well as what will need to go well in the future given available foresight work

Type of document	Relevance to question	Key findings	Recency or status
Protocols for reviews that are underway	<ul style="list-style-type: none"> Type of response <ul style="list-style-type: none"> Public-health measures 	<ul style="list-style-type: none"> The future of public-health policymaking after COVID-19: a qualitative systematic review of lessons from Health in All Policies Source 	Anticipated completion date 20 December 2021
Titles/questions for systematic and rapid reviews that are being planned	None identified		
Single studies	<ul style="list-style-type: none"> Type of response <ul style="list-style-type: none"> Health-system arrangements Level of government <ul style="list-style-type: none"> Provincial Types of policy instruments <ul style="list-style-type: none"> Economic Voluntary 	<ul style="list-style-type: none"> Primary study comparing approaches in long-term care homes between Ontario and British Columbia found that prior to the pandemic, residents in British Columbia received more daily hours of direct care, which when combined with lower staffing levels was associated with COVID-19 infections in long-term care homes Prior to the pandemic, links between long-term care and public health were stronger in British Columbia than in Ontario During the first wave of the pandemic, British Columbia was faster than Ontario in responding to COVID-19 with actions to address public-health support, staffing and infection prevention and control including quickly announcing a single-site working policy, promoting full-time work and standardized wages for all staff, sending specialized teams including infection-control practitioners and public-health staff into homes with outbreaks regardless of governance or facility ownership, setting a single case as the outbreak threshold, implementing testing and screening of asymptomatic residents, and requiring universal masking from the outset. Source 	Published 23 November 2020

	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Public-health measures • Level of government <ul style="list-style-type: none"> ○ Federal ○ Provincial ○ Municipal • Types of policy instruments <ul style="list-style-type: none"> ○ Legal and regulatory ○ Voluntary ○ Information and education 	<ul style="list-style-type: none"> • Primary study comparing the non-pharmaceutical interventions used by Canadian governments at different levels finding 63 different types of non-pharmaceutical interventions • The study found that British Columbia was first to enact the most rigorous measures before the WHO pandemic declaration, while all provinces implemented measures following the declaration • Two regional variations in time to implementation were found for declaration of the state of emergency and school closures, with Quebec being first to enact a state of emergency and Nova Scotia the last, while Ontario was the first to close schools and Manitoba the last • Though interventions were implemented at various times across a three-week period, the order in which they were put in place was similar to international counterparts with travel restrictions being among the first • No evaluation was done as part of the study on the association between the interventions and their effects on reducing the spread of COVID-19 <p>Source</p>	Published 31 August 2020
	<ul style="list-style-type: none"> • Types of response <ul style="list-style-type: none"> ○ Cross-cutting • Level of government <ul style="list-style-type: none"> ○ Federal ○ Provincial 	<ul style="list-style-type: none"> • Overview and comparative analysis of policy responses in France, Belgium and Canada during the early stages of the COVID-19 pandemic • The review found in general that the responses were largely dictated by existing health-system capacity, and that increasing levels of federalism, of which Canada has the greatest among comparators, was associated with more fragmented responses overall, but has allowed certain provinces to harness strong governance capacity while others have struggled • The decentralized decision-making may have also prevented widespread resource sharing between provinces including related to data sharing with the federal government <p>Source</p>	Published 9 December 2020

	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Health-system arrangements • Level of government <ul style="list-style-type: none"> ○ Provincial • Types of policy instruments <ul style="list-style-type: none"> ○ Voluntary 	<ul style="list-style-type: none"> • Examining the effects of changes to the health system on the operation of cancer treatment centres during the first wave of the pandemic • The study noted that one of the measures to be put in place was to limit screening programs which in combination with a reduction in access to primary-healthcare providers has also led to a reduction in cancer diagnoses and significant backlog • The study estimated a 20% reduction in screening compared to previous years • While the use of telemedicine was employed in some of these examples it had significant limitations and was infrequently used for new appointments • The implementation of outreach programs to return proactive cancer screening may be necessary in the coming months and years to catch up with service disruptions and attempt to reduce further delays in diagnoses and treatment <p>Source</p>	Published 28 February 2021
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Public-health measures <ul style="list-style-type: none"> ▪ Screening ▪ Isolation of suspected or confirmed cases ○ Health-system arrangements <ul style="list-style-type: none"> ▪ Changing long-term care procedures • Level of government <ul style="list-style-type: none"> ○ Provincial/territorial • Types of policy instruments <ul style="list-style-type: none"> ○ Voluntary 	<ul style="list-style-type: none"> • A cross-sectional survey assessing the preparedness of the long-term care sector to respond to the COVID-19 pandemic in Ontario, Canada • Communication and implementation of recommendations in the Ontario LTC sector was evident, but some concerns were raised regarding feasibility of implementing public-health recommendations • Additionally, LTC clinician respondents stressed the need for better engagement with LTC leaders to coordinate pandemic responses <p>Source</p>	Published 22 October 2020
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Cross-cutting • Level of government <ul style="list-style-type: none"> ○ Federal • Types of policy instruments <ul style="list-style-type: none"> ○ Information and education 	<ul style="list-style-type: none"> • According to a study conducted in March 2020 assessing public attitudes towards governmental actions to combat the COVID-19 pandemic in G7 countries, Canadians had a relatively high approval rate of government response, communication and trust towards future COVID-19-related decisions 	Published 25 November 2020

		<ul style="list-style-type: none"> • 65.6% of Canadians strongly or somewhat approved of government response (ranked 2nd) • 81.3% of Canadians evaluated government communication as very or fairly good (ranked 1st) • 77.2% of Canadians reported their trust in future government decisions as trusting a lot or trusting a little (ranked 1st) Source	
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Public-health measures • Level of government <ul style="list-style-type: none"> ○ Provincial/territorial • Types of policy instruments <ul style="list-style-type: none"> ○ Information and education 	<ul style="list-style-type: none"> • A qualitative study of news releases from Canadian provincial government websites during the initial phases of the COVID-19 outbreak between 21 January 2020 and 31 March 2020 found that messaging across jurisdictions was generally consistent • Most news releases were prescriptive and conveyed recommendations and mandates to slow transmission, and the tone generally shifted from reassurance early on to an emphasis on social-distancing measures and finally to a concern with public responsibility to slow transmission • The variations in tone and timing of the chief medical officers of health aligned with different and changing epidemiological realities across contexts Source	Published 4 September 2020
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Public-health measures • Level of government <ul style="list-style-type: none"> ○ Federal 	<ul style="list-style-type: none"> • The aim of this study was to predict the trend of the COVID-19 outbreak in Canada in March 2020 by using comparative modelling, using Italy as the comparator country • Results of the modelling projected that in the absence of prompt public-health interventions, approximately 15,000 cases could be expected in Canada by the end of March 2020 • The results of the study suggests that Canada can capitalize on Italy's prior experience where the closure of all non-essential activities led to a significant reduction in the country's epidemic growth rate in early March • The study concludes that it is imperative to take immediate action to reduce the epidemic growth rate by implementing and enforcing a comprehensive package of public-health interventions given that the mitigation effect of interventions can be delayed for up to two weeks 	Published 31 March 2020

		Source	
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Health-system arrangements • Level of government <ul style="list-style-type: none"> ○ Municipal • Types of policy instruments <ul style="list-style-type: none"> ○ Voluntary 	<ul style="list-style-type: none"> • The descriptive study reported on an acute-care hospital's response to a nursing home experiencing a COVID-19 outbreak in Toronto, Ontario • Partnerships and collaboration with the hospital and nursing home were valuable and can effectively manage a large COVID-19 outbreak • Key elements included a phased approach that involved building trust, a robust clinical and operations team with input from geriatric medicine, palliative care, IPAC, psychiatry, nursing, and senior hospital leadership, and a non-hierarchical structure to working with the nursing home staff Source	Published May 2020
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Public-health measures • Types of policy instruments <ul style="list-style-type: none"> ○ Economic 	<ul style="list-style-type: none"> • The Conference Board of Canada (a not-for-profit think tank) released an issue brief that examined the economic implications of social distancing • The assumptions in the analysis included social-distancing measures and travel bans until the end of August 2020 • The modelling analysis reported that the real GDP could contract by 1.1% in 2020, with 330,000 jobs lost and unemployment rate of 7.7% • A rebound in household spending was projected to occur in the fourth quarter and into 2021, and potential real GDP growth of 3.3% Source	Published March 2020
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Health-system arrangements • Level of government <ul style="list-style-type: none"> ○ Provincial / territorial • Types of policy instruments <ul style="list-style-type: none"> ○ Legal and regulatory 	<ul style="list-style-type: none"> • This observational study assessed how mobility of staff between nursing homes in Ontario, Canada changed after the Government of Ontario enacted an emergency order that prevented staff from working in more than one nursing home • Location data from mobile devices was used to approximate connectivity between 623 nursing homes during the seven weeks before and after the implementation of the emergency order • Mobility between nursing homes dropped sharply after implementation of an emergency order restricting staff to working in a single nursing home, in which the number of 	Published 26 January 2021

		<p>nursing homes with any connection to another home fell by 70.3%</p> <ul style="list-style-type: none"> Staff mobility between nursing homes appears to be an important vector for importation of COVID-19 into and spread between homes, and should be a focus of efforts during a state of emergency <p>Source</p>	
	<ul style="list-style-type: none"> Type of response <ul style="list-style-type: none"> Public-health measures Health-system arrangements Level of government <ul style="list-style-type: none"> Provincial / territorial Types of policy instruments <ul style="list-style-type: none"> Legal and regulatory Information and education 	<ul style="list-style-type: none"> In April 2020, a hospital-based Infection Prevention and Control (IPAC) SWAT team was developed and mobilized to long-term care facilities and retirement homes in Ontario to assess them for IPAC preparedness and actively manage COVID-19 outbreaks IPAC-SWAT assessed seven long-term care facilities and 10 retirement homes, and active-outbreak management was provided to 10 settings with COVID-19 outbreaks IPAC-SWAT strategies were multi-interventional and involved the following: <ul style="list-style-type: none"> Initial assessment through interview with leadership, tour of facility, staff and resident cohorting, and staff and resident COVID-19 testing Education and training on COVID-19 transmission, hand hygiene, personal protective equipment (PPE) handling, break room etiquette, disinfection practices Routine follow-up visits and outbreak meetings Post-outbreak management to assist with reopening, visitor policies, contingency planning Second wave visits with readiness assessments and second wave preparedness checklists IPAC champions implemented to promote sustainability of best IPAC practices Relationships and close communication with all partnered homes have continued following initial interventions, and after 80 days following cessation of outbreaks no new COVID-19 transmission occurred in the settings with previous cases 	Published 22 February 2021

		<ul style="list-style-type: none"> Anonymous surveys were sent to all partnered long-term care facilities and retirement homes for IPAC-SWAT feedback <ul style="list-style-type: none"> Among 31 of 37 responses, 93.5% (29/31) felt IPAC-SWAT improved their ability to manage their COVID-19 outbreak 83.9% (26/31) believed routine huddles and discussions improved the site's ability to manage All responders (100%; 31/31) felt the support provided from a hospital-based IPAC team had a positive impact on their long-term care facility and retirement home <p>Source</p>	
	<ul style="list-style-type: none"> Type of response <ul style="list-style-type: none"> Public-health measures Level of government <ul style="list-style-type: none"> Provincial/territorial Municipal Types of policy instruments <ul style="list-style-type: none"> Voluntary 	<ul style="list-style-type: none"> This study explored best practices and areas of improvement in the outbreak management of COVID-19 in long-term care facilities through semi-structured interviews with front-line workers in a regional health authority in British Columbia Eight areas of best practices were identified: 1) early identification and action on new COVID-19 cases; 2) suite of public-health interventions; 3) additional supports and assistance for infection and prevention control; 4) staff training and education; 5) personal protective equipment use and supply; 6) workplace culture, organizational leadership and management; 7) communication and coordination; and 8) staffing levels Specific best practices included: <ul style="list-style-type: none"> High index suspicion/low threshold for testing in addition to early identification and rapid action Implementing a range of public-health measures including visitor restrictions, resident cohorting, mass testing, and single-site restriction for long-term care staff External assistance through Infection Prevention and Control support teams who conducted staff training and rapid on-site assessments Ensuring adequate access and a secure supply of personal protective equipment through centralization by the health authority Organizational culture promoting team-based approaches to address staffing shortages 	Published 15 April 2021

		<ul style="list-style-type: none"> ○ A coordinated communication response between teams involved in outbreak management • Areas for improvement included reducing delays in identifying cases of COVID-19 and implementing control measures, addressing the harms associated with socially isolating residents as a result of public-health measures, local staffing shortages, changing guidelines, and a lack of direct communication between teams • Recommendations made by authors included maintaining a high level of vigilance for COVID-19 transmission at long-term care facilities, providing ongoing infection-prevention and control training and education for staff, and developing formal mechanisms for communication and coordination between the outbreak-management team <p>Source</p>	
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Public-health measures ○ Health-systems arrangements • Level of government <ul style="list-style-type: none"> ○ Provincial/territorial • Types of policy instruments <ul style="list-style-type: none"> ○ Voluntary ○ Information and education 	<ul style="list-style-type: none"> • This study evaluated the effectiveness of a virtual education program in delivering just-in-time learning and best practices to support long-term care teams and residents during the pandemic • The ECHO Care of the Elderly-Long-Term Care (COE-LTC): COVID-19 program provided participants with a weekly one-hour session for 12 weeks with a curriculum based on a needs assessment survey of healthcare providers in Ontario long-term care homes • The program was found to increase confidence in providing clinical care including improving the comfort level of participants working with older adults who are at risk, confirmed, or suspected of having COVID-19, to promote integration of knowledge into clinical care, and to promote knowledge dissemination of best practices among practitioners • The authors recommended that the ECHO Care of the Elderly-Long-Term Care (COE-LTC): COVID-19 program can be used as an innovative tool for delivering rapidly evolving and time-sensitive information and best practices directly to healthcare providers in long-term care 	Published February 2021

		Source	
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Public-health measures ○ Health-system arrangements • Level of government <ul style="list-style-type: none"> ○ Federal • Types of policy instruments <ul style="list-style-type: none"> ○ Legal and regulatory 	<ul style="list-style-type: none"> • The Conference Board of Canada (a not-for-profit think tank) projected that Canada's economy will expand by 5.8% in 2021 and 4.0% in 2022 due to vaccine roll-out and gradual reopening of the economy • Savings rate among households surged from 1.4% prior to the pandemic to 14.8% • Unemployment rate was 8.2% in February 2021 and 80% of jobs lost during last year's severe recession have since been recovered • The Bank of Canada will keep interest rate hikes on hold until 2023 Source	Published 30 March 2021
Opinion pieces	<ul style="list-style-type: none"> • Types of response <ul style="list-style-type: none"> ○ Cross-cutting • Level of government <ul style="list-style-type: none"> ○ Federal ○ Provincial • Types of policy instruments <ul style="list-style-type: none"> ○ Economic ○ Voluntary ○ Information and education • Equity considerations 	<ul style="list-style-type: none"> • Overview of public-health measures taken during the pandemic and lessons learned about what went well and what could have gone better during the response • In general, the piece identified the following four points as going well: <ul style="list-style-type: none"> ○ The early response managed to avoid overwhelming the acute-healthcare system ○ The availability of PPE appeared adequate with the federal government intervening to address early shortages and developing patches to the supply chain to meet demand ○ Residents and businesses largely respected the direction provided by public health ○ Income supports have helped to address the needs of the employed • The piece identified the following as areas where the response could have done better: <ul style="list-style-type: none"> ○ Inconsistent management approaches between provinces and territories ○ Lack of timely release of national guidelines for managing cases in long-term care homes ○ Lack of national data collection standards resulting in inconsistencies in how surveillance data is reported, 	Published 16 February 2021

		<p>particularly as they relate to individual groups such as income level and race-based data</p> <ul style="list-style-type: none"> ○ Backlogs in testing and rigid testing criteria implemented across provinces created challenges understanding the epidemiological landscape across the country ○ Lack of human resources to undertake contact tracing effectively and complexities in the responsibility for contact tracing among First Nations living off-reserve limited further containment of the virus ○ Limited provincial efforts to provide supports to those experiencing housing security and homelessness, including those who may have difficulty adhering to public-health measures <p>Source</p>	
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Economic and social responses • Level of government <ul style="list-style-type: none"> ○ Federal • Types of policy instruments <ul style="list-style-type: none"> ○ Economic 	<ul style="list-style-type: none"> • Report outlines the effect of COVID-19 pandemic and its associated responses on women and their participation in the labour force • Women-majority sectors were hardest hit during the pandemic with significant employment losses, and have had weaker recoveries including in personal services, information culture and recreation, and public administration • There has also been a trend of women with children exiting the workforce entirely or reducing their hours to part-time to provide care during the pandemic while other childcare options were limited or perceived as risky • Policy recommendations from this report include mandating intersectional gender-based plus analyses in policy and program development to support the recovery from the pandemic • Other areas for focused action but that are not based in particular data include: building robust childcare supports, continuing to provide work accommodations for women with disabilities, ensuring supports are in place for those at the margins or left out of the labour market, modernizing income security to protect women in the labour market and reduce income inequality, and expanding gendered workforce-development programs particularly in male-dominated areas 	Published December 2020

		Source	
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Public-health measures • Level of government <ul style="list-style-type: none"> ○ Federal • Types of policy instruments <ul style="list-style-type: none"> ○ Voluntary • Equity considerations 	<ul style="list-style-type: none"> • Report examines the challenges of applying public-health guidelines to First Nations communities • Frequent handwashing was provided as a public-health recommendation, however many First Nations homes in rural communities run out of water frequently or have water concerns related to the quality of water contained in the cistern or water barrels • Overcrowded housing is also a common issue on reserves with 37% of First Nations living on reserve in unsuitable housing, which makes following physical-distancing guidelines nearly impossible • First Nations leaders have declared states of emergencies for their communities and erecting barriers to enter, which are credited with keeping the virus out of these northern communities • Guidelines and recommendations should be informed by the experience of First Nations and Northern communities to consider ways that adjustments may need to be made to support their implementation • Funding from the federal government for Indigenous communities to address COVID-19 was not at the scale or proportionality available to other communities given the challenges experienced Source	Published May 2020
	<ul style="list-style-type: none"> • Types of responses <ul style="list-style-type: none"> ○ Health-system arrangements • Level of government <ul style="list-style-type: none"> ○ Provincial • Types of policy instruments <ul style="list-style-type: none"> ○ Legal and regulatory ○ Economic 	<ul style="list-style-type: none"> • The report examines the conditions in long-term care homes across Canada that were in place prior to the pandemic and that were central to the crisis experienced, including: <ul style="list-style-type: none"> ○ Positioning of long-term care and other residential care (e.g., nursing homes) outside of what is included in the Canada Health Act ○ Challenges with the labour force in the long-term care sector ○ The use of punitive regulations which tend to focus on physical structures and workers rather than working conditions, ownership or employer practices 	Published April 2020

		<ul style="list-style-type: none"> ○ Deficiencies in the physical structures of long-term care homes included surcharges for private rooms, old buildings with poor ventilation, and limited space to accommodate physical distancing • This points to the need to re-examine health-system arrangements in light of COVID-19 <p>Source</p>	
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Economic and social response • Level of government <ul style="list-style-type: none"> ○ Federal ○ Provincial • Types of policy instruments <ul style="list-style-type: none"> ○ Economic 	<ul style="list-style-type: none"> • National survey of childcare centres and licensed family childcare providers found a substantial decline in childcare enrolment across Canada between February and November 2020 • The survey found this was being driven by a mix of factors, including difficulty retaining staff as well as a constellation of parental factors such as lost jobs, concerns over the risk of contracting COVID-19, and parents working from home or withdrawing children due to income concerns • The association between high fees and withdrawal from daycare is demonstrated when comparing Quebec, which has low-fee centres, to the remaining provinces which have seen a significantly greater reduction in enrolments • These findings point to the importance of considering the childcare sector as an essential service during the national recovery and considering ways to reduce the burden of childcare on parents in select cities across the country <p>Source</p>	Published March 2021
	<ul style="list-style-type: none"> • Type of response <ul style="list-style-type: none"> ○ Economic and social responses • Level of government <ul style="list-style-type: none"> ○ Federal • Types of policy instruments <ul style="list-style-type: none"> ○ Economic • Equity considerations 	<ul style="list-style-type: none"> • The report examines the effects of the COVID-19 pandemic on women's participation in the economy and evaluates the effects of the policy approaches put in place • The report found a significant drop in women's labour-market participation in addition to climbing demands of unpaid caregiving which has a further impact on women's paid work • Income security programs including CERB have provided support for women, as well as the change in eligibility rules for employment insurance that was introduced in October 	Published March 2021

		<ul style="list-style-type: none"> The report points to a number of areas where additional supports are needed, including the lack of affordable childcare, particularly for essential workers, as well as income supports for those who do not qualify for CERB Source	
	<ul style="list-style-type: none"> Type of response <ul style="list-style-type: none"> Economic and social Types of policy instruments <ul style="list-style-type: none"> Economic 	<ul style="list-style-type: none"> The Conference Board of Canada (a not-for-profit think tank) projected that Canada's economy will expand by 5.8% in 2021 and 4.0% in 2022 due to vaccine roll-out and gradual reopening of the economy Savings rate among households surged from 1.4% prior to the pandemic to 14.8% Unemployment rate was 8.2% in February 2021 and 80% of jobs lost during last year's severe recession have since been recovered The Bank of Canada will keep interest rate hikes on hold until 2023 Source	Published 30 March 2021

Appendix 6: Lessons learned from the COVID-19 response in Canadian provinces and territories

Province/ territory	Cross-cutting	Public-health measures	Clinical management	Health-system arrangements	Economic and social responses
Pan-Canadian	<ul style="list-style-type: none"> Signals of what would become COVID-19 were identified early by the Global Public Health Intelligence Network (GPHIN) and reported to leaders in the Public Health Agency of Canada (PHAC), which prompted them to act early in notifying public-health officials across Canada of a potential public-health threat by 2 January 2020 The GPHIN highlighted that to improve on the identification of signals and issuance of alerts in the future, an evaluation of the extent to which GPHIN can or should be providing early signals to international partners, and how risk assessments can be embedded into the alerting process, is needed The Auditor General of Canada reported that Canada's pandemic preparedness was less than optimal because of <ul style="list-style-type: none"> Long-standing shortcomings in comprehensive health surveillance information The lack of testing of the pandemic response described in prepared plans and national guidance of the Public Health Agency of Canada (PHAC) 	<ul style="list-style-type: none"> Statistics Canada reported that implementation of the physical-distancing guidelines during the pandemic led to increased outdoor activity amongst Canadians as they took advantage of their environment to exercise, spend leisure time, and make social connections safely <ul style="list-style-type: none"> Creative solutions that gave more Canadians opportunities to safely be outdoors included the shutdown of roads in favour of pedestrian and cyclist use and the opening of more public washrooms The Statistics Canada report also highlighted a survey on the role of parks that found that 82% of respondents said that during the pandemic, parks have become more important to their mental health In its evaluation of the impact of COVID-19 on Long-Term Care (LTC) in 		<ul style="list-style-type: none"> CIHI's analysis of pandemic data from the first wave of the COVID-19 pandemic (March 1 to August 31, 2020) concluded that compared to the same period in 2019, LTC residents across Canada received fewer physician and family visits, fewer residents were transferred to hospitals for care, hospitalized residents had to wait longer to be discharged back to their homes, and there was a significant drop in new admissions to LTC homes Recommendations to improve the LTC response across provinces and territories that were highlighted in CIHI's evaluation include: <ul style="list-style-type: none"> Increasing staff levels and retention programs for LTC workers 	<ul style="list-style-type: none"> A report by Statistics Canada on the well-being of Canadians in year one of the COVID-19 pandemic highlighted that the financial resilience of Canadians has improved as the pandemic has progressed, in part due to the significant financial supports of the Canadian government and financial institutions as well as changes in consumer behaviours After conducting an economic analysis of the impact of travel restrictions during the pandemic on the Canadian economy, Statistics Canada concluded that the longer it takes for travel restrictions to be lifted and for recovery to begin, the larger the impact on the economy and the

	<ul style="list-style-type: none"> ○ The need for updates to PHAC's pandemic response plans and guidance ● The auditor general recommended that PHAC's information technology infrastructure should be improved on a specified timeline, and that a plan should be developed to address the shortcomings in its health surveillance activities and to promote timely risk assessments of pandemic threats ● The Chief Public Health Officer of Canada proposed a Health Equity Approach to COVID-19 Framework in her 2020 Report on the state of public health in Canada to explore opportunities for changes to the public-health system that suggests: <ul style="list-style-type: none"> ○ Actions to ensure equitable access to quality jobs (i.e., secure jobs with benefits and paid sick days) in Canada ○ Policy options that address childcare constraints for working parents ○ The provision of safe and secure housing for all Canadians, particularly the homeless, those with disabilities, those susceptible to violence in the home, and the elderly 	<p>Canada, the Canadian Institute for Health Information (CIHI) found that a number of major investigative reports at the provincial level on the LTC sector recommended that the risk of future infections, outbreaks and deaths can be reduced by:</p> <ul style="list-style-type: none"> ○ Implementing strong infection-control practices that are mandatory ○ Providing access to personal protective equipment (PPE) and training for staff ○ Implementing a response plan for outbreaks that includes rapid testing and contact-tracing strategies ○ Reducing crowding and occupancy in homes, and adapting spaces to isolate sick patients and prevent the spread of infection <ul style="list-style-type: none"> ● A CIHI report comparing Canada's pandemic experience in the LTC sector with the experiences of other countries found that countries that implemented mandatory prevention measures specific to the long-term 		<ul style="list-style-type: none"> ○ Improving home inspection and enforcement processes ○ Improving accountability amongst staff within each home and system-wide ○ Increasing communication and coordination across all parts of the system ● A survey conducted by Statistics Canada involving Canadians working in a healthcare setting found that 60% of respondents who required respirators (e.g., N95 masks) on their jobs said that they were always available when needed during the second wave <p>81% of these participants also said that they received formal infection-prevention and control training for their job, and 57% said that their employers supported them when they were sick and needed to stay home</p>	<p>tourism industry in particular</p> <ul style="list-style-type: none"> ○ Estimates of the analysis suggest that the impact could vary based on when travel restrictions are lifted and the type of recovery that follows ● The 2021 report by the Auditor General of Canada on the Canada Emergency Response Benefit (CERB) found that the planning and design process for the benefits program was conducted robustly with full consideration of its cost and the need for flexibility in getting the benefits to Canadian residents who faced impacts from, the pandemic ○ The turnaround time for the design process was shortened tremendously to a few hours or overnight when, under normal circumstances, the process can occur over many months
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	<ul style="list-style-type: none"> ○ Actions that support access to virtual healthcare as well as mental health supports ○ Assistance for students as they transition back to in-person school and rebuild their social networks ○ Policies that focus on building sustainable food systems that involve community and local food production 	<p>care sector, in combination with stay-at-home orders and closures of public places, had fewer COVID-19 infections and deaths in LTC than countries that did not</p> <ul style="list-style-type: none"> ○ These mandatory prevention measures included immediate infection control measures (e.g., broad LTC testing and staff training, isolation wards) and additional support for staff (e.g., specialized staffing teams, personal protective equipment) ● According to Statistics Canada's report on school closures and children's online preparedness during the pandemic, the learning activities of children in Canada varied based on the income level of the households they live in and the level of engagement of their parents in their learning activities ○ It was found that children in lower-income households tend to have less access to internet-enabled devices, such as personal computers, and their parents tend to be 			<ul style="list-style-type: none"> ○ Key areas that were considered included the benefit's structure and its impact on recipient groups, sectors of the economy, and the labour supply ● Employment and Social Development Canada and the Department of Finance Canada also ensured that gaps in the initial design of the program, such as support for those who were not working because of the pandemic, were addressed and analyses were performed on an ongoing basis to ensure the flexibility of the program as the pandemic evolved ● According to the auditor general's report, pre-existing controls that were vital to the roll-out of the CERB included: <ul style="list-style-type: none"> ○ Automated pre-payment controls in existing technology systems
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		<p>less involved in their learning activities because of competing work obligations, which may ultimately lead to poorer academic performance</p> <ul style="list-style-type: none"> • After evaluating Canada's border-control measures during the pandemic, the auditor general found that the Canada Border Service Agency (CBSA) acted quickly on the emergency orders put in place to prohibit entry of foreign nationals into Canada, and that PHAC did not always meet its target to verify if arriving travellers to Canada completed their mandatory 14-day quarantine • The auditor general indicated that addressing gaps in border-control measures would require a review of decisions made by border-service officers when applying exemptions for entry of essential workers, and improving the systems and processes for verifying compliance with the mandatory quarantine order, including the collection of traveller 			<ul style="list-style-type: none"> ○ Confirmation of Social Insurance Number ○ Confirmation that applicant was not deceased ○ Confirmation of an applicant's age ○ Confirmation that an applicant was not in a correctional facility • The auditor general's report recommends that Employment and Social Development Canada and the Canada Revenue Agency (CRA) finalize and implement their plans for the CERB's post-payment verification work • The auditor general also conducted an audit of the Canada Emergency Wage Subsidy (CEWS) program and found that although the CRA delivered the wage subsidy payments quickly, it lacked tighter controls as well as sub-annual and up-to-date earnings to
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		<p>contact information and follow-up</p> <ul style="list-style-type: none"> • In her report on the state of public health in Canada, the Chief Medical Officer of Health highlighted that between April and Augusts 2020, public health measures undertaken by Canadian provinces and territories combined with efforts to increase healthcare capacity protected Canada's healthcare system from being overwhelmed • The Auditor General of Canada published a report on whether the Public Health Agency of Canada (PHAC) and Health Canada met the needs of provincial and territorial governments for selected PPE and medical devices • The report determined that PHAC, Health Canada, and Public Services and Procurement Canada helped to meet the needs of provincial and territorial governments for PPE and medical devices during the pandemic • Despite unaddressed long-standing issues with the National Emergency 			<p>efficiently assess applications</p> <ul style="list-style-type: none"> • The report recommended that: <ul style="list-style-type: none"> ○ A full economic evaluation of the CEWS program be completed and published ○ Tax compliance efforts for GST/HST be strengthened ○ Automated validations with a unique identifier be used in all programs of the CRA ○ Targeted audits of the CEWS be conducted using business intelligence information as soon as it is available • Structural changes to both essential and non-essential service industries, in the form of industry shares of hours worked and real GDP, led to strong labour productivity growth overall in the Canadian business sector during the COVID-19 pandemic, according to a
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		<p>Strategic Stockpile, PHAC improved its procurement and distribution systems (e.g., moving to bulk purchasing and outsourcing warehousing and logistical support), modified equipment supplier license applications, and accepted risk to procure large quantities</p> <ul style="list-style-type: none"> • A second report from the Auditor General of Canada determined that Indigenous Services Canada adapted quickly to respond to the COVID-19 pandemic and helped communities and organizations such as expanding its access to PPE stockpile to healthcare workers • However, the report found that the department did not meet more than half of the requests for extra contract nurses and paramedics 			<p>Statistics Canada report</p> <ul style="list-style-type: none"> ○ In the first half of 2020, adjustments in hours worked in response to lockdowns and reopening policies led to an increase in productivity in most industries while in the second half of 2020, labour productivity decreased in all industries when work hours were adjusted ○ Industries with the biggest gains in productivity at the beginning of the pandemic when lockdowns were put in place also experienced significant losses when the economy reopened • The widespread adoption of work-from-home arrangements in response to the COVID-19 pandemic may be a lasting
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					<p>change, according to an impact report on Canada's productivity growth by Statistics Canada, given the increase in productivity from telework seen in some industries and the cost savings from less demand for office space and equipment</p> <ul style="list-style-type: none">○ Additional research is needed to evaluate the overall impact of working from home on business productivity● A Statistics Canada report on the impact of the COVID-19 pandemic on the rate of youth (ages 15 to 29) not in employment, education or training (NEET) in Canada indicated that the NEET significantly decreased by the beginning of the 2020/21 school year in comparison to that of April 2020, although the NEET rate did not
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					<p>completely return to pre-pandemic levels</p> <ul style="list-style-type: none">○ More young women than men went to post-secondary schools in September-October 2020 among women○ Between fall 2019 and 2020, the NEET gap between immigrant and non-immigrant women widened due to increased likelihood of non-immigrant women enrolling in post-secondary institutions○ These divergent trends can potentially have long-term implications on pattern for future economic growth <ul style="list-style-type: none">● Statistics Canada reported that of all Canadian workers who earned at least \$5000 in 2019, 35.2% received payments from the Canada Emergency Response
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					<p>Benefit (CERB) in 2020, with women receiving payments more often than men</p> <ul style="list-style-type: none"> ○ Workers employed in industries that were severely affected by lockdowns were most likely to receive CERB payments ○ Other groups that were more likely to receive CERB payments were workers in visible minority groups, Indigenous workers, younger workers, refugees, and low-wage workers, most of whom were at a higher risk of being exposed to COVID-19 at work or at becoming unemployed
British Columbia		<ul style="list-style-type: none"> • The Government of British Columbia released a Restart Plan on 6 May 2020, two parts of which included evaluations based on modelling data: 			

		<ul style="list-style-type: none"> ○ Based on modelling research assessing the impact of social-distancing policies, British Columbians reduced their social interactions and contact with others to 30% of normal levels ● Using the same mathematical modelling, a return to pre-COVID-19 social interactions and physical distancing would result in a massive spike in cases, while 80% and 60% would result in significant and steady increases in cases, respectively ● According to B.C.'s Economic Recovery Plan, which focused on the effects of public-health measures and was released 17 September 2020, the unemployment rate in B.C. increased from 5% in February 2020 to 13.4% in May 2020 and women and youth were especially affected ● By August 2020, 62% of the total jobs lost had been restored as businesses were allowed to begin re-opening 			
Alberta					

Saskatchewan		<ul style="list-style-type: none"> • Approximately 17% of Saskatchewan residents report in a recent government survey being confused by public-health orders related to COVID-19 restrictions 		<ul style="list-style-type: none"> • A provincial evaluation of the effects of the COVID-19 pandemic on mental health in Saskatchewan found that the uptake of online/phone supports has not materialized as anticipated, resulting in many people (15% of respondents) with existing mental health disorders no longer being treated 	
Manitoba					<ul style="list-style-type: none"> • The Office of the Auditor General of Manitoba is in the process of conducting an audit of educational approaches for K-12 education during COVID-19
Ontario	<ul style="list-style-type: none"> • The Office of the Auditor General of Ontario released a six-part report that describes in detail Ontario's COVID-19 response, including: 1) Emergency Management in Ontario; 2) Outbreak Planning and Decision-Making; 3) Laboratory Testing, Case Management and Contact Tracing; 4) Management of Health-Related COVID-19 Expenditures; 5) Pandemic Readiness and Response in Long-term Care; and 6) Personal 	<ul style="list-style-type: none"> • The Office of the Auditor General of Ontario released a six-part report that describes in detail Ontario's COVID-19 response <ul style="list-style-type: none"> ○ The Chief Medical Officer of Health of Ontario did not fully exercise his powers under the <i>Health Protection and Promotion Act</i>, which led to 34 local medical officers of health seeking more direction and regional inconsistency 	<ul style="list-style-type: none"> • Ontario Health released recommendations on optimizing care through COVID-19 transmission scenarios that were rooted in lessons learned from 	<ul style="list-style-type: none"> • The Office of the Auditor General of Ontario provided nine recommendations with 29 action items in the Outbreak Planning and Decision-Making report to address findings from the comprehensive audit <ul style="list-style-type: none"> ○ The Ontario command governance structure was not dominated by public-health expertise and was 	

	<p>Protective Equipment (to be released)</p> <ul style="list-style-type: none"> ○ Key lessons and strategies from the SARS outbreak were not implemented prior to the COVID-19 pandemic, and lessons learned from previous waves of the current pandemic have not been applied consistently ○ Communication with external stakeholders is inconsistent and not timely ○ The federal government did not provide accurate and timely information on travellers entering Ontario ○ Since the publication of the Office of the Auditor General of Ontario's report, the ministry has since responded and planned to address some of the recommendations 	<ul style="list-style-type: none"> ○ Early decisive action and preventive measures were not taken to protect the public's health in absence of scientific certainty ○ Public Health Ontario played a diminished role in the overall provincial response (e.g., Ontario Health did the reporting of provincial surveillance data and coordinating provincial laboratory testing) which led to confusion by local medical officers of health on roles and responsibilities ○ Variations in management and operations among public-health units contributed to fragmentation and inconsistencies ○ Public-health information systems and laboratory information systems were not modernized prior to the pandemic, which had a significant impact on public-health units and labs to conduct proper case management, 	<p>Ontario's first wave:</p> <ul style="list-style-type: none"> ○ Provide care to all types of patients and clients ○ Do not defer emergency, urgent, and time-sensitive care ○ Follow an equitable and person-centred approach with full continuum of care that engages patients and their care partners ○ Heighten level of regional/sub-regional oversight and 	<p>often cited as complex and confusing</p> <ul style="list-style-type: none"> ○ Ontario's Provincial Emergency Management Office had significant leadership changeover, outdated emergency plans, lack of involvement, inadequate communications and record-keeping, and lack of sufficient staff to implement a provincial response structure ○ Scientific expert advice was not adequately presented during decision-making ● The Office of the Auditor General of Ontario outlines key conclusions related to the audit of Management of Health-Related COVID-19 Expenditures <ul style="list-style-type: none"> ○ The audit reviewed \$4.4 billion of spending related to 26 health initiatives ○ The ministry does not have a proper 	
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		<p>contact tracing, and laboratory testing</p> <ul style="list-style-type: none"> ○ As of August 2020, 92% of close contacts of cases have been contacted within a day (after the Ministry started tracking public health units' performance) ● Race-based information was not initially collected and factored into decision-making to target high-risk populations for prevention and public-health measures ● An evidence brief on the economic impacts due to public-health measures in response and recovery during and after COVID-19 was published by Public Health Ontario <ul style="list-style-type: none"> ○ Public Health Ontario recommend a data-driven, regional or provincial approach (instead of a reactive and local approach) to support a sustainable transition from response to recovery as vaccination rates increase in Ontario ○ Lockdown strategies that maintain a moderate lockdown level are more effective than oscillating 	<p>coordination with flexibility (where care activities may be asymmetrical due to local context)</p> <ul style="list-style-type: none"> ○ Increase collaboration with health and social services ○ Accelerate services to reduce backlogs (e.g., maintaining staff wellness and access to PPE) ○ Continue testing, contact tracing and isolating ○ Integrate health equity 	<p>monitoring and reporting system to track COVID-19 related expenditures</p> <ul style="list-style-type: none"> ○ The province has sufficient authorizations and approvals in place, which were design effectively to prevent payments to ineligible individuals or organizations ○ The audit found issues with ministries of health, long-term care, and seniors and accessibility. related to poor reporting processes ○ Front-line workers did not receive their pandemic pay until months later ● The General Auditor of Ontario's report described 16 key recommendations with 55 action items to address challenges raised in the pandemic readiness and response in Long-term Care report ○ Overall, the sector was not sufficiently prepared or equipped 	
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		<p>between strict and mild lockdowns according to published modelling studies cited in the brief</p> <ul style="list-style-type: none"> ○ Early action with stringent public-health measures can be less costly for the economy than multiple less-intense, shorter duration lockdowns ○ Basic income for individuals affected by lockdowns should be in place 	<p>considerations</p> <ul style="list-style-type: none"> ● Ontario Health released recommendations for regional health-care delivery during the COVID-19 pandemic (i.e., outpatient care, primary care, and home and community care) and for optimizing the supply of PPE based on planning assumptions derived by previous waves 	<p>to respond to the pandemic due to existing facility, staffing, and infection-prevention and control issues</p> <ul style="list-style-type: none"> ○ Long-term care is often disconnected with other care services ○ Pandemic responses led to unintended consequences on long-term care staff and residents ○ Unclear communication, lack of enforcement and oversight affected containment of COVID-19 ● The Ontario Long-term Care COVID-19 Commission report was published on 30 April 2021 and found that the province's lack of pandemic preparedness and the existing poor state of the long-term care sector led to the current devastation ○ There was insufficient long-term care workforce, lack of leadership, lack of infection-control 	
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				<p>training, and improper home infrastructure</p> <ul style="list-style-type: none"> ○ No drills or simulations for a pandemic were conducted ○ The province did not track the status of PPE supplies in long-term care ○ The commission recommends the involvement of private investors by funding the infrastructure of long-term care homes (like hospitals) ○ The commission states that a proactive approach should have occurred instead of an episodic and reactive approach ● The Long-Term Care COVID-19 commission reported best practices that were applied in some settings, such as: <ul style="list-style-type: none"> 1) strong and accountable leadership (e.g., acted decisively, sense of urgency, effective mobilization, implemented creative solutions with external 	
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				<p>relationships); 2) support for staff (e.g., offer full-time hours at one home, hire private caregivers, hire family members, additional pay, regular communication); 3) being prepared (e.g., existing pandemic plan, robust infection-prevention and control); 4) relationships with other health partners</p> <ul style="list-style-type: none"> • The Ontario Patient Ombudsman provided four key recommendations based on 250 complaints related to long-term care homes during the COVID-19 pandemic: 1) backstops and contingency plans for all healthcare providers; 2) visitation policy changes; 3) dedicated resources for communication; and 4) enhanced whistleblower protection 	
Quebec		<ul style="list-style-type: none"> • A preliminary analysis of data regarding providing one dose of mRNA vaccines to residents of long-term care homes shows the campaign to 			

		<p>have been successful in reducing cases of COVID-19 among long-term care residents in Quebec</p> <ul style="list-style-type: none"> ○ A significant reduction in case numbers was observed 28 days following vaccination in long-term care homes, and this reduction in case numbers was sustained ○ The reduction in case numbers in long-term care homes (whose residents were prioritized to receive the first vaccine doses) was greater than the reduction in COVID-19 cases in the general population during the studied period ○ There was a 95% reduction in COVID-19-related deaths among long-term care residents in March 2021 (post-vaccination) when compared to December 2020 (pre-vaccination) ○ Another Quebec evaluation reported a preliminary vaccine effectiveness rate of 80.3% for long-term care 			
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		<p>residents between 21 and 27 days after vaccination</p> <ul style="list-style-type: none"> • Preliminary data on vaccine effectiveness among healthcare workers in Quebec show a significant reduction in COVID-19 cases among healthcare workers as vaccination was rolled out in this group 			
New Brunswick	<ul style="list-style-type: none"> • The Auditor General of New Brunswick has recommended that the provincial Office of the Comptroller improve its process for the tracking and reporting of program funding, financial relief measures, and federal assistance related to the COVID-19 pandemic 	-	-	-	-
Nova Scotia				<ul style="list-style-type: none"> • A report from the Northwood Quality-improvement Review Committee submitted to Nova Scotia's Minister of Health and Wellness has identified key drivers for the largest nursing home outbreak in the province, and recommendations for the future • The report has 17 recommendations for Northwood, the Department of Health and Wellness and 	

				<p>government, informed by consultations with more than 350 stakeholders including residents and families, staff members, healthcare practitioners and leaders involved in the Northwood outbreak response</p> <ul style="list-style-type: none"> • The recommendations are indicated to be acted upon in short (less than three months) and long term (greater scope and require longer than three months) time horizons, and are organized based on level of intervention: facility level, governance and organization level, and legislation and provincial level • Nova Scotia's Department of Health and Wellness and Nova Scotia Health Authority published a report presenting a literature review, analysis, findings and recommendations based on long-term care Infection Prevention and Control (IPAC) teams during the first 	
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				<p>wave of the COVID-19 pandemic</p> <ul style="list-style-type: none"> Recommendations and actions should be formalized to continue through subsequent waves of the pandemic 	
Prince Edward Island	<ul style="list-style-type: none"> The Auditor General of Prince Edward Island's annual report of 2021 indicates that the auditor general has been requested to undertake an examination of the government's COVID-19 pandemic response The office of the auditor general is to report back by August 2021 and is currently in phase one (includes reviewing programs paid for using the Emergency Contingency Fund) of their reporting 				
Newfoundland and Labrador					
Yukon					
Northwest Territories					
Nunavut					

Appendix 7: Documents excluded at the final stages of reviewing

Type of document	Hyperlinked title
Full systematic reviews	A systematic review on COVID-19 mitigation strategies on transmission and social-economic impact and key lessons for low income countries (LICS)
	Lessons learned from the resilience of Chinese hospitals to the COVID-19 pandemic: a scoping review (Pre-print)
	Social protection as a key tool in crisis management: Learnt lessons from the COVID-19 pandemic
	Policing in pandemics: A systematic review and best practices for police response to COVID-19
	COVID-19 economic response and recovery: A rapid scoping review
	Economic evaluation of programs against COVID-19: A systematic review
	An economic evaluation of Influenza and COVID -19 pandemic prevention and control interventions: a systematic review
	A Rapid Scoping Review: What factors/criteria/considerations should be in place to move forward with lifting restrictions at a regional level?
	Systematic review of experiences of key actors and organisations at multiple levels within health systems internationally in responding to COVID-19
	Efficacy and safety of current therapeutic options for COVID-19 - lessons to be learnt from SARS and MERS epidemic: A systematic review and meta-analysis
	A systematic review on COVID-19 mitigation strategies on transmission and social-economic impact and key lessons for low income countries (LICS)
	Lessons learned from the resilience of Chinese hospitals to the COVID-19 pandemic: a scoping review (Pre-print)
	Social protection as a key tool in crisis management: Learnt lessons from the COVID-19 pandemic
	Policing in pandemics: A systematic review and best practices for police response to COVID-19
	COVID-19 economic response and recovery: A rapid scoping review
Rapid review	Strengthening the role of local and international non-governmental organizations in pandemic responses

	Review of international public policy responses to easing restrictions introduced to limit the spread of COVID19
	What factors may help protect Indigenous peoples and communities in Canada and internationally from the COVID-19 pandemic and its impacts?
	What is known about the impact of the COVID-19 pandemic on Indigenous communities in Canada?
	Les services sociaux et de santé mentale à maintenir, à remettre en place ou à déployer auprès de la population générale lors de la phase de rétablissement de la pandémie
	Problems with Evidence Assessment in COVID-19 Health Policy Impact Evaluation (PEACHPIE): A systematic strength of methods review
	Population-wide testing of SARS -CoV-2: Country experiences and potential approaches in the EU/EEA and gthe United Kingdom
	COVID-19: Regard sur la fréquentation des urgences par les adolescents pour certaines problématiques de santé mentale et psychosociales
	Impacts of health-related school closures on child protection outcomes: A review of evidence from past pandemics and epidemics and lessons learned for COVID-19
	Mental health of healthcare workers during the COVID-19 outbreak: A rapid scoping review to inform provincial guidelines in South Africa
	Strengthening the role of local and international non-governmental organizations in pandemic responses
	Review of international public policy responses to easing restrictions introduced to limit the spread of COVID-19
Single studies	What factors may help protect Indigenous peoples and communities in Canada and internationally from the COVID-19 pandemic and its impacts?
	Assessing the impact of COVID-19 pandemic on urban transportation and air quality in Canada
	Mental health consequences for healthcare workers during the COVID-19 pandemic: A scoping review to draw lessons for LMICs
	Neurological complications of coronavirus infection; a comparative review and lessons learned during the COVID-19 pandemic

	<u>Adaptations of transfusion systems to the COVID-19 pandemic in British Columbia, Canada: early experiences of a large tertiary care center and survey of provincial activities</u>
	<u>Overall impact of the COVID-19 pandemic on interventional radiology services: A Canadian perspective</u>
	<u>Socio-demographic disparities in knowledge, practices, and ability to comply with COVID-19 public health measures in Canada</u>
	<u>Covid-19: regard sur la fréquentation dans les urgences au québec</u>
	<u>Unintended consequences of COVID-19: Impact on self-harm behaviour</u>
	<u>Unintended consequences of COVID-19: Impact on harms caused by substance use</u>
	<u>Potential earnings losses among high school and postsecondary graduates due to the COVID-19 economic downturn</u>
	<u>Uncertainties around COVID-19 from the perspectives of oral health care workers during the first wave of SARS-CoV-2 infections in British Columbia, Canada</u>
	<u>How did the COVID-19 pandemic affect the hours worked in Canada? An analysis by industry, province and firm size</u>
	<u>COVID-19 in Canada: A one-year update on social and economic impacts</u>
	<u>Impact of COVID-19 on businesses majority-owned by women, third quarter of 2020</u>
	<u>Impact of COVID-19 on small businesses in Canada, third quarter 2020</u>
	<u>Impact of COVID-19 on businesses majority-owned by specific populations, first quarter of 2021</u>
	<u>Impact of COVID-19 on businesses majority-owned by visible minorities, third quarter of 2020</u>
	<u>Impact of the COVID-19 pandemic on the NEET (not in employment, education or training) indicator, March and April 2020</u>
	<u>Economic impact of the COVID-19 pandemic on Canadian businesses across firm size classes</u>
	<u>Working from home: Potential implications for public transit and greenhouse gas emissions</u>
	<u>'Homeschooling' and the COVID-19 crisis: The insights of parents on curriculum and remote learning</u>

	The educational impact of the Covid-19 rapid response on teachers, students, and families: Insights from British Columbia, Canada
	Be Kind, be calm, be safe: Four weeks that shaped a pandemic
	Summary of COVID-19 pandemic funding allocations and other financial relief measures
	Fallout from the COVID-19 pandemic: A look back at selected industries in the service sector in 2020
	Household economic well-being during the COVID-19 pandemic, experimental estimates, fourth quarter 2020
	Does social isolation really curb COVID-19 deaths? Direct evidence from Brazil that it might do the exact opposite
	Physical distancing and future COVID-19 deaths in Brazil: Evidence of a paradoxical effect
	Patterns of COVID-19 testing and mortality by race and ethnicity among United States veterans: A nationwide cohort study
	Global health and health workforce development: What to learn from COVID-19 on health workforce preparedness and resilience
	Health systems resilience in managing the COVID-19 pandemic: lessons from 28 countries
	The educational impact of the Covid-19 rapid response on teachers, students, and families: Insights from British Columbia, Canada
	Summary of COVID-19 pandemic funding allocations and other financial relief measures
Opinion pieces	Policy makers must act on incomplete evidence in responding to COVID-19
	CADTH drug implementation advice: Bamlanivimab for mild-to-moderate symptoms of COVID-19
	Best Brains Exchange proceedings report: Strengthening the structural determinants of health post-COVID-19
	Recording COVID-19 measures in the national accounts
	Foresight on COVID-19: Possible shifts and implications
	Unpacking the health and social consequences of COVID-19 through a race, migration and gender lens
	Investing in Care, Not Profit: Recommendations to transform long-term care in Ontario

	Lessons learnt during the COVID-19 pandemic: For patients with end-stage renal disease, we should prioritize home-based treatment and telemedicine
	Lessons (so far) from the COVID-19 pandemic
	What can we learn from Israel's rapid roll out of COVID 19 vaccination?
	Blunting COVID-19's negative impact: Lessons from Israel's vaccination campaign
	Policy makers must act on incomplete evidence in responding to COVID-19
	Lancet COVID-19 commission
	Association between preparedness and response measures and COVID-19 incidence and mortality

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