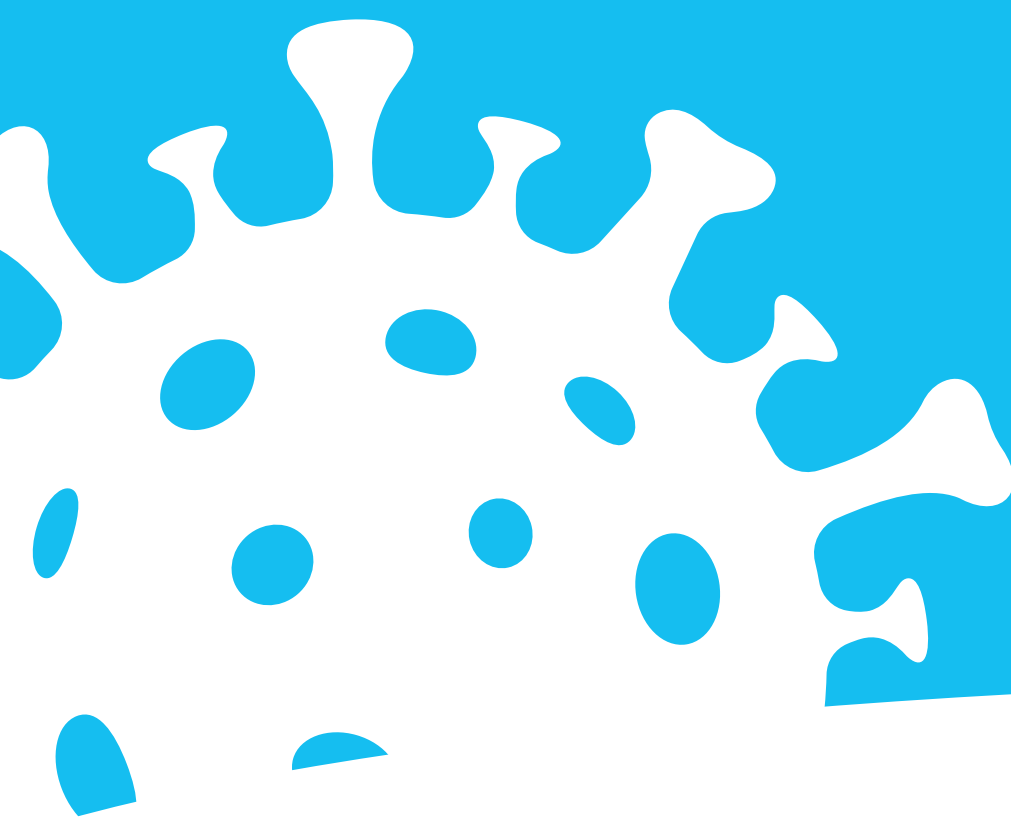


# From Risk to Resilience: **AN EQUITY APPROACH** to COVID-19



The Chief Public Health Officer of Canada's Report  
on the State of Public Health in Canada 2020

Canada



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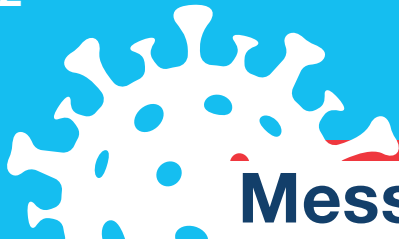
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# Message from the Chief Public Health Officer of Canada



The COVID-19 pandemic is having a profound impact on the health, social and economic well-being of people in Canada and around the globe. It has led to fundamental changes in our daily lives. Sadly, many

Canadians have experienced its tragic consequences, including the suffering and loss of loved ones, lost jobs and livelihoods, and reduced social connections and isolation.

While the COVID-19 pandemic affects us all, the health impacts have been worse for seniors, essential workers, racialized populations, people living with disabilities and women. We need to improve the health, social and economic conditions for these populations to achieve health equity and to protect us all from the threat of COVID-19 and future pandemics.

That is why this year, the focus of my annual report is on understanding COVID-19's broader consequences and offers evidence-based solutions. The data presented in this report covers the time period from January to August 2020.

It is important that we do not lose sight of how far we have come in our efforts to understand and control this virus. Looking back to earlier this year, I am reminded of the unprecedented situation we faced. Early in the crisis, with limited data and research on the virus, governments at all levels across the country put in place broad public health measures and were successful at flattening the curve together. Canadians reached out to check on neighbours or organized grocery deliveries for those required to self-isolate after returning from abroad. Canadian industry and businesses rapidly adapted their

services and retooled their manufacturing for needed equipment and supplies. These are only a few of the actions which reflect the remarkable whole-of-society effort that collectively allowed Canada to slow the epidemic over the summer months.

But our work together is not over given the low level of immunity in the population. At the time of finalizing this report, cases of COVID-19 are once again beginning to rise across the country after a period of increasing social interactions. Yet we have more knowledge now on how to reduce virus spread, more tools to detect cases, trace contacts and support isolation and quarantine. We know more about the clinical manifestations of COVID-19 and are better able to manage those who are seriously ill. We know we must continue to follow public health advice and protect those at high risk while, at the same time, attending to the human, social and economic impacts our communities are experiencing. There are no easy solutions and difficult choices remain in the months ahead.

The COVID-19 pandemic has jolted our collective consciousness into recognizing that equity is vital for ensuring health security.

This means incorporating a health equity approach to pandemic preparedness, response, and recovery. It relies on leadership at all levels, commitment of all Canadians and support by a strong public health system.

The bottom line: **no one is protected until everyone is protected.**

**Dr. Theresa Tam**

Chief Public Health Officer of Canada



# About this Report

The annual report of the Chief Public Health Officer of Canada (CPHO) provides an opportunity to examine the state of public health in Canada and to stimulate dialogue about issues critical to the health of Canadians.

This year's annual report describes the heavy toll that the COVID-19 pandemic has had on Canadian society, both directly and through the steps taken to mitigate its effect. Through this challenging time, there has been incredible collaboration across sectors and between individuals, community organizations, businesses, governments and scientists. The aim of this report is to suggest opportunities to build on this collaboration to strengthen our nation's preparedness for future public health emergencies. In doing so, we can build a stronger society for all Canadians.

This report draws on previous work, which demonstrates that the health of Canadians is dependent on a set of fundamental social determinants.<sup>1, 2</sup> COVID-19 has underscored the inequities in health that are shaped by these determinants, highlighted how these inequities may be exacerbated in the context of a pandemic, and shown how they can aggravate and prolong the spread of disease, making the pandemic worse.

**Section one** sets the context with a brief description of the SARS-CoV-2 virus, the evolving epidemiology of the COVID-19 crisis as it emerged globally and in Canada from January 2020 to August 2020.

**Section two** reviews the direct and indirect impacts of COVID-19 on the health and well-being of people in Canada. It reviews inequities prior to the emergence of COVID-19, and how these were exacerbated by the pandemic itself and the impacts of the public health measures put in place to slow the spread of the virus.

**Section three** draws upon the success stories from other health crises and preliminary indicators from the response to COVID-19. It suggests ways forward to rebuild from the COVID-19 pandemic with a view to improving health for all Canadians.

**Note to the reader:** Developed during the summer of 2020, this report reflects the evolving nature of the science and our understanding of the virus and the epidemic in Canada. Based on the best available evidence at the time, this document does not represent an exhaustive high-quality evidence review. Instead, it reflects some of the realities and challenges faced by scientists and decision-makers in the early stages of the epidemic to determine the actions needed to effectively counter the impacts of COVID-19 (i.e., "science to policy" decisions), while continuously adjusting to an evolving evidence base. In other words, the report tells the story of the initial stages of the pandemic, Canada's response and the ongoing effects, but it was written with the knowledge that the story is continuing to change every day. While every effort has been made to ensure the validity of the presented findings, the possibility remains that some aspects of the report may have changed since the time of publication. Further details on the methods and limitations are contained in [Appendix 2](#).

We respectfully acknowledge that the land on which we developed this report is in traditional First Nation, Inuit, and Métis territory, and we acknowledge their diverse histories and cultures. We strive for respectful partnerships with Indigenous peoples as we search for collective healing and true reconciliation. Specifically, this report was developed in Ottawa, on the traditional unceded territory of the Algonquin people; in Montreal, on the traditional unceded territory of the Mohawk people, and in Toronto, on the traditional territory of the Wendat, the Anishnaabeg, Haudenosaunee, Métis and the Mississaugas of the New Credit First Nation.



## SECTION 1

# COVID-19 in Canada

## Introduction

The COVID-19 (Coronavirus disease 2019) pandemic poses an unprecedented threat to the health, social and economic well-being of Canadians.<sup>3</sup> According to the World Health Organisation (WHO), it is the most severe global health emergency announced since 2005, when the Public Health Emergency of International Concern (PHEIC) global alert system was first developed.<sup>4, 5</sup> Following the earliest known reports of this novel disease at the end of December 2019, by August 22, 2020, confirmed COVID-19 cases had been reported on all continents except Antarctica, with a cumulative total of over 22,800,000 cases and 790,000 deaths.<sup>6, 7</sup> For comparison, it has been estimated that on average, influenza causes about 390,000 global deaths per year.<sup>8</sup> While there was variation in how the responsible virus, SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2), spread through different parts of the world and across Canada, its high rate of transmission<sup>9</sup> and virulence<sup>10</sup> have had significant worldwide impacts:<sup>11, 12</sup>

- Half of the world's population lived under strict confinement conditions in April 2020;<sup>13</sup>
- International air travel was estimated to experience its biggest decline in history with 44% to 80% fewer passengers in 2020;<sup>14</sup>
- Over 300 million full-time jobs were lost globally in the second quarter of 2020;<sup>15</sup>
- By the end of 2020, global economic growth could contract by 3 to 6%, increasing the risk of a recession to rival the 1930s Great Depression;<sup>16</sup> and
- 87% of the global student population was affected by school closures by the end of March 2020.<sup>17</sup>

In this section, we provide a brief snapshot of the origins of the disease, its impact on various populations from January to August 2020, and the public health measures used to mitigate transmission.

## Beginning of COVID-19

COVID-19 is a novel infectious disease caused by the virus SARS-CoV-2, believed to have evolved from a virus moving from bats to humans through an intermediary animal host that is yet to be identified.<sup>18, 19</sup> The first related human cases of a new "viral pneumonia of unknown cause" in China were identified by the WHO on December 31, 2019.<sup>20</sup> While the earliest human outbreaks were still being explored at the time of developing this report, within only a few weeks the virus spread rapidly around the globe.<sup>21-23</sup>

The knowledge of COVID-19 continues to evolve. COVID-19 is more contagious than many other respiratory diseases, including seasonal influenza, Severe Acute Respiratory Syndrome (SARS) (2003), pandemic influenza (H1N1 2009) or Middle East Respiratory Syndrome (MERS) (2012).<sup>24-26</sup> Research has demonstrated that some people can have no symptoms or very different symptoms (e.g., gastrointestinal symptoms, loss of sense of smell) than those first identified, and that asymptomatic and pre-symptomatic transmission can fuel disease spread.<sup>27-29</sup> Overall, up to 15% of people with laboratory-confirmed COVID-19 develop more serious forms of the disease, requiring hospitalization and up to 5% may require admission to an intensive care unit (ICU).<sup>30</sup> Post-infection immune and inflammatory response as well as possible long-term outcomes still need to be further characterised.<sup>31-33</sup>

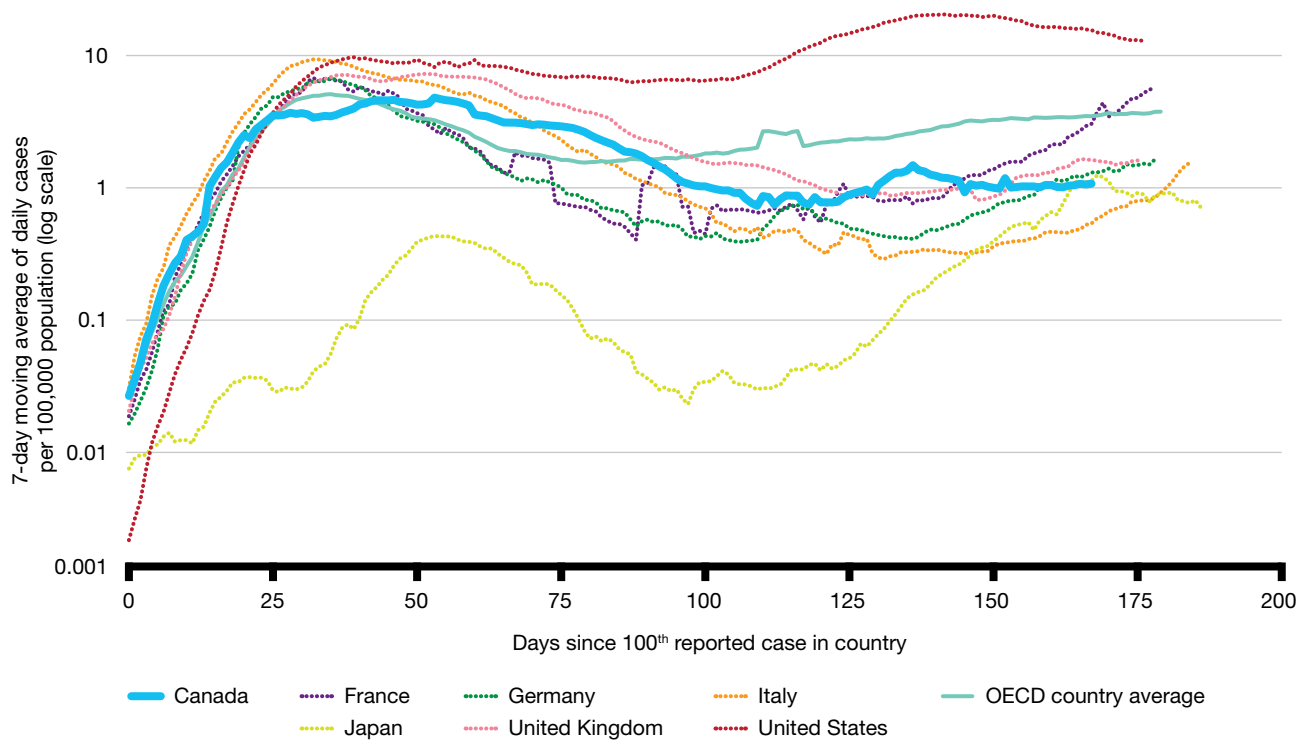
## Epidemiological Snapshot of COVID-19

### Globally

Following COVID-19 emergence in China, the epicentre of the COVID-19 pandemic shifted first to other Asian countries, then Europe and then to the Americas at the time of writing this report.<sup>34</sup> On April 26, 2020 six countries (Belgium, France, Italy, Spain, UK and the USA) accounted for three-quarters of the global COVID-19 deaths, even though they make up only 7.5% of the global population. The COVID-19 death rate in these countries was 27 per 100,000 inhabitants, which was 39 times higher than the rest of the world's average of 0.7 per 100,000.<sup>35</sup> The relatively high death rate in these countries may be attributed to epidemic spread affecting a high proportion of individuals in vulnerable populations, groups and settings, such as seniors, disadvantaged and congregate living settings, and overwhelmed healthcare systems.<sup>36-38</sup>

From a global perspective, Canada ranked #79 out of 210 countries with respect to total cases per million inhabitants and #26 for total deaths per million, as

of August 22, 2020.<sup>39</sup> The disproportionately higher ranking based on fatality rates was largely driven by outbreaks in long-term care homes, which are further discussed below. Overall, based on the comparison of daily cases reported by country, Canada's COVID-19 epidemic evolved similar to the average of Organisation for Economic Co-operation and Development (OECD) countries ([Figure 1](#)). Relative to some other countries, such as the US, Canada managed to slow the growth of the epidemic more quickly, which may at least in part be attributable to the rapid implementation of a coordinated national public health response. At the time of writing this report, case counts continue to rise around the world, including in certain countries that were initially successful in containing the virus such as Japan, thereby highlighting the insidious nature and persistence of SARS-CoV-2 spread. Since diverse factors have influenced the course of the pandemic and the detection, reporting, classification of cases, and deaths in different countries, their respective data must be interpreted with caution.<sup>40</sup> Nonetheless, Canada continues to learn from the experience of other countries as they have employed a range of public health measures and approaches in an effort to minimise the impact of COVID-19 while resuming economic and social activities.

**FIGURE 1: Daily COVID-19 Cases by Country**

Source: European Centre for Disease Prevention and Control, COVID-19 situation update worldwide<sup>41</sup>

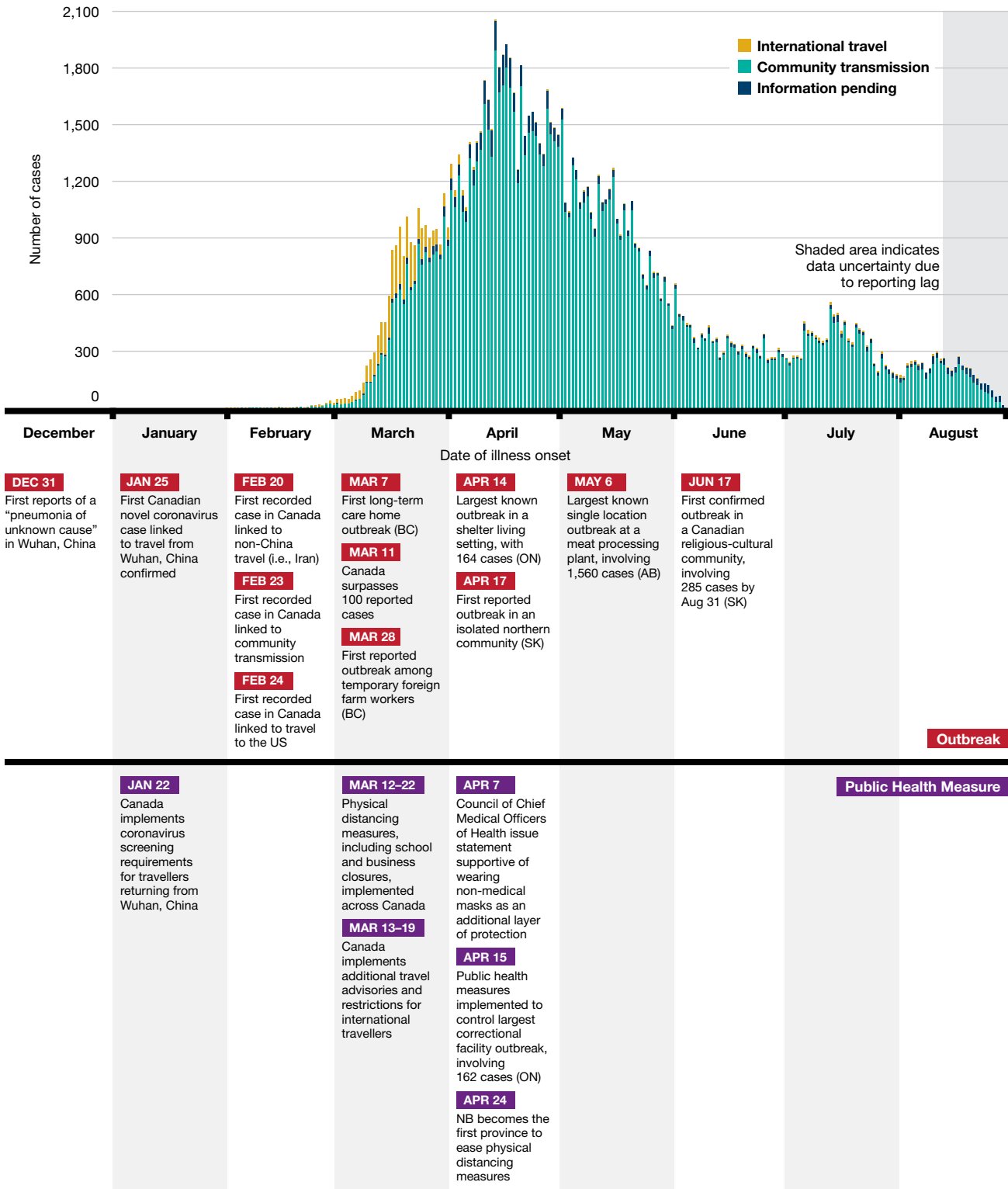
## Nationally

The first confirmed Canadian case of COVID-19 on January 25, 2020 was linked to international travel.<sup>42</sup> The progressive implementation of public health measures aimed at countering the epidemic, such as advice against non-essential travel, border screening measures, public health information for travellers, quarantine measures and travel restrictions effectively reduced the importation of travel-related cases by the beginning of April (Figure 2). As contact tracing efforts confirmed new cases that were not linked to incoming travellers, community transmission quickly became the main driver of the epidemic in Canada, marked by several outbreaks in vulnerable populations and settings. In March, restrictive public health measures were escalated at the federal, provincial, territorial and municipal levels in an effort to contain the virus. By mid-April, the epidemiological curve was flattening across the population. With continued decline in the infection rate,

areas that had achieved a low and manageable level of COVID-19 burden began a slow and cautious loosening of restrictive public health measures. Figure 2 provides an epidemiological overview of the national COVID-19 epidemic from December 31, 2019 to August 31, 2020. Here, the number of confirmed cases in Canada is shown over time with information on the source of acquisition (international travel or community) as well as key outbreaks and public health measures. Note that in the graph of the epidemic curve, “date of illness onset”, which is ascertained retrospectively, is not the same as the “reporting date” (e.g., when public health authorities report their daily case counts). More detailed information, including all supporting references, can be found in the textbox “[Activating the Pan-Canadian Public Health Response](#)” and [Appendix 1](#).



**FIGURE 2: Overview of Canada’s Epidemic with Selected Key Milestones (December 2019 – August 2020)**

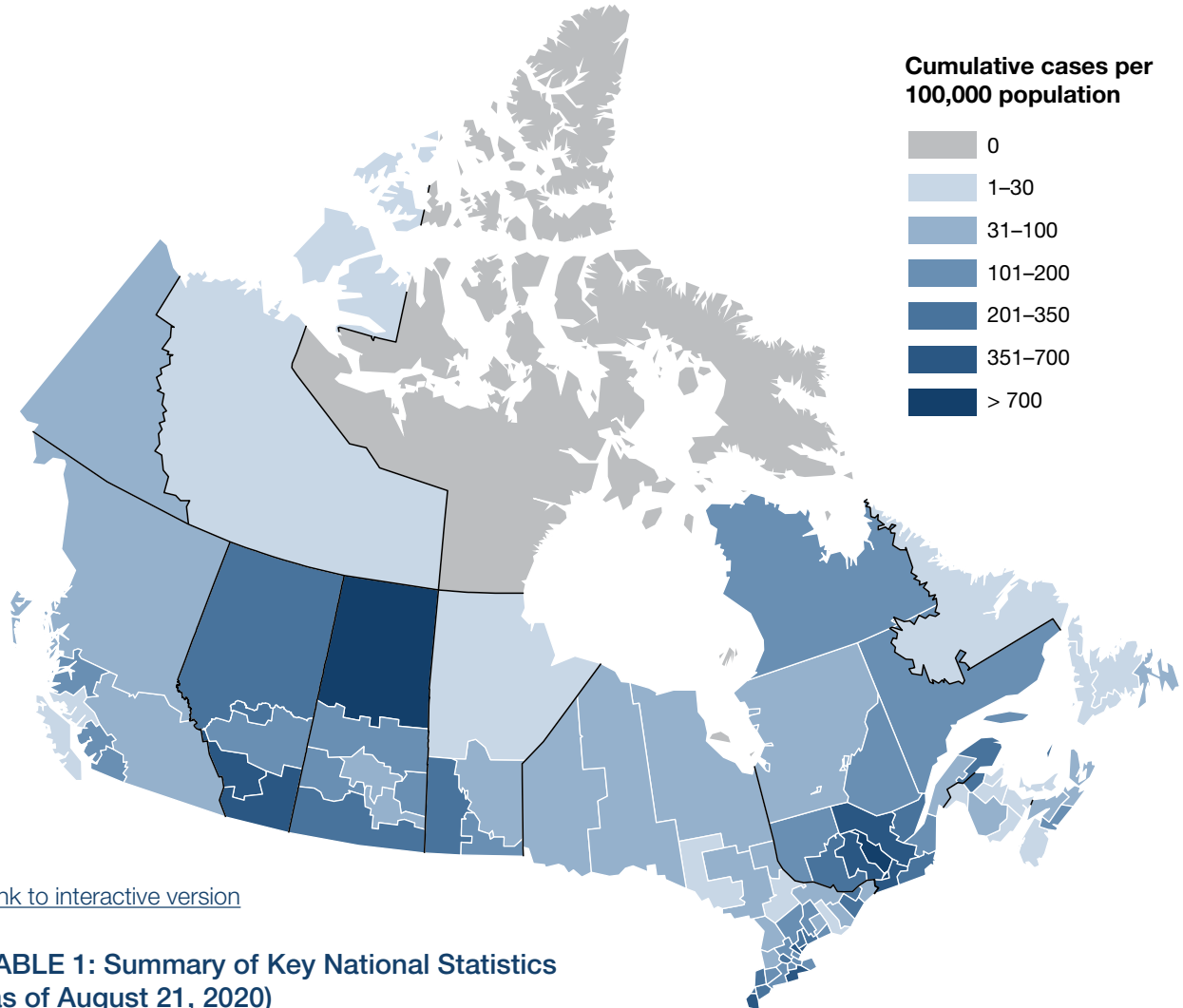


Source: Number of COVID-19 cases reported by provinces and territories, by date of illness onset and exposure category as of August 31, 2020 (n=121 131) and compiled publicly reported data from provincial and territorial websites, press briefings, and media reports<sup>43</sup>

It is important to note that the national picture masks regional differences that occur in different jurisdictions and sub-populations. These are highlighted as part of

the epidemiological summary of COVID-19 in Canada, which is based on geographic, demographic and disease outcome indicators, in Figure 3 and Table 1 below.

**FIGURE 3: National Case Distribution by Health Region (as of August 31, 2020)**



[Link to interactive version](#)

**TABLE 1: Summary of Key National Statistics (as of August 21, 2020)**

<b>People tested</b>	5,034,059*	<b>Median age (range)</b>	47 years (<1 to 112)
<b>Cases</b>	124,372*	<b>Females</b>	66,485 (55%)
<b>Recovered cases</b>	110,648 (89%)*	<b>Males</b>	54,295 (45%)
<b>Deaths</b>	9,064 (7.3%)*	<b>Other sex/gender</b>	15 (<1%)
<b>Hospitalization</b>	11,370 (14%) <sup>‡</sup>		
<b>ICU admissions</b>	2,314 (3%) <sup>‡</sup>		
<b>ICU median age (range)</b>	63 years (<1 to 102)		

Age and sex/gender available for 121,052 and 120,795 cases, respectively.

\* As the true number of infections in the population remained unknown, total number of cases and proportion of deaths are thought to be under- or overestimated, respectively.

<sup>‡</sup> Of 83,694 case reports for which the hospitalization fields were completed.

Source: Berry I, Soucy J-PR, Tuite A, Fisman D. Open access epidemiologic data and an interactive dashboard to monitor the COVID-19 outbreak in Canada (2020). COVID-19 situational awareness dashboard<sup>44</sup> and epidemiological research data<sup>43</sup>

## Variations of the Epidemic in Canada

From January to August 2020, the overall course of the COVID-19 epidemic was marked by the following key observations:

### International Travel and Community Transmission Have Played a Significant Role

A detailed analysis of the origin of international travel-related cases reported from January to March 2020 revealed that 35% of these cases entered Canada from the US, 10% from the UK and France, and 1.4% from China (i.e., the original epicentre for the emergence and spread of COVID-19).<sup>45</sup> Further, although COVID-19 originated abroad, with significantly reduced international travel following implementation of travel restrictions in mid-March, by August 2020, 91% of all reported cases were linked to transmission within Canada and only 4% were linked to international travel, with a further 5% pending exposure information.<sup>46</sup>

### The COVID-19 Situation Has Unfolded Differently Across the Country

Quebec and Ontario have reported the highest incidence rates, exceeding the overall national average, while Nunavut is the only jurisdiction that had not reported any confirmed cases as of mid-August.<sup>42, 43</sup> High rates of international and domestic travel early in the pandemic have been proposed as an important contributor to differential COVID-19 burden across the country. For instance, spring break in Quebec, a time of increased international travel, occurred just prior to the federal government's recommendation to avoid non-essential travel to all countries.<sup>47</sup> In addition, over one million Canadians and permanent residents heeded the advice from Global Affairs Canada to return home in order to avoid becoming "stranded" abroad during the same period, potentially accounting for a significant number of travel-related cases that were subsequently reported across the country.<sup>48</sup>

### COVID-19 Impacts Have Varied Depending on Individual Health Status

The severity of COVID-19 outcomes can be influenced by underlying medical conditions. For instance, one study from the US reports that 92% of hospitalized COVID-19 patients had at least one underlying health condition.<sup>49</sup> Although these types of data are not routinely collected in Canada, preliminary findings were similar. As of August 27, 2020, and based on 700 reports from a sentinel hospital surveillance network in Canada, 86% of hospitalized COVID-19 cases had at least one underlying health condition, such as vascular illness including hypertension (64%), cardiac illness (32%), and diabetes (30%).<sup>a, 50</sup> In addition, among patients hospitalized with COVID-19 who died in hospital, 98% also had one or more underlying medical conditions.<sup>a, 50</sup> To put this in context, 44% of Canadian adults live with at least one common chronic condition and the likelihood of living with a chronic disease increases with age.<sup>51-54</sup> While more research is needed to fully understand the contribution of an underlying medical condition,<sup>55</sup> a number of studies have suggested an increased risk of severe COVID-19 outcomes in association with diabetes, cardiovascular disease, cancer, immunosuppression, obesity, respiratory disease, or chronic kidney disease.<sup>56-61</sup>

### COVID-19 Impacts Vary Across Age

The risk of serious COVID-19 health impacts increases with age. Among all age groups, adults over 60 years of age experience the largest proportion of serious COVID-19 outcomes, accounting for 70% of all hospitalizations, 60% of intensive care unit admissions and 97% of deaths by the end of August. In contrast, children and youth aged 19 years or younger account for only 9% of all cases, 1% of hospitalizations and 0.01% deaths.<sup>43</sup> Although children, youth, and young adults face generally lower COVID-19 risks than older age groups, they may still experience severe or prolonged symptoms.<sup>62</sup> In children, preliminary studies have further identified a small increased risk of developing serious forms of Multisystem Inflammatory Syndrome in Children (MIS-C).<sup>63</sup>

a The Serious Outcomes Surveillance Network of the Canadian Immunization Research Network (CIRN-SOS) collects information on hospitalized adult patients aged 16 years or older. As of 27 August 2020, CIRN-SOS has collected case-level data on 700 adult patients hospitalized with COVID-19 across eight hospital sites in Ontario, Quebec, and Nova Scotia.

## COVID-19 Burden Not Equal Across Populations in Canada

Some individuals and groups face disproportionately higher risks for infection and impacts than others in Canada. The reasons for this differential impact will be explored in [Section two](#), but the available data on cases and outcomes are summarized below:

### Long-term Care Home Residents and Workers

At the time of writing this report at the end of August, residents and staff of long-term care (LTC) facilities<sup>b</sup> have been the most affected group, comprising about 15% of all cases and residents alone making up 80% of all COVID-19-related deaths associated with long-term care ([Table 2](#)).<sup>64</sup> Multiple factors contribute to the high mortality rate. Long-term care home residents face an inherently high risk of severe COVID-19 outcomes due to their advanced age and higher prevalence of chronic underlying medical conditions.<sup>65</sup> For example, many residents have dementia which may make infection control difficult.<sup>66, 67</sup>

In addition, pandemic preparedness did not extend into these settings leaving residents vulnerable to the introduction, spread and impact of a novel virus. LTC facilities faced challenges early on to prevent infection and spread. For instance, limited support for infection prevention and control measures, including a short supply of personal protective equipment (PPE) for healthcare workers,<sup>c</sup> increased the frequency of reciprocal viral transmission between caregivers and patients.<sup>68, 69</sup> Accordingly, over 10% of national COVID-19 cases were long-term care workers.<sup>70</sup> Many healthcare workers were initially employed in multiple facilities, potentially contributing to the spread of the virus.<sup>71</sup> Other factors which were identified as contributing to the spread of COVID-19 were overcrowding in some LTC facilities,<sup>72</sup> old infrastructure with poor ventilation<sup>73</sup> and chronic understaffing.<sup>74</sup>

**TABLE 2: COVID-19 Deaths by Province/Territory Attributed to Long-term Care Facilities**

Province or Territory	Total COVID-19 Deaths	Total COVID-19 Deaths Linked to LTC
BC	200	145
AB	228	153
SK	22	2
MB	12	1
ON	2,796	2,026
QC	5,733	4,819
NL	3	0
NB	2	2
NS	64	57
PEI	0	0
YT	0	0
NT	0	0
NU	0	0
<b>Total</b>	<b>9,060</b>	<b>7,205</b>

Source: As of August 21, 2020, compiled from publicly reported data, including media reports, not validated by province and territories<sup>43</sup>

### Age-related Trends

In light of planned school openings in the fall of 2020, there has been considerable attention paid to how to interpret the limited and emerging evidence about the broader relationship between age and COVID-19, including infection, transmission and illness severity among children. Emerging research findings suggested that COVID-19 is generally milder among children and that many cases in children may be asymptomatic or

b In this report, the term “long-term care facility” includes long-term care homes and retirement facilities.

c In this context, the term “healthcare worker” includes self-regulated professions such as doctors and nurses but also other staff providing direct care to residents such as support workers.

involve mild symptoms.<sup>75</sup> For instance, a multi-country study that included Canada estimated that people aged 19 years or younger are approximately half as susceptible to COVID-19 as older people.<sup>76</sup> Children can transmit the virus, although it is not clear how easily that occurs and requires further study.<sup>77</sup> Under the age of 10 years, children may be less likely to transmit the virus to others compared to adults, while over the age of 10 years, they may be as likely as adults to transmit the virus.<sup>78</sup>

From early July to August 2020, the highest incidence of COVID-19 was reported among 20 to 39 year olds. This contrasts with the previous trend observed until mid-June, when people 80 years of age and older had the highest incidence.<sup>79</sup>

### COVID-19 Affects the Sexes Differently

While much remains unknown, observed differences in COVID-19 impacts between the sexes<sup>d</sup> seem to be associated with biological and situational factors.<sup>80, 81</sup> By the end of August 2020, 55% of all reported cases were female and 45% were male.<sup>43</sup> Risk factors have been proposed to account for the observed differences. For instance, two out of three long-term care home residents are female.<sup>82</sup> In addition, the majority of healthcare workers are female, thereby increasing their risk of COVID-19 infection due to viral exposure from residents, patients or colleagues.<sup>83</sup> Among those hospitalized, 25% of males experienced severe symptoms requiring ICU admission compared to only 16% of females.<sup>43</sup> The higher ICU rate in males remains poorly understood, but may be linked to differences in healthcare seeking behaviour, immune response, viral host cell receptor levels and presence of risk factors, such as smoking, compared to females.<sup>84</sup>

### Risks for Essential Workers

Essential workers<sup>e</sup> experience higher risks of viral exposure in their work environment or while commuting to/from work than people confined in their homes.<sup>85</sup> The burden is especially high among healthcare workers, who are estimated to account for 19% of all national cases of people with COVID-19 by mid-August.<sup>86</sup> As of mid-August, 2020 there have been 23 COVID-19 outbreaks across Canada in agricultural workplace settings, representing close to 1,800 linked cases and four deaths, and involving over 600 temporary foreign workers.<sup>43, 64</sup> While some foreign workers were infected prior to arrival and tested positive during their 14-day quarantine period, others were thought to have acquired COVID-19 in Canada.<sup>86</sup> A number of factors may have led to these outbreaks, including close physical proximity among workers and other socio-cultural factors, which are further discussed in [Section two](#).

### Confined Working Conditions Fuel Transmission

Confined group working conditions among essential workers can fuel viral transmission, especially in situations where physical distancing between workers is difficult. For example, Canada's largest single COVID-19 outbreak by the time of report writing occurred in a meat processing plant, infecting close to 1,500 people.<sup>87, 88</sup> In this regard, it is important to acknowledge the contribution of additional intersectional determinants, such as environmental and socio-cultural factors, which are further discussed in [Section two](#).

<sup>d</sup> COVID-19 impacts vary by sex and gender. However, available statistics refer mostly to "sex" as "gender" specific data were not routinely available.

<sup>e</sup> Essential workers are individuals employed in positions considered critical to preserving life, health and basic societal functioning. This category includes, but is not limited to, first responders, healthcare workers, critical infrastructure workers, hydro and natural gas, and workers who are essential to supply society with critical goods such as food and medicines.

## Group Living Conditions May Promote Viral Spread

Confined group living conditions can create situations where physical distancing, good hygiene and sanitary standards are difficult to maintain, thereby promoting the spread of infectious disease. For example, by August 20, 2020, 360 COVID-19 cases were reported among inmates in six federal correctional facilities and 80 cases among correctional officers.<sup>64</sup> As of August 6, 1,496 COVID-19 tests had been conducted with incarcerated populations in federal custody, with 24% of these tests being positive.<sup>89</sup> The situation is also problematic for those without stable housing: in a Canadian study, the majority of surveyed communities reported difficulties providing adequate spaces to adhere to COVID-19 isolation and quarantine guidelines in shelters for those experiencing homelessness.<sup>90</sup>

Indigenous and remote communities face increased COVID-19 risks in the light of possible exacerbating conditions, such as limited access to clean water,

lack of health professionals/services, a high prevalence of chronic diseases and crowded living conditions.<sup>91</sup> For instance, by August 2020, 22% of all COVID-19 cases in Saskatchewan were linked to an outbreak in the far north, in a community with a relatively high concentration of Indigenous peoples.<sup>92</sup> Despite facing an elevated risk, many Indigenous communities took measures and were successful in protecting their members from COVID-19 (see textboxes “[Limiting the Transmission Rates in Remote and Isolated Northern Communities](#)” and “[Indigenous Populations and COVID-19: Examples of Leadership, Resilience and Success](#)”).

## Marginalization Increases Risk

While national data are not available, evidence is beginning to emerge to suggest that racialized communities who have been marginalized through structural factors (such as racism) may experience higher rates of COVID-19 infection. This is discussed further in [Section two](#).<sup>93</sup>

## Protecting the Healthcare System from Being Overwhelmed

Controlling a public health crisis requires collaborative decision-making across a complex set of health and social settings, often with incomplete or changing information and data. Learning from the COVID-19 epidemics in other countries where healthcare systems were being overwhelmed, Canadian public health measures were combined with efforts to increase and protect healthcare capacity. A variety of measures were taken by provinces and territories, including the cancellation of surgical procedures and planned treatments and the procurement of medical equipment such as ventilators. At the same time, the implementation of strict physical distancing measures helped prevent intensive care units from being overwhelmed. A modelling study looking at mitigation strategies in Ontario concluded that “restrictive physical distancing” was likely to have the best success of decreasing intensive care unit (ICU) use as a result of COVID-19.<sup>94</sup> Epidemiological data indicates that the implemented public health measures, including physical distancing, were successful as there was a sustained decrease in the number of daily new national COVID-19 cases in late April and early May.<sup>42</sup> Between April and August 2020, overall ICU occupancy rates in hospitals did not exceed 65%, indicating that Canada’s ICU capacity was not exceeded,<sup>f, 95</sup> as was the situation in other parts of the world, such as Italy or New York City.<sup>96–98</sup>

<sup>f</sup> Data may not represent the experience of individual hospitals, some of which may have been operating at close to full ICU capacity prior to the COVID-19 crisis. Overall ICU occupancy figures are based on data from BC, SK, ON, NB, NL, NS and NT only.

## Canada's Public Health Response

An optimal pandemic response is one that is rapid, decisive, adaptable and coordinated. Decision-making during a pandemic is complex and reflects an environment where knowledge is constantly changing, there is often a lack of or unclear research and evidence, data may not be standardized, and decisions need to reflect multiple needs. Within the Canadian context, the division of responsibilities between the federal, provincial/territorial and municipal levels of government, each with their own ability to make independent decisions, presents an added layer of complexity.

Preparedness planning takes place within a network of legislated requirements and emergency frameworks at all levels of governments and in collaboration with several international partners. The public health response to the COVID-19 pandemic in Canada has been guided by the *Canadian Pandemic Influenza Plan: Planning Guidance for the Health Sector*.<sup>99</sup> Federal, provincial and territorial governments worked together to update the Plan in 2018 after the H1N1 pandemic to include new actions such as strengthened linkages across surveillance activities, epidemiology capacity and primary care.

The objectives of the plan are two-fold: first to minimize serious illness and overall deaths, and second to minimize societal disruption among Canadians.<sup>100</sup> To mitigate the threat to the health, social and economic well-being of Canadians of the pandemic, a “whole-of-government” approach was implemented. Canada’s response included simultaneous actions in economic, agricultural, social and health sectors.

Public health measures were selected based on pandemic planning in all jurisdictions including learning from countries that experienced outbreaks earlier than Canada.<sup>100–102</sup> Canada’s health sector response consisted of the following actions taken as part of an

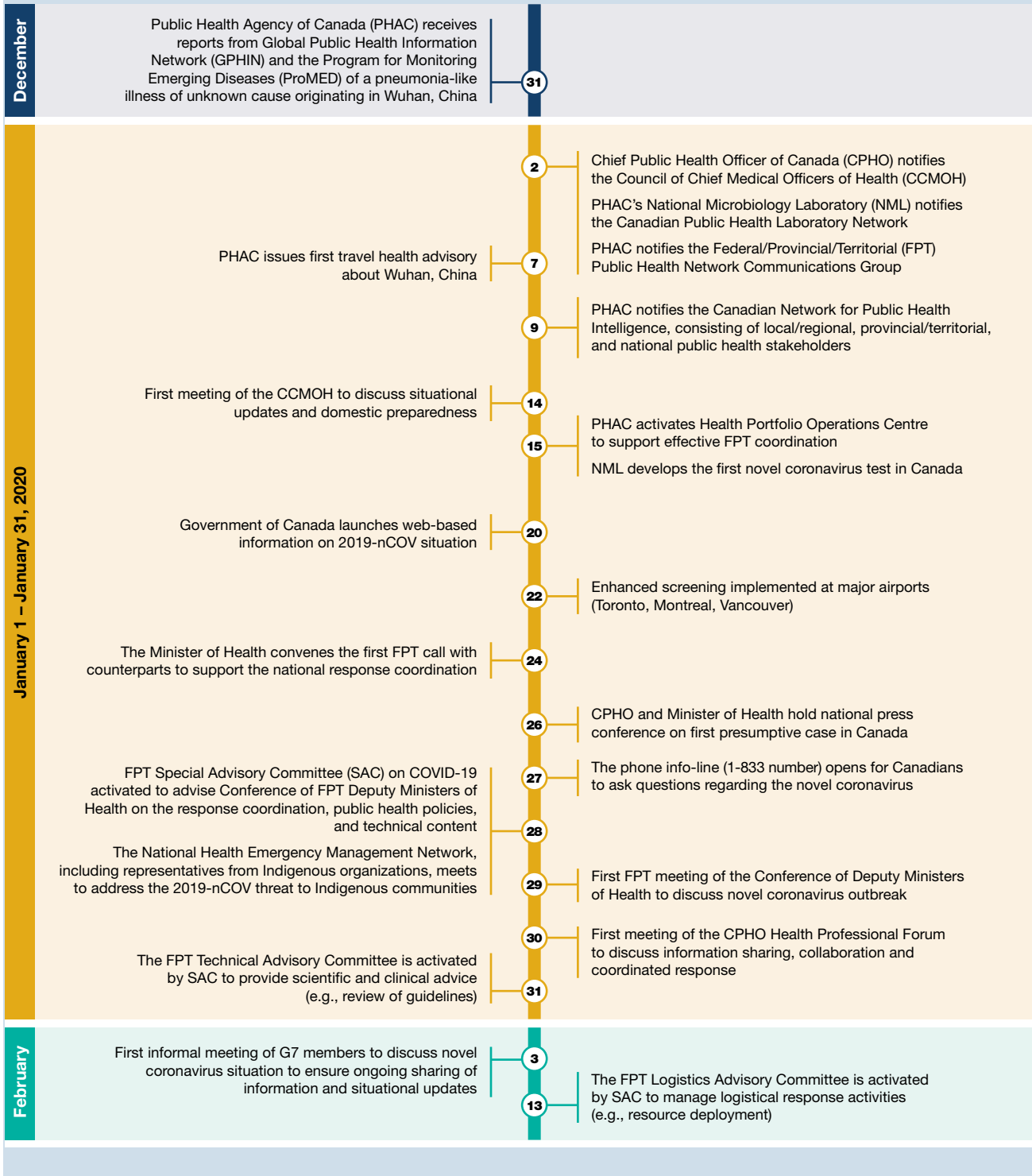
objective-driven response that began with a containment approach and transitioned to mitigation and control activities as dictated by regional epidemiology and local context (see [Appendix 1](#) for additional details).<sup>3, 100, 101</sup>

- Border measures and travel advisories to slow the importation of new travel-related cases;
- Case detection, contact tracing, communication and isolation, in order to identify and isolate or quarantine people at risk of spreading the disease;
- Research activities to understand SARS-CoV-2, its effects and possible interventions;
- Surveillance and predictive modelling to monitor the disease characteristics, spread and rate of growth to support evidence-informed decision-making for response planning and interventions;
- Rapid outbreak identification and containment activities;
- Provision of public health guidance across health, healthcare and non-healthcare settings to facilitate evidence-informed, risk-based approaches;
- Frequent and consistent communication and outreach to promote public health advice and the importance of infection control strategies such as hand washing, maintaining two metres physical distance from others and wearing a non-medical mask or face covering when distancing is difficult; and,
- Measures to minimize person-to-person spread (e.g., closing schools, non-essential work places and social meeting places).

Without a vaccine or effective treatment, meeting the primary goals of reducing the health impact while minimizing social disruption of COVID-19 has been difficult. Since COVID-19 is a novel disease, the implementation of broad community-based public health measures are critical to control the epidemic because, at the time of writing this report, effective pharmaceutical interventions (e.g., treatments, vaccine) are not available.

## Activating the Pan-Canadian Public Health Response

**FIGURE 4: Timeline of the Pan-Canadian Public Health Response**





When the Public Health Agency of Canada was notified on December 31, 2019 of a pneumonia-like illness of unknown cause in China, it initiated a series of events that prepared Canada for a public health emergency (see [Figure 4](#)). On January 2, the Chief Public Health Officer of Canada (CPHO) sent notifications to the Ministers of Health, Council of Chief Medical Officers of Health (CCMOH) and the Federal, Provincial, Territorial Public (FPT) Health Network Communications Group. At the same time, the National Microbiology Laboratory (NML) shared the report of an emerging pathogen and initiated efforts on the development of testing capacity in Canada with the Canadian Public Health Laboratory Network, made up of federal and provincial laboratories.<sup>103</sup>

These initial notifications were in keeping with existing pandemic planning protocols.<sup>101</sup> Networks of health system leaders and experts initiated a variety of aspects of the emergency response such as healthcare system preparedness and public health measures. Approximately one week after the genetic sequence of this novel pathogen was made available, the NML had developed the first novel coronavirus test in Canada. By January 14, the CPHO of Canada had convened the first special meeting of the CCMOH to discuss the outbreak of pneumonia in Wuhan, China and to evaluate the situation and preparedness in Canada.<sup>103</sup>

On January 24, the Federal, Provincial and Territorial Ministers of Health came together to discuss the emerging situation of 2019-nCoV (now COVID-19). By January 28, the Special Advisory Committee (SAC) on COVID-19 was established.<sup>100, 103, 104</sup> The SAC, which is made up of the Chief Medical Officers of Health, as well as senior public health officials from all provinces and territories, Canada's CPHO, Deputy CPHO, the senior Public Health Physician from Indigenous Services Canada, the Chief Medical Officer from the First Nations Health Authority, and representatives from several other Government of Canada departments including Immigration, Refugees and Citizenship Canada, Correctional Services Canada and the Canadian Armed Forces,

met regularly (up to three times per week through May and twice weekly from June on). Since then, Health Ministers and Deputy Ministers have met regularly to hear advice from SAC and other FPT governance tables (e.g., focused on virtual care, personal protective equipment, drug shortages), and to discuss priority issues.

SAC provides public health advice on the coordination, policy and technical response to COVID-19 in areas such as data collection and surveillance, testing, clinical and public health guidance, outbreak prevention and control, risk communications, as well as recovery and forward planning. In addition, SAC develops public health guidance that is shared with Canadians including health professional associations, businesses and social sectors (including education, long-term care and shelter associations), leaders in the health products, agriculture and food industries, and community leaders working with seniors, children and young adults.<sup>104</sup> The SAC is informed by expert subgroups on public health evidence, logistics, communications, and remote, isolated and Indigenous communities.<sup>105</sup> One subgroup, the Technical Advisory Committee (TAC), works with provincial and territorial public health experts to provide clinical and technical advice based on the hundreds of publications that are released each day on COVID-19. Given the rapidly evolving scientific evidence and changing context “on the ground”, TAC and the other subgroups provide ongoing evidence-based updates, analyses and advice to SAC.

On January 30, the CPHO convened the first COVID-19-related meeting of the CPHO Health Professional Forum, a group which includes 18 national health organisations which work to enhance responsiveness to public health priorities through information sharing, collaboration and coordinated responses.<sup>106</sup> This group continued to meet bi-weekly on COVID-19 related issues impacting the health system.

## Communicating Evolving Public Health Science and Actions

Accurate, timely and clear communication is a key element in the response to COVID-19. This includes sharing real-time information on the status of the epidemic and public health measures. Until a safe and effective treatment or vaccine is available for widespread and lasting COVID-19 control, it is individual and collective actions that will work to control the pandemic.

Throughout the pandemic to date we have witnessed a number of communication challenges such as the:

- **Vast amount and varying quality of information** – Canadians have been exposed to a deluge of information or infodemic, often unfiltered, from the professional news media, social media, friends and family,<sup>107</sup> including mis- and disinformation. This underscores the need for public health officials to regularly confirm the state of the pandemic and outline priority actions.
- **Local context of a global pandemic** – COVID-19 outbreaks across Canada have had different effects on different populations. Effective public health measures seek to recognize and target these local contexts and regional differences. In turn, information needs to be tailored and locally contextualized, while at the same time balanced with consistent key messaging being shared across the country.
- **Rapidly evolving public health science** – In January 2020, what is now known as SARS-CoV-2 was a completely novel pathogen. Since then, the global research community has come together to fill the tremendous knowledge gap that is required to identify effective public

health interventions. There are now estimates that over 19,000 scientific publications were released from December 2019 through June 2020<sup>108</sup> and others have suggested that the number of journal articles has been doubling every 20 days since January.<sup>109</sup> As the knowledge evolves so too must our policies, practices and approaches across all areas of the response.

- **Environment of uncertainty and fear** – It is important to consider the impact of the high degree of uncertainty created by a population-wide health emergency. The scale and extent of the crisis can feel overwhelming and not surprisingly, there has been an increase in reports of distress across populations, worldwide.<sup>110, 111</sup> It is in this environment that Canadians receive evolving information and advice on the virus and the recommended actions to control it.

Canadians have reported high trust in public health officials, indicating that they turn to them to provide credible information during the pandemic.<sup>112</sup> Public health officials were quick to positively reframe epidemiological and social scientific concepts when they appeared to have unintended consequences.<sup>113</sup> For example, this included shifting “social distancing” to “physical distancing.” The general public was rapidly introduced to, and engaged with, scientific concepts that were previously unfamiliar including epidemic curves (#flattenthecurve or #plankthecurve), reproduction rate ( $R_t$ ), percentage of positive tests, viral load, contact tracing, isolation and quarantine. Research is still evaluating the role of exposure to these concepts and their role in potentially increasing scientific and health literacy.

## Whole-of-society Approach

While the Public Health Agency of Canada has co-lead coordination of public health actions with other Ministries of health and public health agencies across the country, other sectors have been instrumental in developing programs geared to maintaining economic and social stability through income supplements,<sup>114</sup> agricultural supports,<sup>115</sup> and border measures (e.g., maintaining essential supply chains and services).<sup>116, 117</sup> Provincial,<sup>118</sup> territorial<sup>119</sup> and municipal governments<sup>120</sup> amended legislation and implemented measures to support public health goals. Community organizations,<sup>121</sup> businesses and manufacturers<sup>122</sup> and Canadians worked to change service delivery models and retool processes to create needed services and products (e.g., medical masks and hand sanitizers). These collaborative efforts were united in the overarching goal of slowing the growth rate of the epidemic by limiting the person-to-person spread and trying to minimize the social and economic disruption created by millions of Canadians being in lockdown.

The concerted effort between the federal, provincial and territorial governments to limit the spread of COVID-19 by closing areas exposing people to higher risks of infection (work, schools, and all but essential retail and services) resulted in high compliance by Canadians. According to a national survey, nine out of ten Canadians followed physical distancing guidelines in April, such as staying home and avoiding crowds and large gatherings.<sup>123</sup> High numbers of respondents also reported practicing physical distancing when out in public and this number increased from 87% in April, to 92% in May, which was critical in reducing the spread of the virus. An international study using Google mobility data found that even small decreases in people's mobility were associated with lower numbers of COVID-19 cases and deaths. It was estimated that across included countries (one of which was Canada), on average a 1% weekly increase in people staying home led to about 70 fewer weekly COVID-19 cases and about seven fewer weekly deaths. A weekly decrease of 1% in visits to public transit stations led to about 33 fewer weekly COVID-19 cases

and about four fewer weekly deaths.<sup>124</sup> Further, research from the United States identified an association between school closures and decreased COVID-19 spread, though other simultaneous public health measures could have also played a role.<sup>125</sup>

While there continue to be regional differences across Canada, physical distancing measures, along with other public health measures, have had a positive effect: by early May, the number of new daily cases reported nationally began to decline.<sup>43</sup> Additionally, at that time, all provinces were showing a decrease in the effective reproduction number ( $R^t$  – the average number of people infected by each person at a given time during the epidemic) for the virus, demonstrating that transmission rates had declined.<sup>126</sup>

## Responses to Facilitate Transitioning Towards Living with COVID-19

As long as COVID-19 remains a threat and the population remains at risk, multiple layers of prevention and control, including personal protective practices and public health measures will be needed to ensure the ongoing control of COVID-19. Once the first phase of the epidemic was controlled, initial public health measures were relaxed in phases to reduce social and economic disruptions.<sup>3, 127</sup> Provinces and territories continue to monitor local, regional and provincial surveillance data and adapt their guidance and public health measures based on the epidemiology within their jurisdictions. As governments at all levels prepare for resurgence of the virus, lessons-learned from applying blanket public health measures during the first wave need to inform planning and decision-making during subsequent waves. More restrictive public health actions can be applied in tailored ways in order to balance the risk of a resurgence with the health and social impacts of these measures and reduce societal disruption.

The following public health interventions are necessary when the virus is controlled yet still exists in communities:

- Maintaining transparency by providing continuous and up-to-date COVID-19 related information and guidance;
- Effectively identifying and isolating confirmed and possible COVID-19 cases and tracing and quarantining their contacts to minimize further spread;
- Continuing to promote strong personal hygiene measures to limit risk of infection and spread to others;
- Maintaining physical distancing guidelines and recommending the use of additional personal protection (e.g., wearing non-medical masks or face coverings) in situations as appropriate and where distancing is difficult; and,
- Minimizing the possibility of case importation through non-essential travel.<sup>138</sup>

Multiple layers and varying degrees of public health measures will be necessary until safe and effective pharmaceutical interventions, such as a vaccine, become widely available.<sup>139</sup> As soon as there are resurgences that are not controllable with the measures listed above, more restrictive public health measures are required to protect the health of the population. This underscores the importance of the individual and collective actions required to keep work places and schools open, maintain routine health services and support social interactions. The Special Advisory Committee (see textbox “[Activating the Pan-Canadian Public Health Response](#)”) has released a plan for the ongoing management of COVID-19. The plan is a longer-term common approach to provide federal, provincial and territorial health officials, Indigenous partners and health system leaders with advice on actions to undertake until the pandemic activity in Canada can come to an end.<sup>3</sup>

## Limiting the Transmission Rates in Remote and Isolated Northern Communities

Northern communities have been hard hit during past infectious disease outbreaks.<sup>127, 128</sup> For these communities, there was a need to balance travel restrictions with the need for the movement of essential supplies and healthcare workers into the community. Federal, provincial, territorial and community leadership undertook concrete actions to successfully protect residents against COVID-19. By end of August 2020, there was little evidence of community spread; COVID-19 cases in the territories remained low and no COVID-19 deaths were reported. Some key actions are described below.

The governments of the Yukon, the Northwest Territories (NWT) and Nunavut restricted travel into their territories at the beginning of the pandemic.<sup>129–131</sup> The Yukon government closed its border to non-essential travel, while the NWT and Nunavut closed their borders to non-residents (with limited exceptions). Many remote and isolated northern communities also imposed strict measures such as checkpoints, border closures, lockdowns, etc. In Nunavut, travel between communities or populated areas was also not allowed even for residents. The NWT recommended that families who traditionally maintain camps or cabins on the land move there to implement physical distancing instead of staying in overcrowded communities. Support was provided for families who needed funds for the extra costs of supplies such as fuel and transportation.<sup>132</sup>

Many northern communities are also sites of resource extraction and face in and out migration of workers on a regular basis. In order to mitigate the potential for transmission in these communities, efforts were undertaken to minimize shift changes and to limit travel.<sup>133</sup> The NWT public health authorities developed physical distancing protocols for outside essential workers.

As of August 31, 2020, the NWT had recorded five cases of COVID-19; no local case has been associated with outside essential workers,<sup>134, 135</sup> and Nunavut is the only jurisdiction in Canada without a reported case of COVID-19.<sup>136</sup>



## SECTION 2

# COVID-19 is Not Impacting Canadians Equally

It was critical to enact public health measures to control the spread of COVID-19 and to protect those at high risk for serious health outcomes. However, existing health inequities meant that some groups most at risk from COVID-19 were the same populations disproportionately impacted by public health measures. The impact of the pandemic crosses many spheres of life, from health and well-being to employment and income, influencing how we engage with others and where we spend our time. While the pandemic affects all Canadians, we did not all have access to the same resources and choices before or during the pandemic, leading to different health, social and economic impacts.

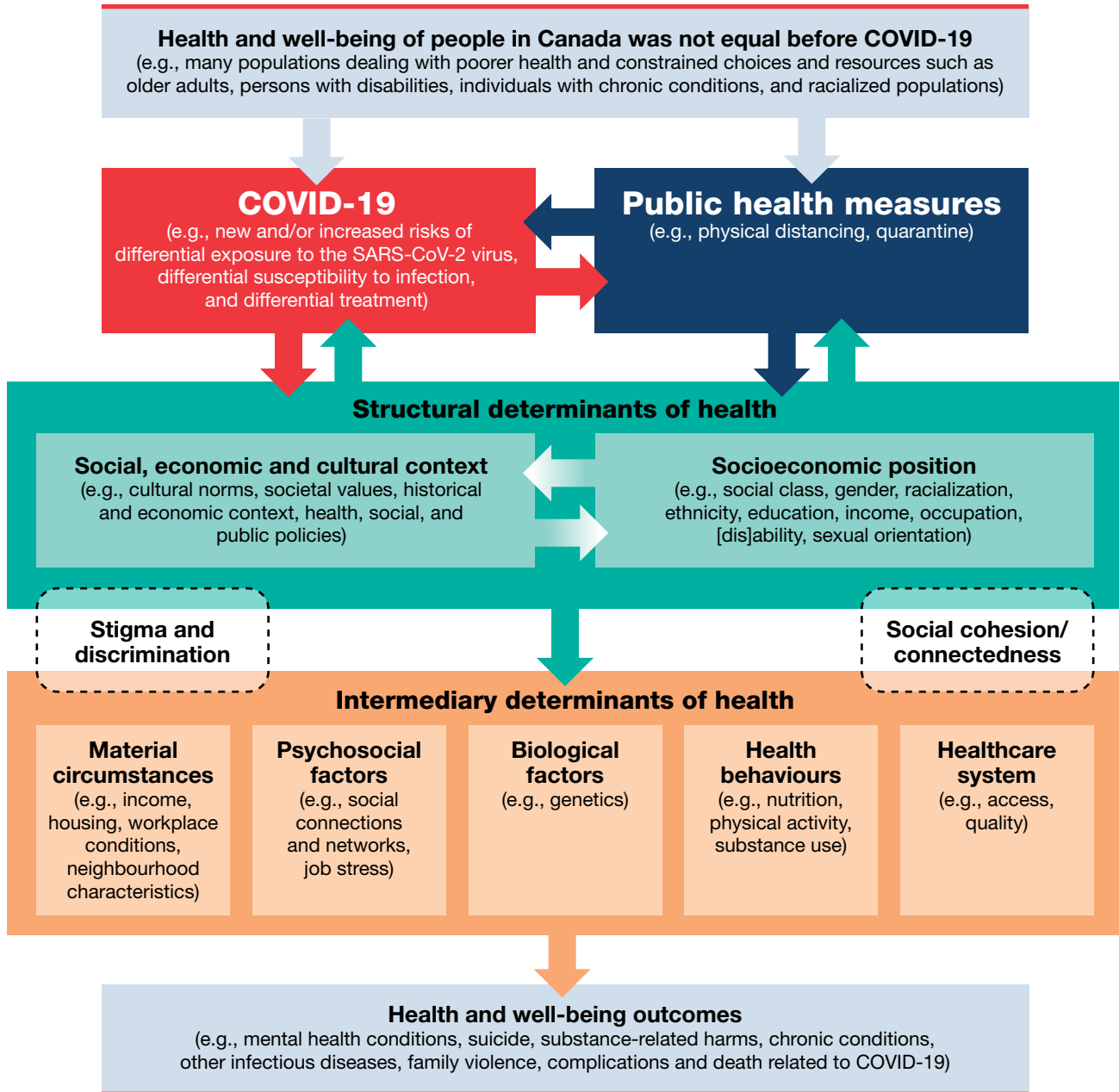
The health and well-being of people in Canada varied before the pandemic. Differential access to material resources, privilege and power, and the resulting health inequities, influenced COVID-19 morbidity and mortality (illness and death). These factors also drove differences in the impact of public health measures necessary to address the pandemic.

The many impacts of COVID-19 can be examined as being direct (i.e., from infection with SARS-CoV-2) and indirect, (i.e., those arising from the public health measures). To better illustrate the direct and indirect impacts of COVID-19 on Canadians and how these impacts varied across populations, we have adapted

a conceptual framework based on existing health equity models.<sup>1, 2, 140</sup> Health equity models which explore the underlying conditions contributing to positive and negative health outcomes can help to clarify how disease can affect groups of people differently. This framework ([Figure 5](#)) explores how the determinants of health influenced the differential risk of COVID-19 morbidity and mortality by drawing on research which considered the factors that influence exposure, susceptibility and treatment in the context of influenza.<sup>141</sup> We then use the model to explore these factors with respect to the SARS-CoV-2 virus.

The adapted framework also helps explore the differential impact of public health measures implemented to protect Canadians during the pandemic. While public health measures created restrictions for all Canadians, some have privileges that allowed them to adapt to the restrictions while still protecting their health. For others, whose choices about work and housing were more limited, the restrictions meant even fewer opportunities to protect their physical and mental health while also meeting their basic needs.

This means that some populations, already experiencing poorer health and fewer opportunities to achieve good health, faced the pandemic at a greater risk of direct impacts (i.e., illness and death) and carried a greater burden of the public health measures.

**FIGURE 5: Direct and Indirect Consequences of COVID-19**


## The Health of People in Canada Was Inequitable Before COVID-19

Inequalities in health outcomes such as life expectancy and the likelihood of contracting chronic and infectious diseases have been well documented in both Canada and around the world. These observed disparities are influenced by differential access to factors such as housing, income and employment.<sup>140, 142, 143</sup>

The structural determinants of health – such as social and economic policies, governance structures and societal values and norms – drive health inequities because they shape the ways that power, money, and resources are distributed in society which provide individuals with greater or lesser ability to have control over their health.<sup>140</sup> Stigma and discrimination are embedded in these systems and influence who has power and privilege. For example, people can occupy different positions on the social or economic hierarchy, based on how society treats them according to factors such as their perceived race, sexual orientation, ability, sex, gender, religion or age. The CPHO's 2019 Annual Report detailed research on the experiences of stigma and discrimination among Canadians and outlined the impact of these experiences on health.<sup>2</sup>

Canada has a history of systemic racism, colonization and discrimination.<sup>144–148</sup> Indigenous peoples in Canada continue to live with the legacy of forced displacement from traditional territories, residential school experiences of abuse and neglect and the disruption of traditional culture and practices, the trauma of which continues to affect their health and well-being.<sup>149</sup> African, Caribbean and Black Canadians live with Canada's history of colonialization and slavery and the resulting racism and discrimination.<sup>2, 146–148, 150</sup>

Social and economic policies and the rules that govern society (the structural determinants of health) can reflect bias and discrimination and reinforce the fallacy that some people are better or more deserving than others. These structures impact access to the resources and opportunities necessary to support well-being, including during a pandemic. This includes an influence over the conditions in which we live, such as:<sup>141, 142</sup>

- material circumstances (e.g., income, housing, workplace conditions, neighbourhood characteristics);

- psychosocial factors (e.g., social connections and networks, job stress);
- biological factors (e.g., genetics);
- health behaviours (e.g., nutrition, physical activity, substance use); and
- the healthcare system (e.g., access and quality).

## Differences in COVID-19 Morbidity and Mortality

Reports from around the globe have demonstrated that there are real differences in who is more likely to contract COVID-19 and the severity of their illness. Importantly, these differences are not random, but fall along the lines of populations that have historically experienced health and social inequities.

As the pandemic evolved in Canada, emerging research identified groups at greatest risk of COVID-19. This includes clinical data on the biological risk factors that increase the severity of COVID-19 illness, related to sex, age, comorbidity, etc. It also includes epidemiological data that highlights the underlying social, material and economic factors that may increase the likelihood of the infection risk and the severity of illness (see [Section one](#)). By exploring how these factors influence the conditions in which different groups live, grow, work and age, we can see how the structures of society influence exposure, susceptibility and care related to COVID-19 for different groups of Canadians ([Figure 5](#)).

Researchers have examined the factors that contribute to differential exposure, susceptibility and treatment in the context of the impact of pandemics. Exposure, susceptibility and treatment are influenced by material circumstances such as housing and employment, biology and health behaviours, or access to and experiences with, health services.<sup>141, 151</sup> Stigma and discrimination also influence risk and resources.<sup>2</sup> By using these factors to explore how COVID-19 has affected the experience of people in Canada, we are able to unpack how experiences intersect to influence disparities in COVID-19 infection and illness.

## Intersectionality and COVID-19

There are overlapping and compounding risks related to sex, gender, racialization, income, housing, employment, and other socioeconomic factors. For example, racialization intersects with employment: in Canada, approximately 41% of meat processing workers are members of racialized groups, compared to 21% of the workforce in general.<sup>152</sup> Elevated risk can also be shaped by the intersection of gender and racialization. For example, the vast majority of staff in nursing and residential care facilities, as well as home care, are women, including the majority of nurses' aides, orderlies and client service associates. From 1996 to 2016, the share of immigrants in these occupations grew more quickly than in all other occupations, from 22% to 36%. Of all Canadian workers in these positions in 2016, 31% were immigrant women and the proportions were higher in larger metropolitan areas such as Toronto, Vancouver and Calgary where over 70% of these positions were filled by immigrants, the majority of these immigrant women.<sup>153</sup> Further, 12% of all workers in these occupations were Black and 11% were Filipino despite Black and Filipino workers only making up 3% of workers in all other occupations.<sup>153</sup>

In Toronto, individual-level case data collected on community cases (not including LTC cases) from mid-May to mid-July 2020 revealed that racialized populations were overrepresented in COVID-19 infections, making up over 80% of cases (despite making up only slightly more than 50% of the city's population).<sup>154</sup> Racialized groups overrepresented in reported COVID-19 cases included Arab, Middle Eastern or West Asian people, Black people, Latin American people, South Asian or Indo-Caribbean people and Southeast Asian people.<sup>154</sup> Individuals from lower-income households (where the household income is less than \$50,000) were just over half of reported COVID-19 cases, although only one-third of Toronto's population lived in lower-income households.<sup>154</sup> The City of Toronto also reported that over one-quarter of cases were among individuals living in households of 5 or more people.<sup>154</sup> While the reasons for greater risk among some populations are unclear, Toronto Public Health noted that they may be related to pre-existing health disparities, the stress of racism and discrimination, difficulty complying with public health recommendations due to roles as

essential workers or overcrowding at home, as well as inequities in healthcare and social service accessibility.<sup>154</sup>

When public health data on COVID-19 cases in neighbourhoods in Montreal was analysed using census data, there were strong positive correlations between COVID-19 cases per 100,000 residents and the percentage of Black residents.<sup>155</sup> There were also correlations to the concentrations of residents who were healthcare workers, low-income earners and in unsuitable housing.<sup>155</sup> As of mid-May, 2020, there were 2.5 times more people with COVID-19 in the most disadvantaged neighbourhoods when compared to the most affluent.<sup>156</sup> A number of factors may influence differential rates; the most disadvantaged neighbourhoods have more essential workers (care attendants, clerks, cashiers, taxi drivers, etc.), more crowded or densely populated buildings, and little access to outdoor space for physical activity.<sup>156</sup>

These trends are similar to findings internationally. In England and Wales, accounting for age, Black males and females are more than 4 times more likely to die from COVID-19 than White populations.<sup>157</sup> For males of Bangladeshi and Pakistani ethnicity, the risk of death from COVID-19 was 1.8 times higher after controlling for age, socio-demographic characteristics and measures of self-reported health and disability; this was 1.6 times more likely among females.<sup>157</sup>

In the United States, racialized groups are more likely to test positive, be hospitalized, or die from COVID-19.<sup>158</sup> For example, Black and American Indian/Alaska Native populations have hospitalization rates approximately 5.6 times that of White persons, while Black and Hispanic/Latinx have a rate approximately 4.6 times that of White persons.<sup>158</sup>

## Factors that Shape the Differential Direct Impacts of COVID-19

Many factors influence the differences in direct impacts, or morbidity and mortality, of infectious disease across populations, as outlined in [Figure 5](#). This section examines social factors that can limit access to protective resources and choices, using a model of pandemic health disparities developed for influenza. That research examined the structural and intermediary determinants of health by grouping them into differential exposure to the virus, differential susceptibility to infection, and differential



treatment.<sup>141, 151</sup> By examining these three areas, we can use an equity lens to explore how COVID-19 has differential impacts across populations.

- *Differential exposure* is connected to the material circumstances of life, as it relates to the inability to maintain physical distancing. This includes occupational factors such as the inability to work from home, access to sick leave, job security, reliance on childcare outside the home, etc. At home, exposure could be influenced by living in an urban area, living in a building with two or more units, having a larger number of children in the household, having a lower number of rooms than household members, and generally having a larger household size. Use of public transportation can also play a role in differential exposure.<sup>141, 151</sup>
- *Differential susceptibility* is shaped by a number of biological factors that could influence susceptibility after exposure, including age, underlying health issues such as heart disease, diabetes and stress as well as health behaviours such as smoking or nutritional status.<sup>141, 151</sup> Many of these factors are related to the social and structural determinants of health and are not simply the result of individual choices.
- *Differential treatment* can be affected by a number of factors related to access to and experiences with the healthcare system, including access to outpatient and inpatient medical care, financial and logistic (e.g., transportation, language) obstacles, quality of care, appropriate treatment and having experienced discrimination by the healthcare system.<sup>141, 151</sup>

## Differential Exposure to COVID-19

### Exposure at Work

#### *Who can and cannot work from home?*

Public health measures to close, or limit, in-person work for non-essential services/businesses were put in place to reduce the spread of COVID-19. Working from home is one significant way that Canadians can reduce their exposure to the coronavirus. However, there are considerable differences in who can work from home related to education, income, gender and age.

Working from home is strongly associated with educational attainment; two-thirds of primary earners with a bachelor's degree or higher can work from home compared to less than one-third of those with a high school diploma.<sup>159</sup> It is also connected to income, with both earners able to work from home in over 50% of two-income families in the top ten percent for earnings, while only 8% of two-income families in the lowest ten percent for earnings were able to have both people work at home.<sup>159</sup>

Generally, women are more likely to have jobs that can be done from home, partly because more men work in jobs such as agriculture or construction that cannot be done from home.<sup>159</sup> However, women are well represented in the healthcare sector, making up more than 86% of registered nurses and 40% of physicians working in Canada.<sup>160</sup> Healthcare workers are often employed for work which involves close or very close physical contact; in 2019, almost 90% reported these conditions of work compared with 50% of other employed Canadians.<sup>160</sup>

Age may also influence the ability to work from home. Just over 20% of young workers – those under the age of 25 years – are estimated to have the ability to telework, compared to almost 45% of those aged 35 to 44, 42% of those aged 45 to 54 and 38% of those aged 55 to 64 years.<sup>161</sup>

#### ***How risky is work, for those who cannot work from home?***

Emerging research has focused on (1) epidemiological data of infections or deaths linked to employment at individual- or neighbourhood-levels or (2) calculations of potential risk, based on physical proximity to others as well as frequency of virus exposure at work. From these data, we can identify occupations or working conditions that increase the risk of exposure to COVID-19.

In Canada, while data collection methodologies vary across the provinces and territories, to date, approximately 19% of cases of COVID-19 in Canada are healthcare workers and healthcare workers represent at least 27 known deaths.<sup>86</sup> Each province and territory includes different occupations within this category and we know that many outbreaks have occurred within long-term care facilities, with both residents and workers affected.<sup>104</sup>

Outbreaks have been identified at other Canadian workplaces, with limited national epidemiological data on the connection between occupation and COVID-19. However, research has identified the potential risk associated with various characteristics of one's job<sup>162-164</sup> as well as by employment type or quality.<sup>165</sup>

Some jobs place Canadians at greater risk of exposure, due to close contact with other people at work and the frequency of exposure to infection or disease.<sup>162-164</sup> In an analysis of these factors by occupation, alongside 2016 census data, Canadian research has identified occupations and populations that may experience greater risk.<sup>162</sup> The research assumes a context where all workplaces are open and employees are working as they did prior to COVID-19. In that context, the occupations that pose the greatest risk based on employees working in close contact with others and/or the level of exposure to infection or disease include health occupations, sales and service occupations, and occupations in education, law and social, community and government services.<sup>162</sup> Research found that workers in low-income occupations are working in jobs that put them at greater risk; this is particularly true for women, immigrants, and racialized workers.<sup>162</sup> Aside from health occupations, almost all other occupational classifications also involved differential risk by education level, with workers with a Bachelor degree or more likely to experience lower risks of exposure.<sup>162</sup>

While the research above is based on occupation types associated with greater potential risk, it is focused on a pre-COVID-19 context where all workers are at work. To understand the differential risks associated with work during public health shutdowns, it is necessary to focus on essential workers unable to work from home, as well as the protections, security and supports available to them.

This is particularly consequential for essential workers who are precariously employed. This is because workers in precarious employment — jobs outside of the standard employment relationship, meaning not full-time, permanent, and accompanied by benefits — are less likely to have important employment and economic protections, particularly among those who

are low-income.<sup>166</sup> The absence of these protections is challenging at any time, but, during a pandemic, the consequences can be more severe and may increase risk of virus exposure and transmission. These disadvantages include economic and employment insecurity, a lack of paid sick leave, and the need to work multiple jobs to make ends meet.<sup>166</sup> For example, these factors were identified as consequential for personal support workers in long-term care homes.<sup>72, 74, 165</sup>

## Meat Processing Plants Emerged as Common Outbreak Sites in Canada

A number of intersecting factors may influence risk to meat processing workers, including risks at work and at home. While there are no Canadian data at present, the Canadian Institute for Health Research announced funding to review the outbreak at a meat processing plant in Alberta.<sup>87</sup> Facility risk assessments in 19 American states allowed the U.S. Center for Disease Control and Prevention (CDC) to identify common characteristics among meat and poultry processing facilities and their workers that might increase risk for transmitting or acquiring SARS-CoV-2.<sup>167</sup> This includes difficulty maintaining a two-metre distance, particularly on production lines, during breaks, and when entering or exiting the facility. Further, the nature of work — including the physical demands and pace — made it difficult to adhere to face-covering recommendations, and some sites were not adhering to heightened cleaning and disinfection guidance. The CDC also identified additional factors that influence risk, including the need for educating and training in multiple languages and problematic incentives that encourage workers to continue to work while ill (e.g., attendance bonuses, medical leave policies). The CDC further noted that workers at meat processing plants may be at greater risk because of additional factors beyond the work environment, including shared transportation to and from work, congregate housing, and high community contact with colleagues.<sup>168</sup>

## Exposure at Home

### Group living

#### Long-term care facilities (LTC)

Long-term care (LTC) homes provide 24/7 supervision and support for adults who need help with daily activities. There are other residential settings with fewer staff and supports, intended for adults who have fewer needs, and across the country these are known as retirement homes or assisted living homes. Cases and deaths in these settings have been combined in reporting by most provinces.<sup>169</sup>

In LTC, residents are reliant on others for essential needs and basic care.<sup>170</sup> Even when residents can be isolated in their rooms, staff must still move among residents to meet basic needs, often through care that does not allow for physical distancing (i.e., help with dressing, feeding and bathing). This close proximity facilitates viral transmission if protective measures are not taken.<sup>171</sup> Long-term care facilities can also be risky for residents because of the physical proximity of shared rooms, the challenges in ensuring physical distancing among mobile patients with dementia, chronic understaffing, precarious work conditions and employees that work across multiple LTC sites as well as insufficient testing and availability of personal protective equipment.<sup>72, 74, 170</sup>

Low staffing levels, which pre-dated the COVID-19 pandemic, created additional challenges and two provinces requested the assistance of the Canadian Armed Forces to deal with staffing shortages.<sup>165, 172, 173</sup> The impact of these shortages was exacerbated by visitor restrictions that curtailed the support provided by family members and volunteers.<sup>74</sup> Staff shortages meant fewer people able to attend to residents' needs, making it more difficult to monitor residents for COVID-19 symptoms or follow protocols for physical distancing.<sup>74</sup>

Older adults in LTC homes, as well as the healthcare workers who support them, have been seriously and devastatingly impacted. In an analysis of data in Toronto (up to May 25, 2020), after adjusting for age and sex, long-term care residents were 2.5 times more likely to test positive than the rest of the population, and the case fatality was 1.4 times higher.<sup>174</sup>

As of August 2020, approximately 80% of all COVID-19 related deaths in Canada were linked to LTC.<sup>64</sup>

## Ageism

Ageism is an ongoing challenge for older adults, perpetuated by prejudices, stereotypes and/or discriminatory practices on the basis of age. Ageism can also manifest itself as a failure to respond to the needs of older persons and to design systems and services that are inclusive for older persons. Ageism devalues older adults and views them as a burden rather than as a contributing and vital component of society that should be supported.<sup>175, 176</sup> Ageism denies the heterogeneity across older adults and contributes to paternalistic attitudes towards them.<sup>175</sup> Ageist beliefs were evident during and exacerbated by the COVID-19 pandemic, with impacts ranging from the characterization of COVID-19 as the problem of older adults to our failures to better protect populations living in long-term care facilities.<sup>175, 176</sup>

### Group homes

Similar conditions contribute to risk in group home settings, such as living in close proximity with others and interacting with multiple care providers. People with disabilities are more likely to live in group home settings, in part due to underfunded or defunded community living programs.<sup>177, 178</sup> In addition to the group nature of their housing, people with disabilities may be at greater risk of contracting the virus. This is particularly true for people who need assistance with hand washing, who need support to be independent, who need support to understand or comply with physical distancing requirements, or who need to touch surfaces for support or information (such as in the case of blindness or impaired vision).<sup>177-179</sup>

### Shelters

People experiencing homelessness may live in group settings, such as shelters or encampments,<sup>180</sup> which are often overcrowded and make physical distancing difficult.<sup>181</sup> People living in shelters or encampments may also not have access to the facilities and supplies needed to support public health protocols such as frequent hand washing and disinfecting of surfaces.<sup>182</sup> In addition, people experiencing homelessness have high rates of chronic physical conditions,<sup>183</sup> heightening the risk of suffering complications if they contract COVID-19.

### **Migrant workers/temporary foreign workers**

As indicated in [Section one](#), there have been a number of outbreaks in Canada related to meat processing and agricultural workplace settings, which are common employment sites for migrant workers and temporary foreign workers. As a result of these outbreaks, provincial and municipal health officials have identified migrant farm workers as populations at risk of contracting the virus through community transmission.<sup>184–186</sup>

Migrant farm workers may face challenges with physical distancing, due to housing which features close proximity among occupants and shared or inadequate bathroom facilities.<sup>187, 188</sup> Migrant workers may also be reluctant to report symptoms or participate in testing due to fear of reprisals and economic loss.<sup>189</sup> They also face challenges with access to health care, including appointment availability outside of their work hours, transportation to appointments, lack of translation services, limited knowledge of the healthcare system, and lack of accessible public health information.<sup>187, 189, 190</sup> Advocates for migrant workers have pointed to structural issues such as the dependence on employers for housing and sanitation.<sup>187</sup>

### **Prisons**

In a systematic review of infectious disease in prison systems in high-income countries, researchers identified a number of challenges that increase risk of exposure, such as overcrowding, the challenge of balancing security and health concerns, and people who withhold early symptoms to avoid additional restrictions.<sup>191</sup> Early analysis by the US CDC of COVID-19 in prisons suggested that the movement of staff members between correctional facilities and their own communities may pose a risk for virus introduction.<sup>192</sup>

These risks are particularly concerning given the health status of populations who are incarcerated. Research in Canada has identified the poor health of individuals who are incarcerated, compared to the general Canadian population.<sup>193</sup> High rates of chronic disease and immunocompromised health status, as well as the ageing population in federal prisons in particular, increase risks for populations who are incarcerated

in Canada.<sup>194</sup> These issues exist alongside social determinants of health; for example, Indigenous and racialized populations are over-represented in the prison system in Canada.<sup>193, 194</sup>

The implementation of public health measures to reduce the risk of COVID-19 being introduced into prisons, or to control outbreaks, such as limiting visitors, managing physical distancing and limiting movement within institutions, have had unintended impacts on the health and well-being of people in prison by further isolating them.<sup>195, 196</sup>

### **Overcrowded housing**

In addition to the specific factors associated with various group housing settings, overcrowded housing has been linked to COVID-19 infection rates in France,<sup>197</sup> England,<sup>198</sup> and New York.<sup>199, 200</sup> In Massachusetts, researchers examined the social patterns of excess mortality rates during the beginning of the COVID-19 pandemic and found that the surge in excess death rates was greater in areas with higher poverty, higher household crowding, higher percentage of populations of color, and higher racialized economic segregation.<sup>201</sup>

The City of Toronto has reported that people living in households of 5 or more people comprised 26% of cases, compared to 20% of Toronto's population, though these data do not necessarily reflect crowded conditions.<sup>154</sup> However, we do know that some populations are more likely to experience overcrowding across Canada, related to income, Indigenous status, and newcomer status. Among Indigenous populations, Inuit living in Inuit Nunangat and First Nations people living on reserve were most likely to experience overcrowding.<sup>91</sup> Refugee-led households in Toronto and Vancouver were also more likely to experience overcrowding than other recent immigrants.<sup>202</sup>

Some regional health networks have begun tracking COVID-19 positive test rates against census data to determine whether overcrowding is a possible factor in transmission so that targeted testing and public health responses can take place quickly.<sup>203, 204, 205</sup>

## Ableism and COVID-19

COVID-19 has illuminated unfairness based on discriminatory beliefs embedded in our society, including ableism. Although Canada ratified the United Nations *Convention on the Rights of Persons with Disabilities* in 2010, over half of the complaints to the Canadian Human Rights Commission in 2018 were on the grounds of disability.<sup>206</sup> Ableism fundamentally devalues and neglects the lives and contributions of many individuals, raising serious concerns during the pandemic as some persons with disabilities may be at increased risk of acquiring COVID-19 or suffering from severe complications.<sup>207</sup> This risk increases when other intersecting vulnerabilities are present, such as older age, underlying medical conditions, and living in congregate settings.<sup>207</sup> Ableism is not new; persons with disabilities have long-experienced stigma and discrimination in their lives, including barriers to and interactions with the healthcare system; however, COVID-19 has amplified some forms of systemic ableism.<sup>207</sup> For example, blanket prohibitions of visitors at hospitals, group homes, and long-term care facilities may have adverse effects when a person with a disability requires assistance with vital services like communication, caregiving, or supported decision-making.<sup>208</sup> Additionally, the issue of medical rationing has been raised in COVID-19-related care, determining who does and does not receive vital support in the event of shortages, such as intensive care beds and ventilators.<sup>209, 210</sup>

### Exposure on transportation

Risk of transmission may vary by transportation type, particularly for those who use public transit compared to those who use their own private vehicle or active transportation. Public transit may pose a risk because of the challenges of physical distancing in a confined space, the inability to easily screen passengers for illness, and the presence of many high-touch surfaces.<sup>211</sup> The role of different forms of public transit and COVID-19 remains to be clarified, with some research suggesting a link between them and other research indicating that any relationship between the two is due to other factors.<sup>212, 213, 214, 215</sup>

## Differential Susceptibility

Just as Canadians have different risk levels in terms of COVID-19 exposure, they may be at different risks for contracting the illness if exposed or for having serious complications. We have described how some Canadians experienced poorer health prior to COVID-19 and how these health differences are driven by determinants of health. These trends are also related to the specific pre-existing conditions that may increase COVID-19 severity: these may connect to the biological factors included in [Figure 5](#).

Data collected to date have identified Canadians who are aged 60 and over as being at increased risk of more severe outcomes related to COVID-19 along with those who have compromised immune systems, and those with certain underlying medical conditions.<sup>54</sup> As of the end of August, 2020, available research data indicated that 86% of hospitalized cases (for which clinical information was recorded) reported having one or more pre-existing conditions.<sup>50</sup>

## Differential Treatment

As set out in [Figure 5](#), the severity of illness due to COVID-19 may also be influenced by access to treatment (the healthcare system factor). While universal in principle, access to health care has been identified as a challenge for a number of groups in Canada that may face greater exposure and susceptibility to COVID-19, including populations experiencing homelessness,<sup>216–218</sup> racialized and Indigenous populations,<sup>145, 219, 220</sup> immigrant populations,<sup>221, 222</sup> migrant workers,<sup>190</sup> temporary foreign workers,<sup>223</sup> people with disabilities,<sup>224–226</sup> and populations living with low-income.<sup>227, 228</sup> Accessing relevant, meaningful and culturally safe health care is a challenge for many groups who experience stigma and discrimination due to implicit and conscious biases, a lack of respect for and understanding of historic and social determinants that influence health and stigmatizing organizational cultures.<sup>2</sup>

## Impact of Public Health Measures in Response to COVID-19

Beyond the direct impact of containing the spread of the virus, the public health measures being implemented to stop the spread of COVID-19 have had an effect on the health and well-being of Canadians. These impacts can be divided into those that affected all Canadians, those that may have disproportionately affected some populations and those that may have longer-term implications.

### Overall Impact on Canadians

#### The Impact of Stigma, Discrimination, Violence

In the context of an emerging infectious disease outbreak, there are multiple intersecting drivers of stigma and discrimination. Fear of infection can distort our thinking, erroneously linking disease to a certain population or place.<sup>229, 230</sup> When this fear connects with existing racial prejudice in society, the stigma of infection and the stigma of racialization are layered, creating a social stigma that can last far beyond an infection outbreak.<sup>230</sup>

While national data are not available, throughout the COVID-19 pandemic, a number of police forces have issued statements about a rise in hate crimes against Canadians of Asian descent in their jurisdictions including the Ottawa Police<sup>231</sup> and the Vancouver Police.<sup>232</sup>

In a crowdsourced study on perceptions of safety during the pandemic, Statistics Canada reported that 30% of participants of Chinese descent felt that race-based incidents had increased since the start of the pandemic, compared to 18% among visible minority participants,<sup>9</sup> and 6% of non-visible minorities.<sup>233</sup> Researchers have also identified the growth in sinophobic behaviours,<sup>234</sup> anti-Asian hate,<sup>235</sup> and stigmatizing language<sup>236</sup> online during the COVID-19 pandemic. Results from a survey completed in Canada in March and April 2020 suggest that respondents of East Asian backgrounds — including Chinese, Korean and Japanese — reported poorer mental health and more discrimination during the pandemic than white respondents.<sup>237</sup>

Statistics Canada completed a study in early June that focused on stigma and the pandemic, exploring which groups in Canada are concerned about being the target of unwanted behaviours because of perceived exposure risk to COVID-19 after the loosening of public health restrictions. Overall, 20% of Canadians reported fear of being targeted. This figure was almost twice as high among immigrants (29%) than those who were born in Canada (17%). Among those who were concerned about being the target of unwanted behaviours, immigrants were far more likely (42%) to report that they were concerned about stigma based on their racial identity, when compared to the Canadian born population (9%).<sup>238</sup>

Misinformation (including deliberate disinformation)<sup>239</sup> drives and exacerbates stigma and discrimination in the context of infectious disease. This includes inaccurate and stigmatizing myths about the origin of disease as well as stigmatizing depictions of affected groups. Research on the spread of misinformation, including information related to infectious disease, demonstrates that misinformation is common and often more popular than accurate information.<sup>239</sup> Misinformation, which is often personal and negative in tone, creates fear and mistrust which can increase susceptibility to misinformation. Research has found that lies can spread faster than the truth, and misinformation is very hard to correct once it has spread.<sup>239, 240</sup>

<sup>9</sup> Visible minority refers to whether a person belongs to a visible minority group as defined by the *Employment Equity Act* and, if so, the visible minority group to which the person belongs. The *Employment Equity Act* defines visible minorities as “persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour”. The visible minority population consists mainly of the following groups: South Asian, Chinese, Black, Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean and Japanese. Statistics Canada. Visible minority of person. Statistics Canada (2020).

## Loss of Employment/ Decreased Employment

The extensive slowdown in the Canadian economy as a result of public health emergency measures, including the closure of non-essential services, schools and daycare centres, impacted and continues to impact many Canadians through employment and/or income loss, both of which are key social determinants of health. Despite government wage support programs, in April, 5.5 million Canadian workers were affected by the shutdown, including 3 million Canadians who lost jobs and 2.5 million Canadians who had COVID-19 related absences from work.<sup>241</sup> By August 15, 1.8 million Canadian workers were affected by the shutdown.<sup>241</sup> While gains in employment have been made, recovery may be slow. In August, the unemployment rate was 10.2%, up from 5.6% in February but down from May's high of 13.7%. In contrast, the 2008–2009 recession saw a rise of unemployment in June 2009 to 8.7%, up from 6.2% in October 2008, and it took approximately nine years to return to pre-recession levels.<sup>241</sup> In order to understand the COVID-19 shutdown, it is necessary to examine who was most impacted at the beginning, who has most benefited from the gradual reopening, and who is still struggling.

### Workers in lower-wage jobs

Of the jobs lost in March and April, employees in lower-wage jobs (meaning lower than two-thirds of the 2019 annual median wage of \$24.04/hour) suffered the greatest losses (38%) compared to those in other jobs (13%).<sup>242</sup> At that time, low-wage workers were more likely to be working less than half of their usual hours for COVID-19-related reasons, compared with all other paid employees.<sup>242</sup>

Analysis of payroll data for March demonstrated that the service sector was hardest hit by the economic slowdown, with the majority of these job losses among women.<sup>243</sup> Workers in the service sector are less likely to be able to work from home. From February to March, 41% of payroll employment declines were in the food services and accommodation, and wholesale and retail trades (two sectors with the lowest average weekly earnings).<sup>243</sup> Almost 90% of the one million Canadians working in low-wage, non-unionized hourly paid jobs in April worked outside the home: two-thirds worked in food services and accommodation or wholesale and retail trade, industries where jobs frequently require close physical contact.<sup>242, 244</sup> In contrast, payroll employment

and total earnings were almost unchanged for workers in higher-paying public administration, finance and insurance sectors.<sup>243</sup>

With gradual reopening across Canada through the summer, low-wage jobs have increased. However, in August, the employment rate for low-wage workers remained far lower than pre-pandemic levels (87.4%), compared with all other employees (99.1%, not seasonally adjusted).<sup>241</sup>

### Women

Emerging evidence suggests that these types of job losses will disproportionately affect women with small children and families since women are largely represented in the service and retail sectors and in the absence of childcare, they will be unable to return to the workforce.<sup>245–248</sup> One Canadian study reported that women's participation in the labour force dropped to its lowest level in three decades and 1.5 million women lost their jobs in the first two months of the pandemic.<sup>249</sup> As public health restrictions were eased in some provinces in May, there was a recovery of low-wage jobs; however, men were more likely than women to benefit (20.5% versus 5.2%).<sup>242</sup> Gains in jobs were particularly low for women whose youngest child was less than 6 years of age, compared to women whose youngest child was between 6–17 or men with children 0–6 or 6–17 years of age.<sup>242</sup>

Research has demonstrated that there is a gender gap in employment between parents of school-aged children as a result of the pandemic, which is greater for low-income women since they already have fewer economic resources and vulnerable labour market positions.<sup>250</sup> Research on the labour market impact of COVID-19 in Canada demonstrated a substantial drop in the hours worked and employment of parents with pre-school and school-aged children.<sup>251</sup> In a Statistics Canada crowdsourced survey, 80% of participants with school-aged children aged 4–11 reported being very or extremely concerned about balancing childcare, schooling and work.<sup>252</sup> Changes in the labour force participation rate suggest that, as of August 2020, women were still engaging in non-employment-related activities, such as caregiving, at a higher rate than they were prior to the shutdown.<sup>241</sup> In August, 51.1% of teleworking mothers with a child under 6 years old reported concern that returning to their normal work location would create childcare or caregiving challenges.<sup>241</sup>

### **Workers who are racialized, immigrant and/or Indigenous**

In July, Statistics Canada added a question to the Labour Force Survey, asking respondents to which population group(s) they belong. This has allowed for more detailed analysis on which groups are facing higher unemployment levels. While the unemployment rate in August, 2020 was 11.1% (not seasonally adjusted), unemployment was much higher among some groups, including populations who identified as Arab (17.9%), Black (17.6%), Southeast Asian (16.6%), and South Asian (14.9%). Southeast Asian (32.0%), Black (24.9%) or Arab (21.4%) employees were more likely to be in low-wage jobs, compared to those who identify as Chinese (17.4%) or those who did not identify as a visible minority or Indigenous (15.9%) (not seasonally adjusted).<sup>241</sup>

In August, 2020, the employment rate for those born in Canada was closer to pre-pandemic levels compared to immigrants who have lived in Canada for more than five years.<sup>241</sup> Employment among Indigenous populations living off-reserve (91.4% of the pre-pandemic employment level, in February) has not rebounded as quickly as for non-Indigenous Canadians (96.7% of February employment).<sup>241</sup>

### **Youth and post-secondary students**

Job loss and decreased job opportunities as a result of the pandemic had an effect on post-secondary students who often rely on summer employment or work during the year as a major source of income. The employment rate for students between 20 and 24 years of age fell from 52.5% in February to 28.9% in April 2020.<sup>253</sup> Data from a Statistics Canada crowdsourcing survey indicated that over 70% of continuing post-secondary students were very or extremely concerned about the financial impact of COVID-19, with the most common concern being that they would use up their savings.<sup>253</sup> Other key concerns were increased student debt (47% very or extremely concerned), ability to pay for current costs (44%), pay for the next term's tuition (46%) or be able to afford next term's accommodation costs (43%). Among students who rely on research funding, 61% of doctoral candidates were very or extremely concerned about a lack of funding. Financial concerns were higher

overall for students living alone or with roommates than those living with family.<sup>253</sup> Disruptions in funding for education could have longer term impacts, particularly for those students who rely on extra-curricular work or research funding to support their education.

Youth (aged 15 to 24) have experienced significant and lasting impacts of the shutdown. In August 2020, employment for young women and men was at 84.7% of February levels.<sup>241</sup> Unemployment rates for young men (25.6%) and young women (20.2%) were higher in August 2020 than during the 2008/2009 recession (16.4% at its peak). Unemployment was much higher among youth who identified as a member of a group designated as a visible minority (32.3%, not seasonally adjusted), compared to youth who did not identify as Indigenous or with a group designated as a visible minority (18.0%).<sup>241</sup>

### **Employment and health**

Loss of income and employment is important for public health, as income and job loss both influence health and well-being. The evidence is extensive and clear on the connection between income and health.<sup>254</sup> Income inequality is associated with higher mortality rates,<sup>255</sup> poorer health<sup>256, 257</sup> and mental health outcomes.<sup>258, 259</sup> While income supports are essential, work itself is also important. Statistics Canada found lower life satisfaction among unemployed Canadians and noted that this relationship is about more than just money in that it would take a considerable amount to keep the unemployed at the same level of life satisfaction as the employed.<sup>260</sup> This is echoed by systematic reviews exploring unemployment and mental health,<sup>261, 262</sup> unemployment and health,<sup>263</sup> and unemployment and mortality risk.<sup>264</sup>

### **Inclusion**

While working from home can be desirable to reduce viral exposure, it does not necessarily mean the employee has the proper equipment to perform their job adequately.<sup>224</sup> Some people living with disabilities reported their employer would not supply accessible technology or devices to allow working from home to be possible, forcing these individuals to bear the burden of purchasing equipment themselves.<sup>224</sup>



## Impact on Social Cohesion and Social Connectedness

The public health measures put in place to reduce the spread of the virus have caused sudden disruptions in the social fabric of Canadians' lives. In March, over 70% of Canadians who responded to a survey from the Canadian Perspectives Survey Series (CPSS) were concerned about maintaining social ties.<sup>265</sup> Concerns about the social impacts of isolation may be more acute for people who are worried about the financial impact of the pandemic. Of those who said they were experiencing major impacts from the pandemic on their ability to fulfill their financial obligations, 48% were very or extremely concerned about the impacts of COVID-19 on family stress from confinement.<sup>266</sup> By comparison, this was the case for only one in five people who did not anticipate experiencing significant financial impacts from COVID-19.<sup>266</sup> Of people who anticipated major impacts on their ability to fulfill their financial obligations, 61% reported being very or extremely concerned about the risk of civil disorder, compared to 32% among those who said that the pandemic would have no impact on their personal finances.<sup>266</sup> Concern about the family and social impacts of the pandemic were also higher among individuals with lower education: 60% of those without a high school diploma were very or extremely worried about the impact of COVID-19 on social ties compared to approximately 30% among those with other levels of education.<sup>266</sup> Immigrants were also more likely than those born in Canada to worry about the social impacts of the pandemic.<sup>266</sup>

Isolation associated with physical distancing may be particularly challenging for children, older adults, and individuals with disabilities. In a crowdsourced study by Statistics Canada, 71% of participants reported high levels of concern about their children's opportunities to socialize with friends, and 54% of participants were very or extremely concerned about their children's loneliness or social isolation.<sup>252</sup> While most older adults reported a high level of social support in 2016, some groups were less likely to have a high level of support, such as older adults with lower incomes, older adults living alone (as compared to with a partner), older adults in urban areas, male older adults, and older adults who are immigrants.<sup>267</sup> Physical distancing measures led to the suspension of community groups and day programs for seniors and some seniors chose not to participate in available services out of fear of becoming infected.<sup>268</sup> Isolation may also be

a concern for people living with disabilities, particularly for the 21% of Canadians with a disability who live alone (as of 2017), or the approximately 20% of Canadians with a disability who do not use the internet.<sup>269</sup>

COVID-19 has drastically impacted the ways we commemorate important life events such as graduations, religious holidays and wedding ceremonies, resulting in many virtual celebrations. Notably, the pandemic has disrupted individual and collective rituals and ceremonies pertaining to dying, death, and bereavement. Public health measures have forced restrictions on travel, and limited visits in hospitals and long-term care facilities, altering the ways in which friends and family are able to say goodbye to loved ones at the final stages of life. These measures have also required people to modify the ways lives are traditionally honoured by adjusting ceremonies, funerals, memorial services, and faith-based or cultural rituals in accordance with public health measures. Additionally, quarantine and physical distancing measures may mean that physical support of others is limited, or unavailable, for bereaved individuals during the grieving process. While the long-term impacts of these adjustments are not yet known, research from previous pandemics suggest that those who suffer multiple losses related to death and interruptions to social norms, rituals and mourning practices, may be at increased risk for complicated grief.<sup>270</sup>

## Cumulative Impact of COVID-19 and Public Health Measures on Mental Health

### *Mental health and well-being*

In a crisis, it is normal to feel stress, fear and worry. The pressures and uncertainty of the pandemic can be overwhelming.<sup>110</sup> Many countries have been reporting higher rates of distress within their population.<sup>111</sup> Canadians face many pressures, from job and/or income loss to social isolation, health anxiety, worry for loved ones and — for many families — the concurrent strain of financial and family responsibilities.

The distress associated with the pandemic can influence mental health, which is a reflection of psychological, emotional and social well-being.<sup>271</sup> Normal reactions to the pandemic, such as stress and worry, are not mental illness. Mental illness — such as mood disorders or anxiety disorders — is the reduced ability to effectively

function over a long period of time.<sup>272</sup> However, long-term stress can increase the risk of poor mental health and other medical issues.<sup>273</sup>

Using data from the Canadian Perspectives Survey Series (CPSS), Statistics Canada reports that self-perceived mental health<sup>h</sup> has decreased during the pandemic, when compared to the 2018 Canadian Community Health Survey (CCHS). In 2018, 68% of Canadians aged 15 years and older reported excellent or very good self-perceived mental health, but this figure dropped to 54% in late March/early April of 2020 (CPSS Wave 1), and to 48% in early May, 2020 (CPSS Wave 2).<sup>274</sup> The difference in self-perceived mental health between women and men also increased during COVID-19. In the 2018 CCHS, 66% of women and 71% of men reported excellent or very good self-perceived mental health, whereas in the CPSS Wave 1, 49% of women and 60% of men reported excellent or very good self-perceived mental health.<sup>274</sup>

Among respondents of a crowdsourced survey, Statistics Canada found that proportion of respondents who indicated that their self-perceived mental health was worse since the onset of physical distancing was higher among Indigenous participants than non-Indigenous participants (60% compared to 52%).<sup>275</sup> A greater proportion of Indigenous participants (40%) reported most days as “quite a bit stressful” or “extremely stressful” than non-Indigenous participants (27%).<sup>275</sup>

The emotional impact of the pandemic is not limited to adults. Research has found that children’s physical and mental health are more compromised when they are confined at home, without outdoor activities and interaction with friends.<sup>276</sup> In their crowdsourced survey with parents, Statistics Canada found that 61% of respondents were very or extremely concerned with managing their child or children’s behaviours, stress levels, anxiety and emotions.<sup>252</sup>

There has also been recognition that Canadian healthcare professionals and frontline workers may be at risk of experiencing poor mental health as a result of the pandemic.<sup>277</sup> This follows reports from Italy, New York City and China indicating that many frontline workers treating patients with COVID-19 experienced negative mental health outcomes.<sup>278–280</sup> While frontline workers may frequently experience stress in their work,

there are calls for increased support related to the unique pressures of working in a pandemic.<sup>281, 282</sup>

Informal caregivers are also being affected by the impact of the pandemic. Statistics Canada noted that in 2018, twenty-five percent of Canadians over 15 years of age were providing care to a family member or friend with a long-term health condition, a physical or mental disability, or problems related to aging.<sup>283</sup> While caregivers alleviate pressure on over-stretched health and social systems,<sup>284</sup> in the context of COVID-19, they often had to manage without clear guidance or personal protective equipment.<sup>285</sup> Many find themselves caring for someone at home without their usual support networks or community programs while others may be concerned about the safety of relatives living alone with decreased levels of assistance and support.<sup>286</sup> Physical distancing and other measures to control the spread of COVID-19 can contribute to feelings of isolation and affect the mental health of informal caregivers and those they support.<sup>287</sup>

### **Mental illness**

Canadians living with pre-existing mental illness may be more vulnerable during COVID-19.<sup>288</sup> Isolation may cause the return or increase of symptoms and there may be disruptions in therapeutic care.<sup>288</sup> Issues with access to care may increase, since the mental healthcare system may face additional pressures, resulting in longer wait times for those who have already been underserved.<sup>289</sup>

We do not yet know the impact of the pandemic on suicide. Pandemic-related risk factors for suicide may include unemployment, social isolation and disconnectedness (particularly among older adults), increased alcohol consumption or family violence.<sup>290–293</sup> In one survey, completed in May 2020, respondents who identified as Indigenous (16%), who were living with a disability (15%), or those with low-income (14%) were more likely to report having suicidal thoughts since the outbreak, compared to the general population (6%).<sup>294</sup> This was a unique survey administered shortly after the emergence of COVID-19, however, data from the 2015 and 2019 Canadian Community Health Surveys suggest that Indigenous populations and lower-income populations were also more likely to report suicidal thoughts prior to the pandemic.<sup>295, 296</sup> For example,

<sup>h</sup> These data reflect Canadians’ self-perceived mental health which is not a measure of mental illness but instead reflects answers collected by Statistics Canada in response to the question “In general, how is your mental health”? The response categories included: Excellent, very good, good, fair, poor.

<sup>i</sup> While the CPSS and the CCHS include the same questions about self-perceived health and mental health, it is important to note that they are distinct surveys with different sampling frames.

in 2019, Indigenous people living off reserve were more likely to report having had suicidal thoughts in the last 12 months (6%) or during their lifetime (25%), compared with non-Indigenous people (3% over the last 12 months, 12% during their lifetime).<sup>295</sup>

### Food Insecurity and Reduced Access to Healthy Foods

Food insecurity, which can include being worried about running out of food, as well as missing meals or going without food is a reality for many people in Canada. Preliminary data suggest that income loss triggered by COVID-19 is increasing household food insecurity.<sup>297, 298</sup> Data from the Canadian Perspectives Survey in May 2020 (Wave 2, collected May 4–10, 2020) found that food insecurity was significantly higher among survey respondents during COVID-19 compared to the Canadian Community Health Survey 2017–2018 results (14.6% versus 10.5%).<sup>298</sup> Canadians who were employed during the survey time period but not working due to closure, layoff or personal circumstances related to COVID-19, were more likely to be food insecure (28.4% compared to 10.7% of those who were working).<sup>298</sup> Households with children were more likely to experience food insecurity (19.2%) compared to those without children (12.2%).<sup>298</sup>

In addition to income loss, there are broader community factors that may influence food access. Some isolated communities are already struggling with precarious food supply chains, limited availability of fresh foods, and high food prices,<sup>297, 299</sup> a situation that could be worsened by COVID-19. Currently, food banks, which are an important resource for many food insecure households, are struggling to maintain and expand their capacity to provide emergency food to those in need.<sup>297</sup> With schools closed during shutdown periods, children may have also lost an important opportunity to access healthy foods through school food programs.<sup>300, 301</sup>

## Disproportionate Impacts on Some Groups

While all Canadians are affected by the requirements to physically distance, some groups who were already living with other health challenges may have been differentially affected by public health measures.

## Substance Use

### *Increased use of alcohol, tobacco, and cannabis*

Data from the Canadian Perspectives Survey Series (CPSS) (Wave 1, collected March 29–April 3, 2020), indicates that the majority of Canadians over the age of 15 years did not change their use of substances during the early days of the pandemic. However, some Canadians reported increasing their use of alcohol (14%), cannabis (6.5%) or tobacco (3.3%).<sup>302</sup> Reported changes did not differ by sex, but people between the ages of 15 to 34 were more likely to report increased use of each.<sup>302</sup> Increase in substance use was also more likely among Canadians who reported having fair or poor mental health.<sup>302</sup> A second CPSS wave (May 4–10, 2020) using the same data tools demonstrated that substance use continued to increase for alcohol (+ 5.2%), cannabis (+ 1.8%) and remained somewhat consistent for tobacco (0.6%).<sup>123</sup> These results suggest that for some Canadians, the indirect effects of COVID-19 have included increased alcohol consumption.

The pandemic may have also placed additional strain on people with substance use disorders. Public health measures such as calls for physical distancing and limited trips outside the home may have increased social isolation and reduced access to services, such as in-person support groups and other programs.<sup>303, 304</sup> This is a particular consequence for the opioid crisis.

### *Worsening of the opioid crisis*

Prior to the pandemic, there had been a 13% decrease in opioid overdose deaths in Canada between 2018 and 2019, suggesting that efforts to address the opioid crisis were making gains, particularly in British Columbia and Alberta.<sup>305</sup> Emerging evidence indicates that the COVID-19 pandemic has set back that progress, with recent increases in substance-related deaths and harms.

Jurisdictions across the country have reported increases in overdose deaths and non-fatal harms related to opioids and other substances, in part due to increasing toxicity of the illegal drug supply since the start of the pandemic. The situation is most stark in British Columbia, where there have been over 100 illicit drug toxicity deaths for six consecutive months from March to August, 2020, with the numbers for May, June and July, 2020 at over 175 deaths each.<sup>306</sup> The

highest monthly death toll, in June 2020, was 181, up from 76 in June 2019.<sup>306</sup> First Nations people continue to be disproportionately affected by overdose deaths, with the number almost doubling in British Columbia between January and May 2020 compared to same time period in 2019. Specifically, First Nations people accounted for 16% of all overdose deaths; their overdose mortality rate was 5.6 times greater compared to other BC residents, up from 3.8 for the same period in 2019.<sup>307</sup> In July, British Columbia paramedics responded to a record high number of overdose calls (2706 or 87 a day, compared to a usual monthly average of 2000), and most were for males aged 21 to 40 years old.<sup>308</sup> Authorities in British Columbia have also reported an increase in extreme fentanyl concentrations meaning drugs are toxic at even lower doses.<sup>306</sup> Among overdose deaths where fentanyl was detected, approximately 14% had extreme fentanyl concentrations from April to August 2020, compared to 8% between January 2019 and March 2020.<sup>306</sup>

While British Columbia continues to be the jurisdiction most severely impacted by the overdose crisis, many other provinces, territories, and municipalities have reported recent increases in substance related harms and/or changes to the drug supply. Data on overdose deaths during the pandemic are not yet available for all jurisdictions, however, there are others reporting record high cases of confirmed or suspected overdose deaths, including Ontario,<sup>309</sup> Saskatchewan,<sup>310</sup> and Alberta.<sup>311</sup> Preliminary data from Ontario show that the number of confirmed and probable deaths from opioid-related causes increased by almost 50% from January (148) to May (220), 2020.<sup>309</sup> Alberta experienced a significant increase in opioid related deaths in the three-month period from April to June, 2020 (301 total), up from the previously recorded high of 211 deaths in a three-month period in 2018.<sup>311</sup>

If the contexts that influenced pre-pandemic overdoses continue, some groups will remain at disproportionate risk.<sup>312</sup> Evolving evidence of the determinants of overdose can be seen in qualitative research completed in 2017–18 with coroners, medical examiners, and toxicologists across eight provinces and territories identifying common characteristics among those who died of opioid and other drug-related overdoses.<sup>313</sup> Many of the people who succumbed to overdoses during that time shared “a history of mental health concerns, substance use

disorder, trauma, and stigma; decreased drug tolerance; being alone at the time of overdose; lack of social support; and lack of comprehensive and coordinated healthcare and social service follow-up”.<sup>313</sup>

In the context of COVID-19, a conceptual model showing how the pandemic may impact substance use and related harms includes five interrelated domains: 1) substance use as a means of coping; 2) changes in social supports and networks, including changes to drug supply and access; 3) availability and accessibility of services; 4) increased risk of COVID-19 transmission among people who use drugs; and 5) increased risk of severe outcomes for people who use substances.<sup>314</sup>

Front line workers have suggested that fears of contracting COVID-19 may cause people who were previously using opioids with a friend, to use alone, decreasing the chance of intervention if they overdose and contributing to the increase in overdose-related fatalities.<sup>304</sup> Physical distancing measures have also led to longer wait times for supervised consumption sites since these facilities can accommodate fewer numbers of people at one time. At least one supervised consumption site in Ottawa dispensed with physical distancing measures after several clients overdosed while waiting in line to get in.<sup>315</sup> Limited access to some illicit drugs due to social changes related to COVID-19 has led to higher prices and adulteration.<sup>316</sup>

The Public Health Agency of Canada’s Centre for Surveillance and Applied Research has developed a simulation model of opioid use and opioid-related overdose death. Some simulations suggest that if the levels of fentanyl and fentanyl-like drugs in the drug supply increase, with reduced access to public health measures to prevent opioid overdose deaths, opioid overdose deaths may increase in 2020 beyond the levels seen at the peak of the opioid crisis in 2018.<sup>317</sup>

## Safety and Family Violence

The suggestion to shelter in place may have provided additional risks for those who experience family violence including intimate partner violence, child maltreatment and elder abuse.<sup>318–320</sup> The physical distancing measures put in place and economic insecurity exacerbated during the pandemic can result in chronic stress and increased conflict, which have been demonstrated to be a risk factor for family violence.<sup>319, 321</sup>

Data collected at the start of the pandemic indicated that women were more concerned (10%) than men (6%) about the possibility of violence in the home.<sup>322</sup> In a crowdsourced survey, Statistics Canada reported that – while the majority of Indigenous and non-Indigenous respondents indicated they were not concerned about the impact of the pandemic on violence in their home – the proportion of Indigenous respondents who reported any concern (11%) was twice that of non-Indigenous participants (5%).<sup>323</sup>

### **Impacts on children and youth**

The home environment changed during COVID-19 due to school and childcare closures, increased stress among caregivers and community members, limited access to services, prolonged physical distancing measures, and lost or reduced family income.<sup>324</sup> Many child welfare organizations have highlighted the significant decrease of child abuse or neglect reports, raising concerns that this may be the result of fewer detection opportunities, as children are likely to be isolated at home and without community involvement.<sup>325</sup> Moreover, children are staying home and spending more time online which may put them at an increased risk for online sexual exploitation and abuse.<sup>326</sup> Importantly, LGBTQ2s+ youth may be forced to isolate at home with homophobic/transphobic/biphobic family members and may face emotional and/or physical abuse.<sup>319</sup>

### **Access to services and shelters**

Statistics Canada completed a survey with a sample of victim services programs in late-June and early-July, 2020. In the study context, victim services include services offered by police and court programs, community-based services and sexual assault centres. Among participating programs, 54% reported an increase in the number of domestic violence victims they served from mid-March to the date of the survey, whereas 29% reported no change and 17% reported a decrease.<sup>327</sup> Some regions have more specific data. For example, calls to the Vancouver Battered Women's Support Services have tripled, while in Alberta, calls to specialized crisis lines for intimate partner violence increased by 30%-50% in the first month following the pandemic.<sup>328</sup>

## **Potential Long-term Impacts**

Some of the immediately observed indirect impacts of the public health measures could lead to longer-term consequences. Other longer-term impacts may emerge with prolonged implementation of stringent public health measures. Many of these consequences merit increased study and monitoring to mitigate further unintended effects on health.

### **Long-term Economic Stability**

Employment losses threaten economic stability for many Canadians. Household savings have declined in Canada over the past few decades so that some Canadian families likely have few financial resources to sustain them during the work stoppages implemented since March 2020.<sup>329</sup> Just over one-half of Canadians had enough savings to maintain well-being for at least three months, which suggests that a large number of Canadians do not have enough economic resources to withstand a sudden drop in income for an extended period of time.<sup>330</sup> Groups identified as being most economically vulnerable during a short period of joblessness include single mothers and their children (56%) and individuals living in families where the main income earner is under 35 years of age without a high school diploma (67%).<sup>329</sup> Forty-five percent of older families where the main income earner is without a high school diploma are also at risk of financial vulnerability.<sup>329</sup> Families headed by an Indigenous person<sup>j</sup> are less likely to have enough private sources of income or liquid assets to be sustained for two months without employment income (47%) as are 50% of those where the major income earner is a recent immigrant (came to Canada between 2011 and 2016).<sup>329</sup>

There are also workers in Canada that are not accounted for in labour statistics nor eligible for income supports. For example, sex workers may have difficulty accessing emergency financial relief despite suffering a loss of income due to the pandemic,<sup>331, 332</sup> increasing their vulnerability to adverse economic outcomes.

j Including First Nations people living off reserve, Métis and Inuit

## Interrupted Educational Opportunities, Differential Access to Distance Learning

School closures may increase existing educational disparities between children from low- and high-income families. Many schools moved to online education models in order to continue the education process while closures were in effect. However, access to virtual education varies. This has potential consequences, since — in the United States and Europe — reduced instructional time has been associated with poorer academic performance.<sup>301</sup>

While the majority of households in Canada with children under 18 years of age had access to the internet (only 1.8% did not), 4.2% of households in the lowest income quartile (less than \$40,000 per year) were without access compared to 0.2% of households in the highest quartile (\$125,000 or higher).<sup>333</sup> There are also fewer internet-enabled devices per household member in lower income households: 58% of households with internet access had less than one device per household member, but this varied from 63% in the lowest income quarter to 56% in the highest quarter.<sup>333</sup> The type of device is also important since mobile devices, such as tablets, smartphones, and e-readers, are primarily designed for receiving rather than producing information. Almost one-quarter (24.1%) of households in the lowest income quarter reported using only these types of mobile devices to access the internet, compared to only 8% in the highest income quarter.<sup>333</sup> Household access to other types of devices, such as laptops or desktop computers, may allow for greater ease in producing information such as essays or other assignments requiring research and writing, which means that children in households with only mobile devices to access the internet may face additional challenges. There are also differences in internet access between rural and urban areas of Canada: 59% of rural communities do not have adequate access to the broadband internet.<sup>334</sup>

The move to virtual learning may require greater parental involvement which can be challenging for lower-income parents who may have fewer opportunities to be involved in their children's learning activities, due to multiple jobs and/or long working hours.<sup>333, 335, 336</sup> In a Statistics Canada crowdsourced survey, parental concern about their children's school year and academic success varied by parental education, with higher concern among participants with a high school diploma or less (56%), a trades certificate or diploma (60%), a college, CEGEP or other non-university certificate or diploma (54%), or a university certificate or diploma below the bachelor's level (52%), when compared with participants with a bachelor's degree or higher (42%).<sup>337</sup>

Virtual learning may also not meet the needs of all students. For example, in a Statistics Canada crowdsourced survey, concern about school year and their children's academic success was higher among participants whose children had a disability (59%), compared to parents of children without disabilities (42%).<sup>337</sup>

## Health System Impacts

Early in the pandemic, governments across Canada prioritized efforts to reduce infection risk and increase available hospital capacity through reductions of in-person and non-urgent medical services. It is important to explore the impacts of these reductions, as well as the role that infection risk may have played in discouraging Canadians from seeking necessary healthcare.

Data from the Canadian Institute for Health Information (CIHI) demonstrate a decline in surgical procedures. When data from the final two weeks of March 2020 (the beginning of the “stay at home” period) are compared with the same time period in 2019, preliminary results (excluding QC and NU) show that there were approximately 73,500 fewer surgeries performed nationally, a decrease of 67%. Planned inpatient surgeries (-64%) and day surgeries (-75%) had larger decreases than urgent inpatient surgeries (-29%). Knee and hip procedures also showed larger decreases (-79%) than cardiac and cancer surgeries (-30% and -24%, respectively) suggesting that healthcare providers continued to prioritise urgent surgeries in the face of added pressures created by COVID-19.<sup>338</sup>

There is concern that people did not seek medical care, even when they needed it. Data from CIHI demonstrate a decline in emergency department visits in March 2020 compared to March 2019.<sup>339</sup> Reporting provinces<sup>k</sup> recorded a 24% average decrease in visits compared to the same period the previous year, ranging from 13% fewer visits in the Yukon to 27% in Prince Edward Island.<sup>339</sup> The decline in visits corresponds to the time period during which all provinces and territories declared states of emergency and closed or limited non-essential businesses and services. Decreases in emergency room visits occurred through all triage categories, from the most severe (those requiring resuscitation, -14%) to less urgent visits (-29%) and non-urgent (-18%).<sup>339</sup> This may suggest that people were choosing not to seek medical aid in the same way they had prior to the pandemic. At least one Canadian healthcare facility has reported a decrease in stroke patients since the start of the pandemic, with some patients self-reporting the choice not to seek treatment until their symptoms worsened because of fear of contracting COVID-19.<sup>340</sup>

Preliminary data on excess mortality related to COVID-19 indicate that there were higher than usual numbers of deaths reported in four provinces during April and May 2020.<sup>341</sup> Alberta, British Columbia, Ontario and Quebec all showed increased numbers of deaths compared to the same time period over the past five years. Some of these additional deaths are directly related to COVID-19 however contributions from other causes not directly linked to COVID-19, cannot be excluded.<sup>341</sup>

There are other suggested impacts to the health system and patients. At least one non-governmental organization has suggested that access to abortion services has been compromised as a result of staff shortages, restricted service areas to abide by travel limits, the shut down of surgical abortion services and patient inability to travel due to risk of exposure or travel restrictions.<sup>342</sup> A national survey of Canadian pain clinics reported that patient access to care was limited as a result of COVID-19, despite telehealth options. Patients waited longer for care and reported increased pain, stress and medication (particularly opioid and cannabis) use.<sup>343</sup> A Canadian assessment of the implications of the pandemic on patients with cardiovascular disease suggests the possibility of future strain on healthcare resources as a result of the postponement of non-urgent medical appointments for these patients.<sup>344</sup>

## Impact on Physical Activity

Physical distancing requirements – including gym closures and cancelled sports leagues – may negatively affect physical activity behaviours and increase sedentary activities and screen-time.<sup>345</sup> For example, more than 60% of Canadians reported spending more time using the internet and watching TV during the pandemic in early April.<sup>346</sup> In one survey, just over 40% of Canadians who reported being inactive prior to the restrictions imposed by physical distancing and the widespread closures reported being even less active after public health measures were imposed while just over 20% of active respondents reported becoming less active.<sup>347</sup> A decrease in physical activity could increase physical health issues such as the risk of weight gain and cardiovascular disease.<sup>348</sup>

For children living in urban areas, who do not have access to safe accessible outdoor spaces where they can maintain physical distance, the impact of physical isolation measures may increase disparities in childhood obesity risk.<sup>349</sup> Some researchers have suggested that in the absence of access to outdoor spaces, people with lower incomes, who may not have access to appropriate indoor spaces to engage in physical activity, may be disadvantaged in their ability to reap the benefits of exercise.<sup>350</sup> Limited physical activity as a result of public health measures to physically isolate may also have an impact on mental health. Research has demonstrated that people who were able to engage in physical activity outdoors were more likely to report excellent or very good mental health.<sup>351</sup>

<sup>k</sup> The reporting provinces are Prince Edward Island, Nova Scotia, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia and Yukon

**SECTION 3**

# Moving Forward from COVID-19



Both the direct impacts of COVID-19 and the indirect effects from public health measures have shown how interconnected our health, our society and our economy are. We have seen a commitment to work together across communities and across sectors to support each other through these past difficult months. We can maintain the momentum driven by this awareness and collaboration to address the challenges facing us today, as well as build a future that supports the health and well-being of all Canadians.

Priorities for action can be identified by drawing on what is known about the importance of key factors in determining health, the emerging research on COVID-19, and what we are learning from our response thus far. Transformation of key high impact systems that influence health can protect us now while creating a sustainable future in the face of other pandemics or health issues.

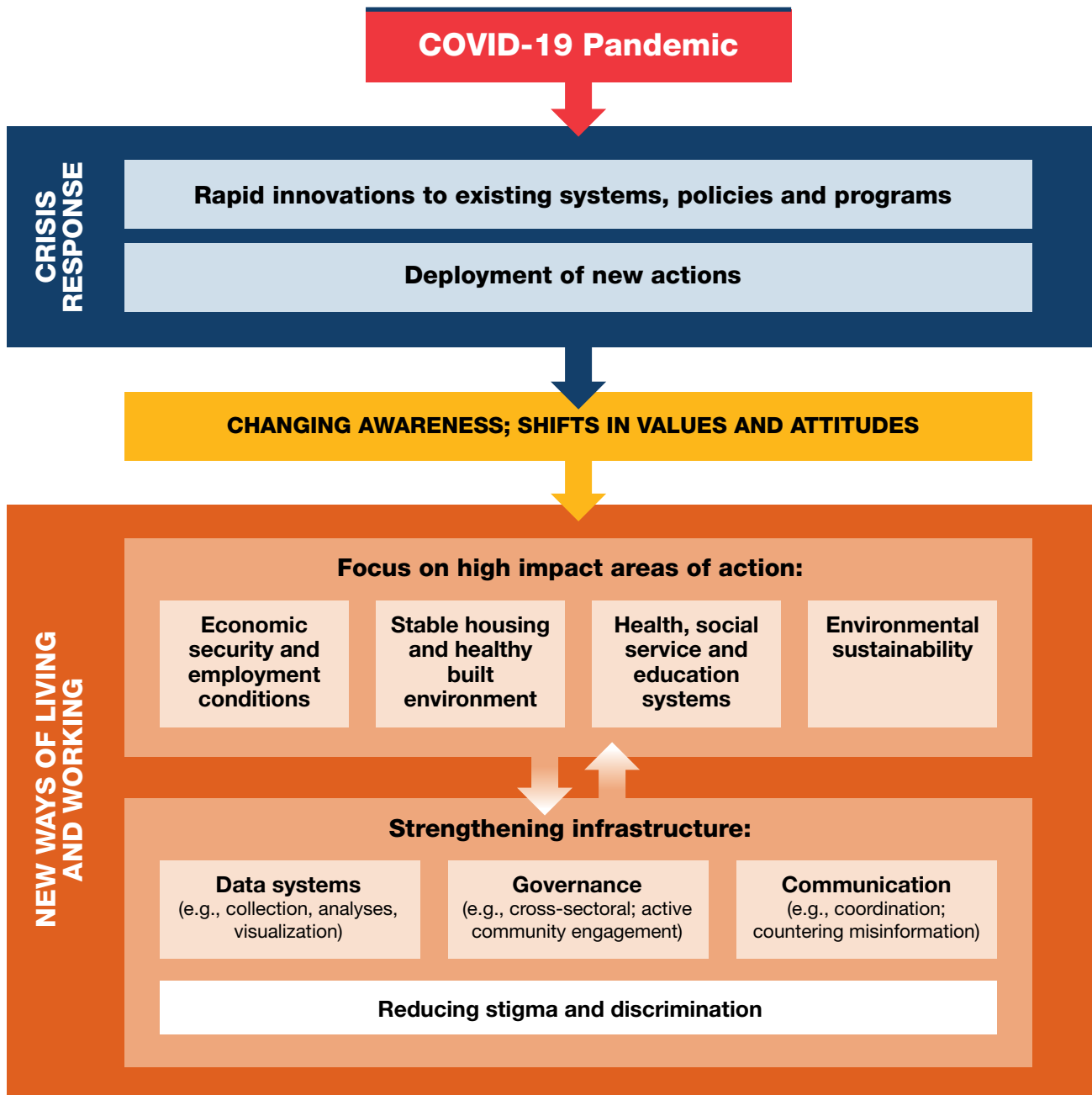
## Crisis Can Lead to Change: A Health Equity Approach

Canadians have come together to respond to the COVID-19 crisis. This is occurring within families, across neighbourhoods, communities and businesses, and between all levels of government. The pandemic has asked much of Canadians, but our collective response demonstrates our capacity to create real and immediate change to protect each other. This level of collaboration and commitment demonstrates what can happen when we work together.

This pandemic has demonstrated that inequities in our society place some populations – and ultimately, all Canadians at risk. No one is protected from the risk of COVID-19 until everyone is protected. While learning from this pandemic is an iterative process, to go forward stronger, there are areas of collaborative and cross-sectoral action that can better prepare Canadians for future public health emergencies and their consequences, while ensuring that everyone has the opportunity to achieve their best health and well-being (see [Figure 6](#)).



FIGURE 6: A Health Equity Approach to COVID-19



Adapted loosely from the work of the Boston Consulting Group,<sup>352</sup> this framework explores how a crisis can lead to opportunities for long-term and high-impact change. To integrate a focus on equity and health, the model draws on the values and principles from a human rights-based framework,<sup>353</sup> a Health in All Policies framework<sup>354</sup>, and a public health ethics framework (PHAC).<sup>355</sup>

The Health Equity Approach to COVID-19 framework proposes work in four high impact areas based on described consequences of COVID-19 described in Section two of this report: (1) economic security and employment conditions; (2) stable housing and a healthy built environment; (3) health, education and social service systems; and, (4) environmental sustainability (Figure 6). This work will need to be supported by a foundation of tangible actions to eliminate stigma and discrimination, strengthen cross-Canada commitments to robust data and research, clear public health communication, and collaboration across levels of government, sectors and civil society.

## High Impact Areas of Action

This section will explore actions that can lead to new ways of living and working. This will include identifying key issues, noting examples of innovations to date, as well as an exploration of next steps we can commit to working on together. These areas provide a framework for cross-sectoral action to centre health equity in pandemic initiatives today, as well as in our collective efforts to build a healthier future.

## How We Work

Income, employment and working conditions are key social determinants of health. As noted by the Bank of Canada, COVID-19 and the measures necessary to contain the virus, resulted in the “steepest and deepest economic decline since the Great Depression”.<sup>356</sup> Virtually all aspects of the Canadian economy have been impacted. While some economic indicators are improving, recovery from COVID-19 will take time, and the path forward — particularly if further closures are necessary — is uncertain. In addition to the unknowns about the future course of the virus, it is difficult to

predict the extent of impacts associated with business closures, job losses, and potential changes in demand due to pandemic-related shifts in consumer priorities and behaviours.<sup>356</sup>

A shift of this magnitude creates an opportunity for reflection and action. Workplace exposure among essential workers, and the disproportionate employment or income loss experienced by some groups, reveal areas for potential action. These actions can reduce pandemic-related economic risks, as well as build a stronger economy for everyone.

As public health measures were implemented, and workplaces shut down, governments across Canada implemented emergency income supports for Canadians who had lost their jobs. Social and economic policy — including income supports, among others — can play an important role in mitigating the impact of income and job loss on health.<sup>357–359</sup> Federal, provincial, territorial and municipal efforts in these areas are important components of pandemic recovery and — more broadly — addressing societal inequities.

These initiatives have adapted over time to reflect the changes in public health measures and the needs of Canadians.

## What We Can Continue to Work on Together

The pandemic emphasized a number of issues related to economic security and employment conditions. This includes the importance of stable and safe employment, as well as support for childcare or caregiving responsibilities to facilitate work.

As explored in Section two, precarious employment (i.e., insecure jobs with few protections or benefits) can increase economic and health risks. Precarious employment is also more common among some populations, particularly women and racialized populations.<sup>166, 360</sup> Improving workplace protections, increasing the number of quality jobs (i.e., secure jobs with benefits), ensuring equitable access to quality jobs, and addressing the impacts of precarious work could support greater health among Canadians and strengthen our collective response to future waves or pandemics.

## Protections at Work

For Canadians who continue to work but are unable to work from home, workplace safety is essential to protect against COVID-19. Government workplace safety regulations offer important protections, particularly since research suggests that the greatest impact of COVID-19 was on workers with the least bargaining power, such as non-union, low-wage, female or hourly paid workers.<sup>251</sup> New regulations may be needed to address the risks associated with novel infectious disease workplace outbreaks, and regulations need to be planned with a focus on implementation, including enforcement, given the challenges of investigating during outbreaks.<sup>361</sup>

Workplace protections could be extended to support mental health, particularly for essential workers dealing with the stress of increased exposure risk.<sup>288</sup> Existing initiatives could serve as a foundation for this work, including the Mental Health Commission of Canada's National Standard of Canada for Psychological Health and Safety in the Workplace, which is a set of voluntary guidelines, tools and resources to help prevent harms to mental health at work.<sup>362</sup>

In addition to general recommendations regarding workplace safety, there are also specific changes that could better protect temporary foreign workers. This includes ensuring physical distancing can be achieved, providing personal protective equipment, proactive workplace inspections that are based on risk-sensitive selection of inspection sites rather than relying on complaints by workers, and accessible health information and care.<sup>363, 364</sup>

Paid sick leave is also essential to protect worker and community health, but only 42% of working Canadians who are older than 18 years reported having access to paid sick leave.<sup>365</sup> Access to paid sick leave was particularly low among workers in hospitality and construction industries, which generally involve in-person work.<sup>365</sup> Without paid sick leave, employees may lose income if they become ill and are unable to work. Without employment security, they may lose their jobs if they stay home when sick.<sup>361</sup> In either case, and particularly if they are economically insecure, workers may feel unable to comply with public health guidance to stay home when sick.<sup>361</sup> A systematic review identified how common infectious illness presenteeism is, specifically, with studies linking this to organizational factors such

lack of paid sick leave, presenteeism culture, concern about disciplinary action (particularly job loss), as well as job and personal factors.<sup>366</sup>

Coming to work while ill carries additional community risk when individuals work at multiple job sites. This was most notably seen in long-term care homes, where many healthcare workers faced the economic necessity of multiple jobs in multiple institutions.<sup>165</sup> Prior to the pandemic, many healthcare workers in long-term care homes were working for low wages, and struggled to find full-time or regular part-time jobs with benefits.<sup>165</sup> While the personal impact of precarious employment has been known for some time, COVID-19 in these contexts underlined its impact on the safety of the community.

## Employment Quality

Alongside initiatives to improve employee and workplace safety, broader changes could address other dimensions of precarious employment as a social determinant of health.<sup>367</sup> This could include initiatives targeting low-income workers in precarious jobs such as pathways to better opportunities, as well as income and social supports such as accessible childcare and affordable housing.<sup>166, 367</sup> It could also include addressing systemic discrimination which is limiting the opportunities available to women and racialized men and women.<sup>166, 367</sup> Employer practices can also be examined to better support workers in precarious jobs, particularly if transitioning them to more secure work is not possible. This includes access to employer-provided income benefits, other benefits such as paid leave and flexible hours, greater predictability in scheduling and number of hours, greater professional development, and greater social inclusion.<sup>368</sup>

## Safe School and Childcare

To be able to work, parents and caregivers need safe school and daycare options for their children.<sup>251</sup> Accessible and high-quality childcare has long been considered a vital prerequisite to work among parents, and COVID-19 has emphasized this importance.<sup>250</sup> Attention to which workers are able to return to work which are constrained by caregiving responsibilities, as well as the policy options necessary to address these caring responsibilities will be important for the immediate and long-term career paths and earnings of parents.<sup>251</sup> This is particularly true for women.<sup>251</sup>

## Where We Live

For many Canadians, physical distancing requirements and associated shutdowns meant confinement in inadequate or unsafe housing. Overcrowded housing made it difficult or impossible to physically distance. For others, the pandemic created risks associated with living in residential environments, such as long-term care homes and group homes. People living with homelessness faced additional risks in shelters or encampments.<sup>181</sup> Individuals incarcerated in prison systems faced challenges associated with physical distancing and the impact of restrictions.<sup>195</sup> Physical distancing requirements, alongside the economic repercussions of the pandemic, created conditions that may have increased the risk of family violence.<sup>319, 320</sup>

Across all of these experiences, the place we live clearly emerged as a powerful predictor of our experience with the pandemic. Access to safe, stable, and suitable housing is foundational to mental and physical health,<sup>369–371</sup> during and beyond a pandemic. Adequate and safe shelter can support compliance with public health measures while better supporting the health and well-being of Canadians.

### Self-isolation Units in the Northwest Territories

As COVID-19 emerged across Canada, the Northwest Territories were quick to reserve 130 housing units in 27 communities across the territory for individuals who needed space to safely self-isolate. At the time of writing, all cases in the Northwest Territories have been resolved. After flattening the curve, the territorial and municipal governments collaboratively arranged to reallocate these self-isolation units as safe, affordable housing to clients of the Northwest Territories Housing Corporation programs. This response will effectively reduce issues of overcrowding, enhancing isolation measure effectiveness in the event of COVID-19 resurgence. Additionally, these housing units will help individuals experiencing homelessness by providing adequate and affordable housing and simultaneously reducing subsidized housing wait list times.<sup>380</sup> These types of adaptive solutions may be applicable to other vulnerable Canadians living in precarious or unsuitable housing.

As COVID-19 spread across Canada, all levels of government were quick to implement measures to address the affordability and adequacy of housing. This included moratoriums on evictions during states of emergency,<sup>372, 373</sup> providing off-peak electricity rates,<sup>374, 375</sup> and leniency on mortgage, rent and bill payment deferrals.<sup>376–378</sup> Moreover, communities immediately recognized that the unsuitable living situations of some of the most vulnerable Canadians were conducive to the spread of the virus. Many municipalities successfully mobilized emergency housing, repurposing closed city buildings to manage overcrowding in shelters and to provide safe isolation opportunities for individuals who did not have adequate space to do so, such as those experiencing homelessness and temporary foreign workers.<sup>379</sup>

Several initiatives were implemented to improve the safety of long-term care homes for residents and staff such as single-site work orders and adequate worker compensation.<sup>165, 170</sup>

Actions were also implemented to help identify individuals at risk of violence in their homes. For example, recommendations emerged for healthcare providers, including the use of “Safe Word” and “Signal for Help” campaigns to support more discreet inquiries about violence during telemedicine appointments.<sup>328</sup> Assessment recommendations were also released to support children and youth experiencing family violence, with guidance for pediatricians on how to assess potential violence in the home, including family stressors and coping strategies.<sup>381, 382</sup>

## What We Can Continue to Work on Together

COVID-19 exposed fractures in housing safety and security, and created opportunities to improve living conditions for Canadians.

### Housing for All

By demonstrating the role of housing in health and well-being, the pandemic underlined the importance of initiatives that take a broader lens on housing in the context of other health and social needs<sup>383</sup>. One such approach is Housing First.<sup>384, 385</sup>

## Housing First

Housing First is an initiative, integrated in the service delivery of many community-based organizations, that underscores the importance of stable housing and provides a viable alternative to the traditional model of emergency shelters. This program moves people out of emergency shelters and into adequate and affordable long-term housing as quickly as possible, with no predetermined eligibility requirements. Once housed, tenants are supported to maintain their housing and are connected to community and social services based on their needs.<sup>384</sup> Research on Housing First indicates that it can have a positive impact on housing stability, physical and mental health outcomes, and quality of life. The success of Housing First can be amplified when systemic barriers which create homelessness and adequate, affordable housing are simultaneously addressed such as removing barriers to obtaining livable income, accessing health and social services, and increasing subsidized housing supply.<sup>385</sup> Current government initiatives for the prevention and reduction of homelessness build upon the inclusive principles of Housing First to provide support and funding to urban, rural, remote and Indigenous communities across Canada using an outcomes-based approach. This allows community-based organizations to provide assessments, prioritize individuals and families experiencing episodic or chronic homelessness, and match them with necessary services based on their unique circumstances. This can also extend to prevention activities to reduce the number of people entering into homelessness by supporting those at imminent risk of homelessness and diverting people from emergency shelters to more suitable arrangements, based on their needs.<sup>384</sup>

## Safe and Supportive Long-term Care

The experiences in Canada's long-term care (LTC) homes have revealed the importance of ongoing changes in this sector. Research into experiences at long-term care homes have identified recommendations to improve safety for residents and employees. These include minimum staffing levels, minimum education standards and continuing education for staff, full-time quality jobs (with workplace protections and benefits such as sick leave) that support workers as well as offer better continuity of care for residents, and, improving infection control and prevention training, standards and strategies.<sup>74, 165, 386, 387</sup> Longer-term recommendations to improve LTC for residents and staff have also been identified and include: reviewing and enforcing LTC regulations, integrating healthcare into LTC homes, supporting leadership and inter-professional teams, and attending to the built environment of LTC homes.<sup>386</sup> Some physical environment recommendations related to pandemic preparedness and response include private rooms, outdoor spaces, smaller units, good sight lines and communication systems, in-house food, laundry and cleaning services, and extra space as well as convertible space for times of crisis.<sup>386</sup> Investment in community health and social services that support older adults to continue living independently at home could also prevent the emotional, social, physical and financial hardships associated with leaving home to live in LTC residences.<sup>388</sup>

## A Home Free of Violence

Recommendations to support safe housing for individuals experiencing violence in the home during COVID-19 have broader relevance beyond the pandemic. Recommendations to respond to gender-based violence, including family violence, during COVID-19 include ensuring necessary programs are open and adequately resourced during lockdowns, that programs are accessible to all populations (including newcomers, individuals with disabilities, those with unmet housing needs), building public awareness about available services and correcting misinformation about service closures or restrictions, and educating essential workers to identify signs of violence, abuse or neglect.<sup>389, 390</sup>

## Supporting Canadians Transitioning from Prisons to the Community During COVID-19

Researchers from the CIHR Best Brains Exchange held in partnership with the Office of the CPHO identified a number of issues that are important to address to improve the health and well-being of incarcerated populations during a pandemic. Canadian justice and correctional systems reduced the number of people held in correctional institutions in order to reduce public health risk. Among other options, this included temporary or early release for those at low risk to reoffend and alternatives to custody for those awaiting trial, sentencing or bail hearing. From February to April, 2020, the number of adults in federal, provincial and territorial custody declined by 16%. The decline varied across provincial and territorial correctional service programs, as well as by gender in provincial or territorial institutions. The female custodial population in provincial or territorial institutions declined 40%, from February to April, almost double that for the male custodial population (23%).<sup>89</sup> Additional recommendations include ensuring safe housing, health services and community-based support systems for individuals released, as well as supports for those who remain in prison, including reintroducing visits and programs suspended during COVID-19 shutdowns (with appropriate physical distancing), reducing lockdowns to facilitate physical activity, and improving access to phone and video calling between prisoners and their support systems.<sup>195</sup>

## Homes in Healthy Communities

A healthy built environment – including physical space, such as parks, transit systems, buildings, and other infrastructure – plays an important role in health and well-being.<sup>391</sup> This includes the accessibility of spaces to connect with community and engage in physical activity,<sup>392</sup> as well as environmental factors that can hinder or facilitate the transmission and spread of contagious diseases like COVID-19.<sup>393</sup> Restrictions in access to parks and green spaces during the pandemic may have particularly impacted families and individuals living in multi-unit residential buildings in urban centres, who do not have access to private green space.<sup>394</sup>

As provinces and territories re-opened, many cities adapted city infrastructure to encourage outdoor social and physical activities, while simultaneously respecting physical distancing protocols. For example, many communities closed select streets to traffic, allowing pedestrians and cyclists to exercise outdoors safely. Additionally, many restaurants, bars, and cafes with outdoor seating were permitted patio expansions to ensure patrons were able to safely dine at least two meters apart in a non-closed environment.<sup>395, 396</sup> The Canada Healthy Communities Initiative, launched by Infrastructure Canada was created to encourage adaptive, community-based solutions in response to infrastructure challenges posed by COVID-19, including safe and vibrant community spaces and solutions to support community mobility while physical distancing.<sup>397</sup>

Improving the built environment, particularly in historically underserved and underinvested communities, can help during the pandemic and beyond, supporting all Canadians to meet their basic needs and promote good health. Neighbourhood design, transportation systems, food systems and the natural environment are important elements to support health and well-being.<sup>398</sup>

## Our Health, Social Service and Education Systems

The pandemic limited access to health, education and social systems for all Canadians. However, the impact of this inaccessibility may have been particularly pronounced for Canadians who either generally rely on these services to help them meet their needs, who were less able to adapt to distance-based learning, or for Canadians who were significantly impacted by the pandemic but could not turn to health and social services for support.<sup>399</sup> As we recover from and prepare for resurgences of COVID-19 or other public health emergencies, it is important to reflect on how to build accessible and meaningful support systems for all.

## What We Can Continue to Work on Together

### Equitable Access for Reintroduced Services

As health services are reintroduced, we can consider principles that emphasize – among other key considerations – key ethical considerations related to access.<sup>400</sup> For example, North American cardiovascular societies have identified the importance of fairness, so similar cases are treated the same while considering baseline health inequities, as well as consistency in the reintroduction of services to ensure access is not influenced by factors such as ethnicity or perceived social worth.<sup>400</sup>

### Supporting Digital Access to Care

In order to comply with physical distancing requirements, many health and social services quickly adapted to provide care from a distance through virtual care or telemedicine.

Rapid uptake of virtual care provided crucial continuity of care for Canadians. Across all provinces and territories, physicians were advised to provide telemedicine or virtual care, where possible<sup>401</sup>. Specialist services also adapted to virtual care.<sup>402–404</sup> A “Virtual Care Playbook” for Canadian physicians was released in March, 2020 by the College of Family Physicians of Canada, the Royal College of Physicians and Surgeons of Canada, and the Canadian Medical Association in order to provide guidance about safe, effective and efficient virtual care.<sup>405</sup> A shift to virtual services was also evident among community services organizations. A survey with Canadian charities reported that 54% of social service organizations shifted in-person programs online as a result of the pandemic, and 69% of health organizations did as well.<sup>406</sup>

Virtual care can provide opportunities to enhance access, even outside the context of a pandemic. For populations living with lower income who struggle with access, virtual care can address transportation barriers or having to take time off work for appointments, particularly if they can be offered after-hours so that appointments do not impact earnings.<sup>407</sup>

However, there are challenges to ensuring equitable access and – as we anticipate future waves of COVID-19, or future pandemics – it is important to ensure that everyone has access to these supports so that this innovation does not exacerbate health disparities. Older adults,

rural populations, racialized populations, populations who require translation supports, people experiencing homelessness and populations with low socioeconomic status may experience lower digital literacy or face digital barriers to internet-enabled devices or high-speed internet required for video interactions.<sup>407–409</sup> Persons with disabilities may be more likely to face issues with telemedicine, including infrastructure and access barriers, operational and systems challenges, logistic challenges, communication barriers, and unique challenges related to their specific experiences with disability.<sup>410</sup> Racialized and newcomer populations may have additional concerns about trust in the context of virtual care, related to stigma and discrimination within health systems or – particularly for recent or undocumented immigrants – additional concerns related to confidentiality, privacy, and data security.<sup>407</sup> Healthcare providers may not be aware of these disparities, and may not consider how their patients and communities access or interact with technology.<sup>408</sup>

Suggestions to address some of these challenges include offering phone services rather than just online services, widespread advertising emphasizing privacy and security, as well as understanding and addressing digital literacy challenges associated with telemedicine patient apps or portals. Health and social services could also proactively identify potential access disparities, provide digital education and training, offer language interpretation, collect data on who uses virtual services to identify access issues and support low-cost broadband access.<sup>407, 409</sup>

### Access to Critical Health Services

While some health and social services were able to move online, this was not possible for a number of critical services. Many important health services were delayed due to the pandemic, including screening and treatment. Routine immunization will need to be reinforced, not only when a vaccine against COVID-19 become available, but to ensure that immunization across the life course is available to protect people in Canada against preventable illness.<sup>411</sup> Public health messages on the importance of vaccination will be critical as will flexible vaccine delivery methods that allow for immunization while supporting physical distancing. Other key elements include identifying missed vaccinations and vaccine delivery gaps, better meeting patient needs through a variety of times and sites for clinics and offering immunization at various points of contact with the health system.<sup>411</sup>

Other services, such as those addressing the opioid crisis, had to be reimagined to continue life-saving work during the pandemic. To support physical distancing measures and reduce risk of overdose due to using alone, Health Canada issued temporary exemptions for all provinces and territories in April 2020 that allow them to open new temporary spaces for the safe consumption of drugs without requiring an application to Health Canada.<sup>412</sup>

In March 2020, Health Canada issued an exemption, lasting until at least September 2021, from the *Controlled Drugs and Substances Act*, to allow a number of activities by pharmacists to support ongoing access to opioid agonist therapy.<sup>413</sup> This includes extending, renewing and/ or transferring prescriptions and allowing pharmacy employees to deliver prescriptions of controlled substances to patients.<sup>412</sup> Health Canada also asked provinces, territories and regulatory colleges to consider improving access to opioid medications and allowing accommodations to support public health measures, such as take-home dosing.<sup>412</sup> Continued access to treatment can be life-saving: recent research from British Columbia identified that opioid agonist therapy had a clear protective effect on mortality, an association that grew even stronger after fentanyl was introduced into the illegal drug supply.<sup>414</sup>

The Government of British Columbia also released new safe supply guidelines in March 2020 to facilitate access to a wider range of prescription opioids, for individuals who meet specific criteria.<sup>415</sup> This protects individuals who use substances by supporting physical distancing as well as protecting them from toxic drugs in the illicit drug supply. While other supports – such as mutual aid or group-based treatments – may be limited due to physical distancing requirements, innovations such as safe supply can make a difference.<sup>416</sup> Researchers in British Columbia have also seen early anecdotal evidence that this approach can help individuals who use substances to avoid regular contact with the illegal market and can reduce other potentially high-risk activities such as sex work.<sup>417</sup>

### Continued Innovations in Harm Reduction

We can work to better support individuals who use substances through additional harm reduction practices and policies. This includes adapted approaches to addressing substance use during the pandemic, such as practicing safer drug use to decrease transmission, accessing testing if symptoms of COVID-19 occur,

avoiding using drugs alone but using physical distancing directives when pairing with another person, finding alternative ways to have safe drugs delivered if in isolation, and continuing to use supervised consumption sites.<sup>419</sup> Broader policy options include the decriminalization of simple possession of small amounts of illicit drugs.<sup>420–423</sup> Substance use is a public health issue and the decriminalization has been suggested as an approach to reduce the public health and public safety harms associated with using drugs by decreasing the stigma associated with illicit drug use and supporting access to services that reduce substance-related harms and support recovery.<sup>421</sup> Four elements of decriminalization were proposed by the Canadian Association of Chiefs of Police: supervised consumption sites, decriminalization for simple possession, safe supply of drugs, and diversion programs.<sup>421</sup>

***The Canadian Research Initiative in Substance Misuse*** released six national guidance documents to better support people who use substances during the COVID-19 pandemic. These resources focus on supporting people who use substances in shelter settings and in acute care settings, the use of telemedicine for treatment services, harm reduction worker safety, strategies to reduce COVID-19 transmission in residential programs, and how to facilitate physical distancing for people who use substances.<sup>418</sup>

### Support Mental Health

As we recover from the initial impacts of COVID-19, and prepare for future resurgence and other public health crises, it is essential that Canadians are able to access the mental health resources they need. Crises can impact the mental health of anyone and there are particular risks for individuals who faced mental health or substance use challenges prior to the pandemic, essential workers at increased infection risk, and those who have been infected.<sup>288</sup>

Efforts to increase awareness of mental health, mental illness and the pathways to care must continue. It will be important to identify those in need as well as to decrease stigma and discrimination for those seeking help. This includes screening for mental health issues, using a trauma-informed approach that recognizes the pervasive impacts of the pandemic and the resulting new or exacerbated mental health challenges facing patients.<sup>424</sup>



Current mental health systems require adaptations to continue to meet urgent needs, and to better support Canadians long-term.<sup>288</sup> There is expected to be considerable need for mental health resources to cope with the pandemic and its aftermath.<sup>425, 426</sup> Current and ongoing priorities include better meeting the needs of underserved populations, including technological innovation in service delivery, online outreach and psychosocial support, and continuity for essential in-person mental health services.<sup>288</sup> Telemedicine for mental health will require professional training and competency development to ensure quality of care.<sup>425</sup> Access issues also require consideration, related to patient digital literacy as well as the private use of internet-enabled devices.<sup>425</sup>

### Virtual Mental Health Care in Practice

One example of a pre-existing virtual mental health service is Newfoundland and Labrador's Stepped Care 2.0. The model involves integrating e-mental health interventions and walk-in single session counselling alongside in-person programming using an evidence-based, client-centred approach.<sup>427</sup> Another approach to telemedicine for virtual mental health support is the Wellness Together online portal (website and app). This new initiative, launched by the Government of Canada in April 2020, is dedicated to mental wellness and substance use issues, with the goal of connecting people to credible peer support workers, social workers, psychologists and other professionals for confidential chat sessions or phone calls.<sup>428</sup>

### Strong Community Services Sector

Canadians rely on the support of community service organizations to meet a wide variety of health, mental health and social needs. Since these organizations are already active in and connected to community, they are well-positioned to help strengthen the health and well-being of Canadians during and after the pandemic. However, surveys with Ontario non-profits and charities across Canada emphasize the challenges facing the sector as a result of the pandemic. The sector is dealing with decreasing revenue and donations, office closures and program cancellations because of physical distancing requirements, and human resource challenges related to volunteers as well as paid staff.<sup>406, 429</sup> For organizations who have continued to offer essential services, there are concerns about the lack of PPE.<sup>429</sup>

In a survey with charities across Canada, 42% reported having already developed new programs in response to changing needs.<sup>406</sup> Many organizations across the country have also become innovative in their response to the pandemic.<sup>430</sup> For example, a drop-in centre which supports sex workers in downtown Vancouver has converted a parking lot into a 24-hour respite space for women.<sup>431</sup> Canada's largest pediatric illness camp held a "Virtual Village" to deliver programs online after the pandemic forced the cancellation of summer camp.<sup>432</sup>

Recommendations to support the sector include emergency, core and flexible funding to enable community organizations to quickly respond to local needs, access to PPE for frontline service providers, and a role for non-profits in post-pandemic recovery planning.<sup>390, 429, 433</sup>

### Resilience in Education

School closures have illuminated, for many Canadians, the pivotal role of schools in not just learning and education, but also the social, emotional, developmental and physical well-being of children. Decisions to close schools and daycares, as well as if and how to reopen them, demonstrate the tensions between preventing spread of COVID-19 while meeting the social and educational needs of children and supporting parents to work. As we plan for future resurgences and pandemics, it is valuable to explore ways to improve virtual education for everyone and to build on the important role of schools in meeting the social and emotional needs of children.

As this report is released (fall of 2020) more information and evidence will be evolving on the role of children in COVID-19 transmission, as well as opportunities for innovation.

A number of recommendations have emerged to maximize the potential of distance learning. While a discussion of pedagogical approaches is beyond the scope of this report, it is important to address how to maintain the broader roles of the school system, particularly with a focus on equity. This includes ensuring that all students have necessary technological access and supporting the continuity of previously school-based food services and social services.<sup>434</sup> Other suggestions focus building a sense of normalcy and safety in distance learning in order to create an online environment conducive to learning, while teaching adaptive behaviours and ensuring teacher-student check-ins.<sup>435</sup>

As schools re-open, there is an opportunity to consider and support the broader social and emotional needs of children related to the pandemic. This is valuable, because children and adolescents are living through the crisis during critical biopsychosocial development periods.<sup>288</sup> Students may need time and support to rebuild their social and developmental networks at school before they can focus on educational goals.<sup>436, 437</sup> Open and empathic discussions, reconnecting socially, focusing on coping strategies, and communicating openly with students can all help students process their experience and build resilience.<sup>438</sup> A broader focus on trauma-informed practice in schools also offers a way to meet the social and emotional needs of students returning to school.<sup>435</sup> This could include flexible instructional practices, prioritizing relationships over curriculum in classroom management, sensitive approaches to discipline and a broader culture of self-care and support.<sup>435</sup>

## Our Environment

It is important to remember that COVID-19 is a zoonotic disease in its origin. Actions in the area of environmental sustainability help prevent zoonotic diseases, address food security and have other health and wellbeing benefits.

## What We Can Continue to Work on Together

### Understanding our Relationship with Zoonotic Diseases

The rise of zoonotic diseases, caused by infectious organisms that spread between animals and humans,<sup>439</sup> and the emergence of COVID-19 illustrate the interconnected nature of all life.<sup>440</sup> Once a virus is established in humans, it can quickly spread globally, as we have seen with COVID-19. Conditions have existed and still exist for zoonotic diseases like COVID-19 to develop. Ebola, Marburg, SARS, MERS, HIV/AIDS, Lyme disease, Hantavirus Pulmonary Syndrome, West Nile virus, and Zika virus are all zoonotic diseases that have emerged in the past century.<sup>441, 442</sup> Zoonotic diseases represent 60% of known human infectious disease<sup>443</sup> and 75% of emerging infectious diseases.<sup>444</sup> Emerging zoonotic diseases threaten human and animal health, economic development and the environment. Although zoonotic

diseases can impact anyone, people living in poverty or with financial constraints experience disproportionately the direct and indirect consequences of zoonotic disease.<sup>440</sup> This is due to many factors, including living closely to animals or wildlife, poor sanitation conditions and lack of access to clean water. Pandemics are a widely predicted consequence of how people produce food, participate in animal agriculture, and alter and interact with environments.<sup>440</sup> There is a need to examine aspects of industrialized animal production, and urbanization and invasion of wildlife habitats, where humans come in greater contact with wildlife.<sup>440, 445, 446</sup> Increased surveillance of human-animal interactions is needed to monitor emerging zoonotic diseases and pathogens of pandemic potential (e.g., avian and swine influenzas) as well as environmental changes that intensify close proximity.<sup>446</sup>

Addressing the issue of zoonotic diseases and putting solutions in place can be quite complex and require inter-sectoral efforts from the sometimes siloed sectors of environment, agriculture and health. Policies and actions put in place to deal with these diseases can be less effective without an inter-sectoral approach.<sup>440</sup> A One Health approach, the integration of human, animal and environmental health expertise and policy, is a holistic approach helpful for preventing and responding to pandemics as it considers the links between humans, animals, and the environment.<sup>440, 447, 448</sup>

### Building Sustainable Food Systems

The COVID-19 pandemic has exposed structural inequities in Canada's social protection programs and food production systems. People experiencing existing inequities, like poverty, will be the most affected by COVID-19 food system disruptions.<sup>449</sup> This pandemic reinforces the need to reassess food systems, including how we produce and process, in order to make them more accessible, sustainable and resilient.<sup>450</sup>

Canada's agriculture sector is highly dependent on temporary foreign workers, who account for 20% of total employment in this sector, and farmers.<sup>451</sup> We need to ensure good pay and conditions for every worker along the food production chain, while also addressing the specific needs of temporary foreign workers.<sup>452</sup> Food systems can also be enhanced by encouraging

community and local food production. Farmers, who are the foundation of our food system, benefit from land security and local demand for their products, which can provide greater market power.<sup>453</sup> Valuing agricultural production will support sustainable agriculture and allow farmers to pass knowledge from generation to generation and to new farmers from non-farm backgrounds, thereby create the conditions for stronger food systems.<sup>453</sup>

## Foundational Requirements for Structural Change

To ensure longevity and sustainability of changes to Canadian society, the following areas need to be strengthened.

### Reducing Stigma and Discrimination

Stigma and discrimination prevent people from accessing the resources they need to be healthy and puts them at greater risk of disease, violence and injury. Throughout the report, we have explored how racism, colonization, ageism, among other forms of stigma, contributed to the disproportionate burden of COVID-19 among some groups.

It is necessary to address the stigma associated with COVID-19 as a health condition, as well as broader social stigmas that increase the risk experienced by particular groups, in order to change discriminatory social norms and improve health and well-being. As detailed in *Action Framework for Building an Inclusive Health System*, developed for the 2019 CPHO Annual Report, there are a number of evidence-based initiatives that can reduce stigma at individual, interpersonal, institutional and population levels. This framework provides a roadmap to implement anti-stigma policies, programs, and actions to address the drivers of stigma, reduce discriminatory practices, and build an inclusive health

system. Stigma related to COVID-19 may negatively impact specific communities, ethnic groups or individuals released from quarantine or treatment. This stigma builds upon pre-existing discriminatory social norms.

The Government of Canada has invested additional resources to support community-led responses to COVID-19 in Indigenous communities through the Indigenous Community Support Fund.<sup>454</sup> This funding is in recognition that Indigenous leadership, governments and organizations are best suited to identify and address unique challenges facing their communities. Supporting Indigenous-led services can also help address stigma and discrimination.<sup>454</sup>

Addressing misinformation about COVID-19, its origin, and transmission is important to combat stigma. This includes leaders and community members who publicly challenge racism and hatred.

### What We Can Continue to Work on Together

In addition to the interventions detailed in the 2019 CPHO Annual Report, a number of recommendations and actions have emerged specific to COVID-19. These have relevance to addressing stigma in the context of pandemics and public health crises more broadly. As with other areas of stigma and discrimination, it is important to prioritize the perspectives and leadership of individuals who have experienced stigma related to COVID-19; this can help us improve public health measures.<sup>455</sup>

Health and social service providers can better meet the needs of all individuals when they provide culturally safe services. This could include provider self-reflection, addressing bias and discrimination, relationship building with service-users, understanding diverse perspectives and worldviews, and ongoing and meaningful training for staff and volunteers.<sup>2</sup> Additionally, health and social services are well placed to integrate principles of trauma- and violence-informed care, ensuring a strengths-based and collaborative approach to service delivery.<sup>2</sup>

## COVID-19 Vaccine Development and Delivery in Canada

A key objective of Canada's pandemic response is to provide an effective and safe vaccine against SARS-CoV-2 infection. Potential COVID-19 vaccines are subject to a lengthy development process guided by the evolving state of evidence and important ethical considerations, to ensure the most effective vaccine for widespread use.<sup>456, 457</sup>

Vaccine clinical trials follow strict protocols, including the disclosure of potential risks and ensuring participants provide informed and voluntary consent.<sup>456</sup> Early clinical trials of COVID-19 vaccine candidates should start with a range of healthy adults with no underlying health conditions, followed by populations that may need additional safeguards such as children and adolescents, adults who are immunocompromised, and pregnant women.<sup>456, 457</sup> It is critical that trials include populations at high risk of susceptibility and/or exposure to COVID-19 to understand the vaccine's effectiveness and impacts across these groups.<sup>456, 457</sup> Late stage clinical trials should therefore include individuals from groups who have experienced disproportionate COVID-19 impacts such as those with underlying health conditions, residents of long-term care facilities, as well as healthcare and essential workers. Whenever possible, the results of vaccine trial outcomes should be disaggregated by factors that contribute to health inequities such as sex, age, and health status to better understand comprehensive impacts across demographic variables.<sup>456</sup>

In addition to considering the evidence on the safety and efficacy of vaccines in different populations, the equitable allocation of vaccines where there is limited supply needs to take into account who is most at risk of exposure and severe outcomes, feasibility and acceptability of the vaccine and ethical considerations.<sup>456</sup>

## Data for Understanding and Decision-making

Relevant and accurate data are required to effectively develop, implement, and evaluate public health measures to control the pandemic and recover afterwards. Data are also vital to understand inequities in society, to explore how these inequities influence health and well-being, and to inform and evaluate interventions to build a stronger and more equitable society. Generating necessary evidence requires both new areas of inquiry as well as the capacity to better disaggregate data to understand different experiences. Additionally, there are specific data needs in each of our high impact areas of action, particularly related to precarious employment, housing, and long-term care homes.

Work is underway to strengthen local and national data systems in response to COVID-19. On May 20, 2020, Toronto Public Health began collecting data on Indigenous identity, racial group, income, and household size for individuals who tested positive for COVID-19.<sup>154</sup> These data will be used to reduce COVID-19 inequities, through a variety of activities such as collaborating with relevant community agencies, targeted public health information, identifying areas for testing, and supporting isolation for those unable to do so at home. Another

group in Toronto, Health Commons Solutions Lab, worked with partner organizations in North Etobicoke to gather information from key community stakeholders, including residents, to explore the experience of the first six months of the pandemic.<sup>458</sup> The goal of this work is to gather information and facilitate conversations between communities and levels of government in order provide suggestions on what communities need to best prepare for possible resurgences of COVID-19.

CIHR funded "Indigenous Health Counts in Urban Homelands: Estimating COVID-19 Incidence and Mortality among Indigenous Populations Living in Ontario Cities" in order to address the data gaps regarding the spread of COVID-19 among Indigenous peoples, particularly in urban areas. This research builds on existing studies that were led and completed by and for the Indigenous community.<sup>459</sup>

Statistics Canada has rapidly collected and shared data that explores the social and economic impacts of COVID-19. This includes crowdsourced data on a number of topics, as well as a new web panel survey called the Canadian Perspectives Survey Series. They maintain a hub for new data and publications, which is helping to provide key information about the impacts of the COVID-19 epidemic on Canadian society.<sup>460</sup>

Data collection initiatives are also underway between federal, provincial and territorial governments to, in the short-term, address critical data gaps with the goal to build the capacity and infrastructure to ensure Canada has the critical data needed to provide the best health and public health systems possible. This work will be carried out with the involvement of key partners such as the First Nations Information Governance Centre, the Canadian Institute for Health Information and the Canada Health Infoway.

## Serological Research

Knowing who was exposed to COVID-19 at the population level can help to track and identify vulnerable groups in order to implement appropriate preventive or mitigating measures.<sup>461</sup> Antibody (or serological) tests use blood samples to determine whether a person was previously infected by the virus. Higher than average rates for a given sub-population would indicate a disproportional COVID-19 burden and, possibly, point to an inequity. While serological COVID-19 tests started to be implemented in Canada in late spring 2020, one study conducted by Canadian Blood Services suggested that fewer than 1% of provincial residents, excluding Quebec, were exposed to the virus by mid-June.<sup>462</sup> Since not all Canadians who had the virus were tested (particularly those who may have had mild or no symptoms), the number of Canadians exposed to the virus is higher than what has been reported.<sup>463</sup> For instance, comparing serological test results to confirmed case counts in Quebec revealed that the total number of COVID-19 cases among the population was estimated to be more than 3 times higher than the number of reported cases by July.<sup>464</sup> On the one hand, these observations indicate that the implemented public health measures succeeded in keeping infection numbers low. On the other hand, they indicate that population immunity levels are too low to slow a resurgent COVID-19 wave (at the time of writing this report).<sup>465</sup> Much remains to be learned regarding the relationship between antibodies and providing immunity to SARS-CoV-2. For instance, at the moment we do not know whether people with detectable antibodies are immune to a sub-sequent SARS-CoV-2 infection or still infectious to others.<sup>466</sup> Research is required to answer these key questions.

## What We Can Continue to Work on Together

### Ensure Disaggregated Data

In order to understand and address inequities, it is essential to collect, link, and disaggregate data related to socio-demographic factors, including geography, income, education, Indigenous status, racial and/or ethnic background, sex and gender, sexual orientation, age, disability status, occupation and migratory status. These efforts rely on the ability to integrate intersectional data from various sources, such as self-reported survey data with administrative data, which requires adequate expertise, technology and infrastructure.<sup>467</sup> The ultimate goal is to supply decision-makers and public health authorities with the information needed to identify the most appropriate interventions for a specific targeted group.<sup>468</sup>

Getting there requires trust and collaboration amongst data owners and providers. Partnerships that were forged or strengthened as part of the initial COVID-19 whole-of-government/society response will have to be sustained and expanded.<sup>3</sup> Standards and systems have to be put in place to ensure that any additional sensitive data, such as race and ethnicity data, is collected, stored, processed and used in ways that are not only uniform and secure, but also culturally safe.<sup>469</sup>

It is important to understand historic and contemporary context when revealing inequities, in order to situate these inequities within a determinants of health framework and to avoid harmful stereotyping and further discrimination.<sup>142</sup> To ensure accurate understanding of why differences occur, it is essential to engage with community to explore the factors that drive health and well-being. Similarly, data collection activities are best designed in collaboration with community, and where feasible, be community-led.<sup>142</sup> Data and research access and ownership is also critical to ensure that communities benefit from their own data.

### Expand Data Collection in Key Areas

In addition to the capacity to disaggregate data to identify and address health inequities, the pandemic further highlighted the need for data on important health outcomes and determinants of health.

In order to understand and improve working conditions and the availability of good jobs, it will be important to collect more nuanced data on employment. This includes the nature and extent of precarious jobs in the labour market, multiple dimensions of precarious employment, (e.g., availability of paid sick leave), and how these non-standard jobs are impacted by crises like COVID-19.<sup>367, 470, 471</sup>

Housing conditions are always important for health and well-being, and all the more so when public health measures recommend staying at home as much as possible. To best support Canadians during physical distancing requirements and beyond, we need data on housing stability as well as housing adequacy for physical distancing or self-isolation. Data on some home environments are particularly urgent, including the experiences of populations in long-term care homes. This includes robust administrative data, as well as data on resident quality of care, resident quality of life, quality of work life for staff, and resident and family experiences.<sup>165</sup> Data such as these can support evaluation, accreditation, regulation and reform intended to improve long-term care homes.<sup>165</sup>

Data will also be necessary to help us understand and address the larger impacts of the pandemic and associated public health measures, particularly related to mental health. This could include the short- and long-term mental health impacts for individuals living with COVID-19, as well as the broader social and economic impacts of physical distancing requirements.<sup>288</sup>

## Communication

The role of effective risk communication—the exchange of real-time information, advice and opinions between experts and the public who face threats to their health, economic, or social well-being<sup>472</sup>—cannot be overstated. Providing Canadians with the information they need, when they need it, where they need it and in the right language and format is critical to public health. Risk communication also helps reduce the uncertainty and anxiety associated with the pandemic, particularly when it is accurate, empathic, well-timed and provided alongside evidence-based containment measures.<sup>288</sup>

Risk communication enables people at risk to make informed decisions to protect themselves and others, and it includes the identification and management of rumours and misinformation.<sup>472</sup> Misinformation can impede the delivery of accurate pandemic-related information, thus hindering efforts by public health officials to fight the pandemic.<sup>473–475</sup> Moreover, misinformation can be extremely harmful by exacerbating racism and fear and result in unconstructive and dangerous behaviour.<sup>473–475</sup> Promoting effective risk communication and countering misinformation is challenged by a growth in distrust and skepticism towards government and science.<sup>476</sup> Social media has provided a platform for rapid spread of misinformation, underlining the crucial role and responsibilities of mass media during public health crises.<sup>476</sup> In a study of the most viewed YouTube videos on COVID-19, 27.5% of videos — with over 60 million views at the time of the study — contained non-factual information.<sup>473</sup>

Disinformation surrounding COVID-19 poses a serious risk communications challenge. According to a recent survey conducted by the School of Journalism and Communication at Carleton University, conspiracy theories and non-factual information about COVID-19 are prevalent in Canada.<sup>477</sup> Over half of Canadians surveyed in the study, believed they could distinguish conspiracy theories and misinformation from factual information about COVID-19. However, almost half of those indicated that they believed in one of the conspiracy theories that were described in the survey. The study also found those who held those beliefs spent more time per day on social media than their counterparts.<sup>477</sup>

When COVID-19 first emerged, risk communication messages were straightforward, focused on physical distancing, staying home and hand hygiene. As the pandemic evolved differently across the country and new evidence emerged, the communication environment became much more complex. It becomes more difficult to make clear and definitive statements that are consistent across the country. Some Indigenous communities have developed their own targeted public health messages using social media to get the message across or to dispel misinformation.<sup>478, 479</sup>

## What We Can Continue to Work on Together

Distrust in scientific expertise and the spread of disinformation is dangerous as we enter new stages of the COVID-19 pandemic. They may contribute to the opposition of a future vaccination and therefore to the potential for increased outbreaks. Anti-vaccination clusters have become highly entangled with undecided clusters online, leading to a growth in anti-vaccination views. It has been predicted that anti-vaccination views will dominate in a decade if efforts are not put in place to shift them.<sup>480</sup>

Maintaining trust is key to vaccine uptake.<sup>481</sup> In a crowdsourced COVID-19 survey, Statistics Canada reported that crowdsourcing participants with high levels of trust in the federal government were more likely to report that they were very likely to get a COVID-19 vaccine when available (77.3%, compared to 53.8% with a low level of trust in the federal government).<sup>482</sup> A similar difference was found among participants with a high level of trust in federal public health authorities (76.4%) when compared to those with a low level of trust in federal public health authorities (44.4%).<sup>482</sup> In addition to the impact of misinformation, vaccine hesitancy may be particularly high for a COVID-19 vaccine, since the vaccine will be new and expedited approval may create false beliefs that the vaccine was not properly evaluated.<sup>481</sup> Proper communication with key stakeholders and healthcare providers is essential to ensure as many people as possible will be vaccinated. This will necessarily include working to develop messages which are appropriate for specific contexts and groups and working with community leaders, media literacy experts, community organizations and other key influencers.

## Working Together, at Every Level

During a crisis like COVID-19, it is essential that we all work together to protect and strengthen our communities.

Despite the uncertainty and challenges that COVID-19 has caused, there has been immense collaboration and adaptation among Canadians, across governments, in organizations, and within communities to ensure social and economic protection for those impacted by the virus.

Across Canada, people have volunteered their time, displaying acts of kindness and compassion to support friends, family, neighbours, and others in need with vital tasks such as grocery shopping, medication delivery or providing social support.<sup>498</sup> Others have dedicated their time or resources to ensure essential services, such as food banks, remain operational and accessible.

While widespread public health measures are typically directed by all levels of government, many communities have been quick to develop innovative and collective responses to challenges imposed by COVID-19, guided by the needs of their residents and situated within their geographical, economic and social contexts. These responses can create a collective sense of belonging among people, even while physically remaining apart.<sup>499</sup>

This commitment to each other and the nation was also demonstrated across governments in Canada. COVID-19 represents a complex intergovernmental problem that no one government can address. Success requires high levels of coordination and collaboration across governments and across sectors, and the nature of such a problem challenges the way different levels of government work together by making joint action necessary but without existing processes to draw upon.<sup>500</sup> Despite these challenges, Canadian researchers have noted the successes demonstrated by Canada's intergovernmental COVID-19 activities.<sup>501, 502</sup> This included coordination and information sharing among public health officers, frequent communication between federal and provincial-territorial leaders, and a united front across governments.<sup>501</sup> This united front was also evident across political parties in Canada. In an analysis of the social media activity of Members of Parliament, Canadian researchers noted that members across political parties consistently emphasized the importance of public health measures.<sup>503</sup>

## Indigenous Populations and COVID-19: Examples of Leadership, Resilience and Success<sup>91, 483–485</sup>

First Nations, Inuit and Métis face social and economic challenges that intersect to increase their risk of contracting COVID-19 and experiencing serious illness. The lasting impacts of intergenerational trauma continue to influence the health of Indigenous peoples in Canada. Social and economic inequities persist, increasing risk related to COVID-19. This includes challenges such as lack of access to medical care, geographic isolation, inadequate and overcrowded housing, as well as low-income and food insecurity. Some communities are unable to comply with public health measures due to overcrowding and lack of a safe water supply, and a number of communities concurrently faced the risk of fire or flood evacuations as well as the pandemic. First Nations, Inuit and Métis populations also experience higher rates of pre-existing health conditions, such as asthma and diabetes. A 2017 study found that rates of disability among First Nations people living off reserve and Métis were higher than for non-Indigenous people.<sup>486</sup> In fact, 32% of First Nations people living off reserve, 30% of Métis and 19% of Inuit had one or more disabilities that limited them in their daily activities. These statistics demonstrate the importance of looking at disability within the context of social and health inequities which are linked to discrimination, historic oppression and trauma.<sup>486</sup>

Despite these challenges, many First Nations, Inuit and Métis communities have shown leadership, resilience and community collaboration in responding to COVID-19. The success of these efforts can be exemplified by First Nations living on-reserve having lower rates of hospitalizations due to COVID-19 (8.4% compared with 13.4% of the general Canadian population) and lower rates of death (1.4% compared to 7.1%) for reported cases at the end of August 2020.<sup>487</sup> Some specific initiatives included:

### First Nations:

- In British Columbia, the First Nations Health Authority (FNHA) launched the First Nations *Virtual Doctor of the Day* telehealth program for members of BC First Nations without access or with limited access to their own doctors. They also supported the rollout of a provincial framework to help people living in rural, remote and First Nation communities in BC access critical healthcare. FNHA sourced and distributed personal protective equipment (PPE) to frontline healthcare workers and worked with health stakeholders to provide up to date and culturally safe public health messaging to communities through their website.<sup>488</sup>
- Given the risk of older age and COVID-19, the Six Nations of the Grand River in Ontario proactively worked to protect Elders, who are essential resources for knowledge and cultural traditions, by strictly limiting visits at lodges and local long-term care facilities. They also quickly began testing all Elders and other warriors who help take care of them. Community members were in charge of a campaign entitled “Protect our People” which worked to limit travel in and out of Six Nations’ territory. They also implemented a public health campaign through social media with health and safety information for community members.<sup>489</sup>



**Inuit:**

- Some areas, such as Nunatsiavut, NL, imposed strict travel restrictions and cancelled large events early on in the pandemic which helped prevent any outbreaks.<sup>490</sup>
- Nunavik, QC, had an outbreak early on, but it was able to control it by imposing a curfew and other measures (requirement of pre-approved travel, closing its airport, etc.).<sup>491</sup>
- In Pond Inlet, NU, when a case of COVID-19 was announced, the community responded immediately. Nunavut responded by restricting all travel to and from the community. Stores in Pond Inlet could only let in 10 people at a time and all non-essential services were closed. The case was then announced to be a false positive and those measures were lifted.<sup>492</sup>

**Métis:**

- Many Métis nations launched support lines,<sup>493</sup> created benefit programs (income, rent, education, children, etc.)<sup>494, 495</sup> and distributed PPE, hand sanitizer and other items to its citizens.<sup>494</sup> Some Métis nations also supplemented regional capacity to ensure food security and supported families to ensure access to essential medication.<sup>494</sup>
- In La Loche, Saskatchewan, the Métis Nation of Saskatchewan supported isolation units for doctors and citizens, distributed masks and gloves, coordinated shipments of food to limit the need for travel, and worked with friendship centres to allocate funding in response to the outbreak in the area.<sup>496, 497</sup>

## What We Can Continue to Work on Together

To build effective and strong governance systems, all levels need to work together across all high-impact areas described above. This involves partnerships across government, civil society, community and the private sector: a whole-of-society approach. This also requires strengthening the capacity of public health at all levels to respond and help coordinate actions to address crises and other critical public health priorities.

How we continue to work together will influence our success against any resurgence of COVID-19 or other pandemics. As we prepare to move forward stronger through COVID-19's recovery phase, resilience will play a vital role in how we continue to adapt and adjust to the ongoing impacts of this crisis. We can continue to build upon the social, health and economic responses employed to support Canadians during this unprecedented time and improve these systems through broader systemic change. Simultaneously we can draw upon our individual and collective resilience, in preparation for future crises or disruptions.<sup>499, 504, 505</sup>

**TABLE 3: Summary of Evidence-based Considerations for a Health Equity Approach**

### How we work: economic security and employment conditions

Areas for action	What we can do going forward
<b>Employment</b>	<ul style="list-style-type: none"> <li>• Protections at work: enforce safety regulations related to infectious disease; mental health support (particularly for essential workers); greater protections for temporary foreign workers; benefits including paid sick leave; employment security</li> <li>• Employment quality: pathways to better jobs for low-income workers in precarious jobs; income and social supports for workers in precarious jobs; ensure equitable access to quality employment; greater predictability in hours and scheduling</li> <li>• Safe, accessible, affordable and high-quality childcare and schools for children and youth, to support parent and caregiver employment</li> </ul>

### Where we live: stable housing and healthy built environment

Areas for action	What we can do going forward
<b>Housing</b>	<ul style="list-style-type: none"> <li>• Housing for all: prioritize safe, accessible and affordable housing, recognizing connections to health and well-being (e.g., Housing First)</li> <li>• Safe and supportive long-term care: minimum staffing levels, minimum education standards and continuing education for staff, full-time quality jobs with benefits such as paid sick leave, improve infection control and prevention strategies, enforce LTC regulations, integrate healthcare in LTC, support leadership and inter-professional teams, improve the built environment of LTC facilities</li> <li>• Homes free of violence: build public awareness of available services; ensure necessary support programs are open, accessible and adequately resourced; educate essential workers on signs of violence</li> <li>• Support for individuals who are incarcerated or transitioning to the community from incarceration: access to safe housing and health and social services for individuals released from incarceration; increased supports for those who remain in prison, including access to physically distant visits and programs, as well as phone/video connections to outside support systems</li> </ul>
<b>Healthy built environment</b>	<ul style="list-style-type: none"> <li>• Homes in healthy communities: building safe and vibrant spaces for community connection and physical activity; supports for physically distant community mobility; develop built environments that help meet basic needs and promote good health including accessible transportation and food systems</li> </ul>

### Health, social service, and education systems

Areas for action	What we can do going forward
<b>Digital access to care</b>	<ul style="list-style-type: none"> <li>• Identify populations that may have less access to virtual care and mitigate barriers: offer both phone and online services, emphasize privacy and security of virtual care, address digital literacy challenges particular to virtual care apps or platforms, provide digital training and language interpretation, support low-cost broadband access</li> </ul>
<b>Access to critical health services</b>	<ul style="list-style-type: none"> <li>• Share public health messages on the importance of vaccination, ensure flexible vaccine delivery methods</li> <li>• Ensure equitable access to health and social services as they are reintroduced in re-opening phases of the pandemic</li> <li>• Ensure access to substance use services such as opioid agonist therapy, naloxone, and supervised consumption sites</li> <li>• Consider decriminalization of simple possession of illegal drugs</li> </ul>
<b>Mental health</b>	<ul style="list-style-type: none"> <li>• Increase awareness of mental health, mental illness and the pathways to care</li> <li>• Screen for mental health issues, using a trauma-informed approach</li> <li>• Decrease stigma for those seeking help</li> <li>• Better meet the needs of underserved populations</li> <li>• Provide technological innovations in service delivery, online outreach and psychosocial support, and continuity for essential in-person mental health services</li> <li>• Provide professional training and competency development for healthcare workers providing mental health telemedicine</li> <li>• Mitigate barriers to access issues (digital literacy, private use of internet devices)</li> </ul>
<b>Community services sector</b>	<ul style="list-style-type: none"> <li>• Provide emergency, core and flexible funding allowing community-based organizations to quickly respond to local needs</li> <li>• Ensure access to PPE for frontline service providers</li> <li>• Engage non-profits in post-pandemic recovery planning</li> </ul>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Distance learning: ensure technological access; support continuity of previously school-based food and social services; build a sense of normalcy and safety in distance learning; teach adaptive behaviours; regular teacher-student check-ins</li> <li>• In-person learning: support the social and emotional needs of children related to the pandemic through a trauma-informed approach and focus on coping strategies; support flexible instructional practices; use sensitive approaches to discipline; encourage a culture of self-care and support</li> </ul>

## Environmental sustainability

Areas for action	What we can do going forward
<b>Zoonotic diseases</b>	<ul style="list-style-type: none"> <li>• Better understand our relationship with the environment: a One Health approach helps prevent and respond to zoonotic disease pandemics by considering the links between humans, animals, and the environment</li> <li>• Inter-sectoral collaboration between environment, agriculture and health sectors</li> </ul>
<b>Sustainable food systems</b>	<ul style="list-style-type: none"> <li>• Reassess food systems, including how we produce and process, in order to make them more accessible, sustainable and resilient</li> <li>• Ensure livable wages and quality working conditions for every worker along the food production chain, while also addressing the specific needs of temporary foreign workers (TFWs)</li> <li>• Provide land security to farmers and value localised food systems</li> </ul>
Foundational requirements for structural change	What we can do going forward
<b>Reducing stigma and discrimination</b>	<ul style="list-style-type: none"> <li>• Prioritize the perspectives and leadership of individuals with lived experience of stigma and discrimination</li> <li>• Culturally safe service delivery, including trauma- and violence-informed approaches to health and social services</li> <li>• Evidence-based stigma reduction initiatives as identified in the 2019 CPHO annual report</li> </ul>
<b>Data understanding and decision making</b>	<ul style="list-style-type: none"> <li>• Collect data disaggregated by socio-demographic factors</li> <li>• Collaborate with communities on data collection and analysis, ensuring culturally safe and appropriate methods to collect, process, store and use data</li> <li>• Expand data collection in key areas such as: precarious employment; administrative data as well as information on the experiences of staff and residents in long-term care; housing stability and adequacy; mental health impacts of the pandemic</li> </ul>
<b>Communication</b>	<ul style="list-style-type: none"> <li>• Counter misinformation and disinformation related to vaccines, including a COVID-19 vaccine when it becomes available</li> <li>• Maintain public trust in government and health officials by providing ongoing transparent and timely communication</li> </ul>
<b>Working together</b>	<ul style="list-style-type: none"> <li>• Strengthen the capacity of public health at the federal, provincial/territorial, and municipal levels</li> <li>• Maintain partnerships across government, civil society, community and the private sector to support a whole-of-society approach</li> <li>• Build upon collective and individual resilience to better prepare for future crises or societal disruptions</li> </ul>



# The Way Forward

COVID-19 is a powerful example of the serious threat that emerging infectious diseases present to Canadians now and into the future. It also reinforces the interconnectedness between the health of Canadians and the country's social and economic well-being.

The pandemic has revealed deeply entrenched health and social inequities that exist in Canada. This is why our pandemic preparedness, response, and recovery actions need to prioritize health equity as a means to protect the people of Canada from the threat of COVID-19 and future pandemics.

Equity matters—not only to those who are unjustly excluded—but to all of us. This report describes the emerging broader consequences of COVID-19 including the wide reaching impacts of these historical inequities. Ensuring that a health equity agenda is an integral component of pandemic planning and response efforts means that the actions we take to improve economic security and employment conditions, housing and healthy built environment, health, social service and education systems, and environmental sustainability can better protect people in Canada from health crises and create resilience and lasting equitable opportunities.

This report offers evidence-based examples for action across a wide range of sectors. These can become elements of a health equity approach to incorporate into pandemic planning, response and recovery (See [Figure 6](#)). These actions can be supported through effective leadership at all levels and powerful social cohesion, supported by a robust public health system. These three catalysing actions, described below, provide the foundation for going forward.

## Incorporating Health Equity into Pandemic Preparedness and Response

### 1. Leadership and Governance at All Levels for Structural Change

When the health of a nation is largely determined by its economic and social protection policies, then pandemic preparedness and response plans need to be inclusive and comprehensive.

Health equity cannot be implicitly assumed in our general pandemic preparedness, response, and recovery efforts. It requires systematic planning, implementation, and measurement of progress. Leadership both within the public health system, and in other sectors, is essential to develop and implement these plans based on the necessary data and research. The participation and engagement of social service and community organizations, business leaders and policy makers, both within and outside of the health sector, are essential to any pandemic response.

Embracing a health equity approach to pandemic preparedness, response and recovery requires health, social, and economic leaders to have robust information to inform goals, objectives, and the required strategic alliances. Practically, this means that data needs to be stratified to understand specific population risks and strengths. Data systems need to converge so that sectors can understand the multiple needs (e.g., housing, safety and employment) of people. The progress of intersectoral actions should be measured and adjusted until demonstrable results are achieved.

By itself, the health system cannot lead us to COVID-19 recovery. Innovative, flexible collaborations and initiatives are needed to support those impacted by health disparities and set the ground work for a more equitable recovery. Cross-sectoral leadership tables have been created at all levels. This type of leadership is critical to maintain and focus on addressing health inequities. Current leadership tables can assess the effectiveness of the work undertaken together during this pandemic to inform plans to address on-going health equity gaps.

Lastly, our pandemic preparedness and response plans must be tested on a regular basis to evaluate their effectiveness, identify and address new and emerging equity considerations, and ensure sectors are equipped to respond to future pandemic threats.

## 2. Harnessing the Power of Social Cohesion

The capacity of our communities to adapt to the COVID-19 crisis has been a remarkable achievement. However, our job is not done yet. Our society's cohesion is the key ingredient to moving through this pandemic successfully.

It takes everyone to follow public health advice and support sustainable change to keep the virus under control and to protect those at high risk. Public health leaders can continue to share information and evidence openly, provide clear and timely guidance for public action and work across sectors on prevention and control. Media organizations have a critical role to share trusted and reliable information in the face of public uncertainty and fear. Civil society organizations can continue to provide essential linkages to their networks to shape decisions and tailor solutions to the needs of their communities. As individuals, we can shape health-promoting attitudes, through actions like finding novel ways to reach out and connect with others and participating in initiatives to promote equity for groups like seniors, racialized populations and people living with disabilities or living in poverty. Lastly, policy makers can work together to create and implement policies and support community actions for sustainable change.

Social cohesion is the foundation of a resilient society—one that is built on the values of transparency, respect, inclusion and accountability. There will be many lessons learned as we examine the actions taken during this pandemic and there will always be room for improvement. Our opportunity to improve only exists in the present and future actions we take.

## 3. Strengthened Public Health Capacity

Pandemics happen locally and impact people globally. Strong public health systems can provide fast, evidence-based, epidemic responses that are tailored to local contexts while, at the same time, addressing other critical public health priorities. Increased and sustained investments are required at all levels for the public health system to be successful.

Public health is the science and action of promoting health, preventing disease, and prolonging life. Just as it is critical to have a strong health care system, a strong public health system is needed so the two can effectively respond to health threats. Usually public health efforts are invisible to the general population. Now they have taken centre stage in all jurisdictions. Public health workers include epidemiologists, laboratory scientists, social and behavioural scientists, policy makers and practitioners. Priorities not only include the prevention and control of infectious diseases but other complex public health issues such as: preventing opioid overdose deaths, family violence, and deaths by suicide; addressing health adaptations to climate change; as well as supporting babies, their families, youth and seniors to live healthy lives in vibrant and inclusive communities.

The COVID-19 pandemic has shone a light on the critical importance of having a health system that is able to surge and adapt during a crisis while ensuring capacity exists to address on-going critical issues. During the COVID-19 response there have been significant investments in key aspects of public health capacity including laboratory, data and surveillance, contact tracing, stockpiles of personal protective equipment and rapid research to quickly fill gaps laid bare during the response. We must sustain the momentum gained and fill longer-term gaps as we move from response to recovery.

As a priority investment, we must commit to a long-term health data strategy that provides all sectors with the information they need to take action to directly address inequities. At the same time, we must have the needed IT capacity to improve our data analytics and make information accessible, while also facilitating collaboration at all levels. This also means better leveraging the multi-disciplinary knowledge generated across universities and through research funding organizations to inform the policy, program and communications actions we take. Lastly, for these priorities to be effective, Canada's public health system must have a sufficient and well-trained workforce at all levels. Public health cannot do its work alone but needs sufficient capacity to undertake our core mandate and to access surge capacity during emergency situations.

Investments in public health provide the greatest opportunities for preventing disease and ensuring that Canadians can live healthy and happier lives. When the public health system has the capacity and tools it needs, we all benefit.

## Going Forward

The COVID-19 pandemic has demonstrated the complexities of responding to a global public health crisis. It has shown the power of collaboration and the commitment of Canadians united to control the virus. It has also shown the interconnectedness of our health, social, and economic policies and supports. How these sectors work together, with the engagement of civil society and communities, will influence our success against COVID-19 resurgences and help to mitigate the impacts of future health emergencies.

We are at a watershed moment. By working together, we can move from risk to resilience.



## APPENDIX 1

# Timeline of Selected Milestones and Public Health Interventions (December 2019 – June 2020)

Date	Event Description
<b>December 31, 2019</b>	<ul style="list-style-type: none"> <li>• PHAC was notified through its Global Public Health Intelligence Network (GPHIN) and the Program for Monitoring Emerging Diseases (ProMED)<sup>506</sup> of a pneumonia-like illness of unknown cause originating in Wuhan, China<sup>103</sup></li> </ul>
<b>January 22, 2020</b>	<ul style="list-style-type: none"> <li>• Canada implements novel coronavirus screening requirements for travellers returning from China to airports in Montreal, Toronto, and Vancouver<sup>42, 507</sup> <ul style="list-style-type: none"> <li>◦ Residents are asked additional screening questions to determine if they have visited the city of Wuhan, China</li> </ul> </li> </ul>
<b>January 25, 2020</b>	<ul style="list-style-type: none"> <li>• First presumptive confirmed case of 2019-nCoV related to travel to Wuhan, China (i.e., Ontario)<sup>42</sup></li> </ul>
<b>February 20, 2020</b>	<ul style="list-style-type: none"> <li>• First COVID-19 case in Canada from travel outside mainland China (i.e., Iran) reported in British Columbia<sup>508</sup></li> </ul>
<b>February 23, 2020</b>	<ul style="list-style-type: none"> <li>• First recorded COVID-19 case in Canada linked to community transmission<sup>45</sup></li> </ul>
<b>February 24, 2020</b>	<ul style="list-style-type: none"> <li>• Alberta records first COVID-19 case in Canada linked to travel to the US<sup>103</sup></li> </ul>
<b>March 7, 2020</b>	<ul style="list-style-type: none"> <li>• First COVID-19 outbreak at a long-term care home in Vancouver, British Columbia involving 79 cases<sup>509</sup></li> </ul>
<b>March 11, 2020</b>	<ul style="list-style-type: none"> <li>• Canada surpasses 100 reported COVID-19 cases<sup>510</sup></li> </ul>
<b>March 12-22, 2020</b>	<ul style="list-style-type: none"> <li>• Physical distancing measures are implemented across the country:<sup>511, 512</sup> <ul style="list-style-type: none"> <li>◦ All provinces and territories declare a state of emergency and/or public health emergency</li> <li>◦ Non-essential businesses such as bars, restaurants, and cinemas close or have significantly reduced capacity</li> <li>◦ Gatherings are restricted (number of people in gatherings vary by province/territory)</li> <li>◦ All provinces and territories close schools</li> <li>◦ Advisory for those who can to work from home</li> </ul> </li> </ul>
<b>March 13, 2020</b>	<ul style="list-style-type: none"> <li>• The Government of Canada recommends avoiding non-essential travel outside of Canada<sup>42</sup></li> </ul>
<b>March 16, 2020</b>	<ul style="list-style-type: none"> <li>• Government of Canada advises all travellers entering Canada to self-isolate for 14 days<sup>42</sup></li> </ul>
<b>March 18–19, 2020</b>	<ul style="list-style-type: none"> <li>• Additional international travel advisories and border restrictions are implemented:<sup>42, 47</sup> <ul style="list-style-type: none"> <li>◦ Entry to Canada by air is prohibited to all foreign nationals (except those from the United States)</li> <li>◦ Canada and the United States agree to temporarily restrict non-essential travel across the Canada-US border</li> <li>◦ International flights are redirected to only 4 airports (Vancouver, Calgary, Toronto, and Montreal)</li> </ul> </li> </ul>

Date	Event Description
<b>March 28, 2020</b>	<ul style="list-style-type: none"> <li>• First reported outbreak among temporary foreign workers in an agricultural setting, involving 23 people<sup>513</sup></li> </ul>
<b>April 7, 2020</b>	<ul style="list-style-type: none"> <li>• Council of Chief Medical Officers of Health issue a statement supportive of wearing non-medical masks as an additional layer of protection for other people in close proximity<sup>514</sup></li> </ul>
<b>April 14, 2020</b>	<ul style="list-style-type: none"> <li>• Largest known COVID-19 outbreak reported at homeless shelter in Toronto, Ontario, involving 164 cases (as of May 8)<sup>515-517</sup></li> </ul>
<b>April 15, 2020</b>	<ul style="list-style-type: none"> <li>• Lockdown in response to largest known outbreak at a correctional facility in Laval, Quebec involving 162 cases (as of July 22, 2020)<sup>518, 519</sup></li> </ul>
<b>April 17, 2020</b>	<ul style="list-style-type: none"> <li>• First reported COVID-19 outbreak in an isolated northern community in Saskatchewan, affecting 117 residents (as of May 8, 2020)<sup>520, 521</sup></li> </ul>
<b>April 24, 2020</b>	<ul style="list-style-type: none"> <li>• New Brunswick is the first province to ease physical distancing restrictions<sup>522</sup></li> </ul>
<b>May 6, 2020</b>	<ul style="list-style-type: none"> <li>• Alberta reports a COVID-19 outbreak at a meat processing plant, which becomes the largest outbreak at a single location in Canada (by the end of August) with 1,560 people confirmed<sup>523, 524</sup></li> </ul>
<b>June 17, 2020</b>	<ul style="list-style-type: none"> <li>• First COVID-19 outbreak in a religious-cultural community declared in Saskatchewan, involving 285 people by the end of August<sup>64, 525</sup></li> </ul>





## APPENDIX 2

# Methodology

## Process

As with past years, the Chief Public Health Officer of Canada's (CPHO) report was drafted based on a review of the best available evidence, prioritizing – where possible – Canadian research and representative data. However, the evidence base related to COVID-19 is very different. The pandemic sparked an urgent global research agenda, with a priority on sharing findings through open access to pre-prints, commentaries, rapid reviews, and peer-reviewed publications. The international commitment to generating and sharing research has been invaluable for knowledge generation across the globe, and an example of the meaningful collaboration sparked by the pandemic.

The rapid development of information about COVID-19 and its impacts required a different approach from the Office of the CPHO. Instead of completing a rapid review of publications based on a point-in-time search, the identification and synthesis of new research occurred during the entire writing process. Because the research was continuously developing, sources beyond systemic reviews were required, including primary research through peer-reviewed publications, pre-prints, grey literature, and expert consultation. The vast scope of pandemic impacts prompted high-level review of multiple topics, rather than deep dives into one key issue. Finally, the ever-developing state of knowledge about how to address the impacts of COVID-19 encouraged a focus on broader approaches and principles, rather than on specific interventions.

Knowledge – from research, academic expertise, and traditional ways of knowing – was identified through:

- Ongoing and frequent literature searches, completed by sub-topic using online databases such as Medline and Scopus, as well as identifying new research through COVID-19 collections maintained by various academic publishers, such as BMJ, the Lancet, and Elsevier;
- A review of municipal and provincial public health publications, particularly epidemiological and public survey reports;
- Epidemiological information gathered through COVID-19 case information shared with the Public Health Agency of Canada (PHAC) by provincial/territorial governments and national research networks as well as review of publicly reported data from provincial and territorial websites, press briefings, and media reports;
- A review of COVID-19 related research completed by Statistics Canada;
- An engagement session held with the Remote and Isolated Communities Working Group, of the Public Health Network's Special Advisory Committee on COVID-19;
- Collaboration with internal and external expert stakeholders, including the Centre for Surveillance and Applied Research (PHAC) the Canadian Institute for Health Information (CIHI); and
- A Best Brains Exchange meeting held with the Canadian Institute for Health Research (CIHR).

## Limitations

### Scope

The 2020 CPHO Annual Report explores the broad impacts of COVID-19 as well as the variety of risk factors. Since the scope of the report is to provide an overview, there are necessary restrictions on the level of detail provided in each section. As a result, discussions of risk and impact are not exhaustive and reflect groups and settings where there was evidence to support a review, either nationally or internationally to serve as an example for discussion. The scope of evidence review for [Section three](#) was also influenced by these limitations, with a particular focus in this section on research emerging from the pandemic about how to improve the social, economic, and health conditions of Canadians. Each of these fields has a vast and detailed evidence base beyond the pandemic that we were not always able to review or include given the limited amount of time available.

## Literature search

The searches conducted were not exhaustive and are unlikely to have captured all relevant literature, given the rapid pace of research and publication and the broad scope of the report. Only literature published in English and French was reviewed. A detailed assessment of study quality and risk of bias was not conducted in this review, and this may be particularly consequential given the pre-print nature of some references.

## Language

In drawing on research related to different ethnocultural communities and their experiences of health generally, and to COVID-19 specifically, we have used the terminology included in the source documents (e.g., Black, African-Canadian).



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