Beyond the COVID-19 Crisis: Building on Lost Opportunities in the History of Public Health

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An RSC Policy Briefing

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Cover Art

Natia Lemay, *Kids During Quarantine*, 2020

24" x 30", Oil on Canvas

As a mother with three children, surviving social distancing and self-isolation during COVID-19 can be challenging at times. Kids have interesting ways of keeping themselves entertained. I captured my 14-year-old daughter experimenting with makeup looks and modeling with her face mask in this painting. Although we miss our friends, the changes in our life due to the COVID-19 protocols have given us the time to be playful and experimental within the safety of our home.

Land Acknowledgement

The headquarters of the Royal Society of Canada is located in Ottawa, the traditional and unceded territory of the Algonquin Nation.

The opinions expressed in this report are those of the authors and do not necessarily represent those of the Royal Society of Canada.

Background on the Policy Briefing Report Process

Established by the President of the Royal Society of Canada in April 2020, the RSC Task Force on COVID-19 was mandated to provide evidence-informed perspectives on major societal challenges in response to and recovery from COVID-19.

The Task Force established a series of Working Groups to rapidly develop Policy Briefings, with the objective of supporting policy makers with evidence to inform their decisions.

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Table of Contents

Executive Summary

The influenza pandemic of 1918-1920, which killed 50,000 Canadians, spurred the creation of a federal department of public health. But in the intervening century, public health at all levels has remained, as Marc Lalonde put it in 1988, the "poor cousin" in the health care system. (Lalonde 1988, p.77) Punctuated by sporadic investment during infectious disease crises, such as polio in the early 1950s, public health is less of a priority as the cost of tertiary health interventions rises. While public health potentially involves a broad range of interventions, this paper focuses on the history of public health interventions around infectious disease.

COVID-19 has forced us to re-learn the importance of maintaining basic infectious/communicable disease control capacity, and revealed the cost of our failure to do so. It has also drawn our attention to the intersection between social inequality, racism and colonialism, and vulnerability to disease. In addition to investing in our capacity to contain disease outbreaks as they occur, we must plan now for how to achieve greater health equity in the future, by addressing underlying economic and social conditions, and providing meaningful access to preventive care for all. This is how we build a truly resilient society.

Governments at all levels have recognized the importance of social factors in shaping health and illness for decades. But greater health equity will result only from genuine action on this knowledge. Action will arise from public advocacy in support of prevention, and a new level of engagement and collaboration between affected individuals and communities, public health experts, and governments.

Policy Recommendations

1. Invest in prevention through a dual approach:

- allocate more resources at all levels of government to enhance accessible preventive services;
- increase efficiency in public health by empowering nurses and other health professionals aside from physicians to play a key role in its delivery;
- reduce social inequalities in order to improve the health status and resilience of those differentially impacted by disease.

2. Enhance health equity and social determinants accountability:

- assess relevant areas of public policy at all levels of government (housing, income support, the justice system, health care services, etc) using a health equity lens;
- establish a federally funded health equity auditor's office, with Parliamentary reporting mechanisms, and encourage other levels of government to do the same.

3. Engage the public to address historic inequities and gaps in public health:

- Fund world-class public health advocacy organizations. These would provide input into public health decision making; highlight patients' rights; document and propose solutions for intersectional inequality and racism; and advocate for important public health interventions and more balanced funding;

- Gather better data and make it publicly accessible. We require better information about the social differentials in disease vulnerabilities, and routinely collected data that helps us to trace patterns of race, income, location, etc. When we have that information, public health leadership must acknowledge social differentials and inequities, and plan to support the most vulnerable;

4. *Create an equitable public health culture through education:*

- encourage a horizontal, not vertical (top-down, one disease at a time), approach to public health. Recognize that technological 'fixes' will never fully protect society, and that human work in various aspects of care, non-medical measures and education will always be essential to resilience and preparedness;

- increase public health education to health care professionals, and to the general public. This must be done routinely, not only during a time of crisis;

- establish multidisciplinary training programs for public health personnel that are attractive to students from marginalized and racialized communities. Breaking down barriers and building trust will not occur unless the hidden assumptions, beliefs and practices that currently exist are eliminated. The history of attention to under-serviced communities and the recognition of the inequities of the capitalist system displayed by previous generations of professional and amateur public health activists can be used as a foundation.

- promote an inclusive and sustainable public health that would build upon various forms of health activism and advocacy and have communities and non-medical/healthcare actors participate in debates and decisions regarding public health.

Beyond the COVID-19 Crisis: Building on Lost Opportunities in the History of Public Health

Introduction

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Governments at all levels have recognized the importance of social factors in shaping health and illness for decades. But greater health equity will result only from genuine action on this knowledge. Action will arise from public advocacy in support of prevention, and a new level of engagement and collaboration between affected individuals and communities, public health experts, and governments.

Public Health in the 19th century: technocratic solutions vs multidimensional approach

The need for these two essential features of public health—a robust disease control apparatus and an attack on the social structures of illness—was clearly on display during the 19th century. Public health in British North America in this period was influenced by the British model. British achievements were built on a multi-pronged approach: the provision of clean water, and effective sewerage, and the management of health hazards in the environment; data-driven infectious disease control at the local level; and the control of imported infectious diseases at ports of entry. These practices all had slightly different chronologies and rationales, but the elements of the system were increasingly developed and integrated over the second half of the 19th century. For example, in the UK, cholera was eventually brought under control after an outbreak in 1866, through a combination of improved infrastructure and sanitation; vigilance at ports of entry; and swift action by local Medical Officers of Health. Thereafter the UK had only isolated cases which were successfully contained through coordinated national and local action. In contrast, there were still devastating outbreaks in Europe in the late nineteenth and early twentieth century in Naples (1884, 1911) and Hamburg (1892). (Hardy 1993a)

In colonial British North America, however, public health infrastructures developed more slowly. As in Britain, infectious disease outbreaks played a key role. Cholera first reached Canada in 1832, brought by immigrants from Britain. Epidemics occurred in 1832, 1834, 1849, 1851, 1852 and 1854, and together killed at least 20,000 people. Although the response of local authorities was

"fitful, halting, uncertain and evanescent," cholera led to profound changes in disease control. (Bilson 1984, p352) These included the introduction of quarantines (including maritime quarantines and immigrant inspection at ports of entry), the cleaning of towns and cities, the establishment of cholera hospitals, and the creation of the first Boards of Health in the 1830s, a direct consequence of cholera. But these were temporary responses to crisis. The first Canadian Central [federal] Board of Health (CBH) was created in 1854, based on the 1849 Public Health Act.

Permanent local and provincial Boards of Health did not appear until later in the 19th century, despite periodic calls for their establishment. (Bilson 1984) Cholera also initiated better forms of record keeping and surveillance, although Canada lagged behind Britain and Europe in this regard until the late 19th century. (Bilson 1984, Curtis 2000) In response to a feared outbreak, Canada created its second CBH in 1866, to help with coordination of local responses. The CBH was advisory only and, indeed, lacked the power to compel cities and towns to report on the extent of disease and mortality. Implementation of disease control measures was largely a local or provincial matter, except for points of entry to the country. Control of quarantine stations rested with the Department of Agriculture, which was responsible for preventing diseases of both animals and humans from entering the country. Clearly the fragmented jurisdiction meant that, as Mark Humphries has argued, Canadian colonists viewed the central government's role as keeping disease out and local governments as responsible for sanitation, potable water and assistance to the poor. This division of responsibilities was codified in Sections 91 and 92 of the British North America Act and reflected the limited understanding of disease causation, as well as the strong local and regional sensibilities of the colonies who were creating the new nation. (Humphries 2013, p11-32) Under these circumstances, coordination of public health was difficult.

Another infectious disease, smallpox, further highlights the importance of an integrated approach. It was the only disease for which there was a vaccine for most of the nineteenth century. This vaccine dated back to the early 1800s and was widely available by mid-century. In Britain, infant vaccination was free for those unable to pay for it. Infant vaccination was mandatory after 1853, but public uptake of vaccination was partial for a variety of medical, political, and social reasons. The costs of this public hesitancy appeared most dramatically in a smallpox epidemic from 1870-73 which killed 44,000 individuals, the worst such outbreak in the entire 19th century, more than 30 years after vaccination had been made free of charge. Preventive authorities could no longer entertain the hope that vaccination was a magic bullet. Eventually smallpox was brought under control in Britain not just by the deeply controversial attempt at compulsory vaccination, but also through the prevention of smallpox importation from the continent and a careful attention by local Medical Officers of Health to the cases that nonetheless appeared every single year for the remainder of the century. The fact that 1870-73 represented the last major epidemic in Britain was a tribute to the systematic approach. (Hardy, 1993b)

The persistence of smallpox in Canada similarly illustrates the complex relationship between scientific development, public health measures, and popular sentiment. Efforts to control smallpox epidemics in central and eastern Canada generally relied on vaccination of close contacts but reliance on supplies imported from Britain or the US often meant that the vaccine was inert. Even more problematic, attempts to quell outbreaks through using lymph taken from survivors and arm-to-arm immunization not only had the potential to spread the disease but could also introduce blood borne diseases such as syphilis. These dangers and dislike of in-home quarantine among Canadian workers meant that part-time medical officers and their inspectors faced difficulty in

persuading individuals to accept vaccination. Although Canadian provinces passed laws requiring infant vaccination, the 1885 smallpox epidemic in Quebec showed how limited such legislation was in practice. Of the 3234 victims in Montreal, were 2717 children under ten, most of whom had not been vaccinated. (Bliss 1991, p259) This epidemic was notable for the emergence of both Anglophone and Francophone anti-vaccination groups; their descendants are still a factor in modern efforts to ensure population immunity to infectious diseases. (MacDougall and Monnais 2018)

Indigenous experiences with smallpox (and other infectious diseases), from European contact through the early 20th century, revealed both the dangers of the disease, and its centrality to historical processes of colonialism. (Hackett 2002, Eyford 2006, Daschuk 2013) Indigenous communities were not passive in response to outbreaks, and demanded "that those who brought the diseases and who claimed to have the cures be made to provide their people with the means to save themselves." (Kelm 1999, p109) Public health provision, however, including vaccination for preventable diseases such as smallpox, was meagre and piecemeal. For example, during a 1919 smallpox outbreak in Lillooet and Sto:lo territories, St Mary's residential school children were not vaccinated, even though vaccination was supposed to be standard. Indigenous peoples advocated for better access to preventive care and medical treatment; these demands were clearly tied to an understanding of infectious diseases as a product of white settler colonialism. (Kelm 1999, p76)

Thus, even as public health scored some notable successes, its failures revealed its deficiencies. The primary flaw was its technocratic vision, its focus on exclusively engineering and medical interventions, and a failure to respond to social inequities. This focus ignored the fact that not only was public support important, there were in addition a variety of diseases (even if we restrict ourselves to communicable diseases) for which these approaches, and the assumptions that underlay them, were ineffective. An 1847 typhus outbreak, for example, killed approximately 6000 people in the Canadas, many of them Irish migrants fleeing the potato famine and British colonial policies. Infectious diseases generated social debate and conflict about needed public health investments (such as sanitation and immigrant medical screening), but also raised thorny questions about colonial quarantine policy, the role of religious institutions and sectarianism, the rights of migrants, inequality, and governance in a democratic society. (Horner 2012, p69)

Typhus resisted the sorts of measures used to control cholera or smallpox. It could only be brought under control once the incomes of the poor stabilized, even at what to us is a shockingly low level. In both the Canadian and British examples, decreased economic disruption allied to increased income levels helped to address the underlying causes of its spread, especially overcrowded housing. With better living conditions, standard disease control procedures could manage the small outbreaks that did occur. (Hardy, 1993b)

That the housing of the poor contributed significantly to the spread of diseases like typhus was well recognized at the time; the problem was that state intervention in the private property market (or in the rate of wages, for that matter) was ideologically off limits. Indeed, in the Canadian context, new housing construction occurred as cities expanded rapidly in the late 19th century. As the wealthy and some members of the middle class moved to new, more salubrious suburbs, their former homes were subdivided into apartments. The poor remained in substandard slum dwellings close to the factories that employed them, as Canadian medical officers and their sanitary inspectors discovered.

In both countries, the public health apparatus nibbled at the margins of poor housing but could do little to improve it other than to destroy truly dreadful housing. In the absence of the political will to build replacement units, that cure could well and truly be worse than the disease. The inability to decently house the poor also contributed significantly to the failure to control tuberculosis, a leading cause of death in urban areas right through the early 20th century. (Hardy 1993b, Feldberg 1995, McCuaig 1999) Such examples illustrate how important underlying social conditions were to preventing disease.

The 'New Public Health': science, racial anxieties and health education

The period from 1880 through the early 20th century is often referred to as the golden age of bacteriology. Micro-organisms that caused all sorts of diseases were first discovered: anthrax, gonorrhea, syphilis, cholera, childbed fever, and tuberculosis, to name a few. New bacterial diseases were identified at the rate of about one a year. The establishment of the germ theory of disease seemed to put to rest many of the debates that had racked medicine in the 19th century. However, the bacteriological revolution took perhaps a generation to filter through the medical world, and alter medical thinking. Scientific research was not instantly embraced, nor was it uncontested. Laboratory analysis of water, milk and diphtheria and tuberculosis samples was gradually integrated into municipal, provincial, and territorial health systems as the field of public health began to professionalize. (MacDougall 1990)

In terms of finding effective cures and vaccines, bacteriology did not immediately result in the sorts of grand breakthroughs that its proponents had hoped for, or sometimes claimed. "Although a few useful measures were discovered—the diphtheria antitoxin and a vaccine for rabies in the 1890s, the arsenical-derivative Salvarsan for syphilis, and a vaccination for typhoid in the early 1900s," hopes for reliable treatments did not materialize until the 1930s and 1940s when sulfa compounds, penicillin, and other antimicrobial drugs were found. (Tomes 1998, p6) But, the advent of germ theory had dramatic consequences for public health. With the aid of bacteriology, they were more readily able to identify agents of infection, track the spread of disease, and generate targeted containment measures.

An evolution in public health thinking corresponded in Canada with the modernization of government and the professionalization of the civil service. The establishment in Toronto in 1883 of a Medical Health Department, for example, and the city's first permanent medical health officer, was part of a larger, transnational, trend. Municipal governments were at the heart of public health in Canada in this period, and it was here that local health officers focused their efforts, pushing against limited public appetite for financial support. As the bacteriological revolution took hold, public health education expanded to include not only the importance of problems such as household waste disposal, but also the role of proper individual behaviour to prevent the spread of infectious diseases. With new diagnostic tests available, public health departments aspired to identify individual disease carriers with greater precision. This expanded remit led to greater investment in public health than had previously been the case.

Between the 1880s and the end of the First World War there was significant growth in public health departments and services. The "New Public Health" "stressed the importance of scientific research and laboratory facilities at the local level, urged improved professional education for public health doctors and nurses, and shifted attention to 'educating' women and children in their health duties." (MacDougall 1990, p13) Concern about high infant mortality rates provided one

rationale for this shift. In Ottawa, which had the highest infant mortality rate among Canadian urban centres in 1916, more than 22 infants out of every 100 died in the first year of life. (Bator 1990, p24) This, along with the undiminished persistence of several childhood infectious diseases, such as diphtheria and measles, led many public health leaders to focus on mothers, especially working class ones.

These intellectual and institutional developments did not occur in a social vacuum but were deeply inflected by a transnational intensification of racial discourses centering on Indigenous people, immigrants, and racialized groups, an intensification that led directly to the eugenics movement with its emphasis on sterilization and immigration restriction. Public health in English and French Canada was also influenced by anxieties around declining birth rates among white middle class Canadians (often framed by a discourse of 'race suicide'), degeneration, and racial improvement. (Valverde 1991, Comacchio 1993, Arnup 1994, Baillargeon 2009) Immigrants, particularly those not from white, culturally dominant backgrounds, were frequently blamed for their own ill health, despite the social factors (hunger, dislocation, and colonialism) that increased their vulnerabilities. (Mawani 2002)

In both Canada and the US, medical screening at ports of entry became potent methods of racial exclusion and discipline during mass immigration at the turn of the 20th century. Public health surveillance and methods of detecting infectious disease were, as several scholars have noted, based in racial theories of disease transmission. (Shah 2001, Fairchild 2003, Burnett 2012, Wallace 2017) The infamous case of the Komagata Maru (1914), in which several hundred Sikh migrants were denied the right to enter Canada, was shaped by perceptions of South Asians as carriers of bubonic plague, smallpox, cholera, venereal disease, and hookworm. As with potential Black migrants, Asians were characterized as racially inferior, unable to live in a cold climate, and disease prone. "In the period immediately preceding the Komagata Maru affair, the popularly theorized link between South Asians and disease dominated discourse on BC's "Hindu problem" and became a convenient tool for exclusionists in both the government and among the general public." (Wallace 2013, p36) Racial theories of disease served to deepen animosity towards non-white newcomers, and justified ongoing public health surveillance and control.

Smallpox was not the only danger for Indigenous communities. Measles, whooping cough and tuberculosis also took a devastating toll. (Lux 2001, Daschuk 2013) From the 16th to the 20th century, epidemics swept their communities, the result of exposure to new pathogens, and more significantly, the dislocation, trauma and impoverishment that were the result of colonialism. Indigenous people were regarded as a "dying race," particularly susceptible to infectious disease, and as a potential source of contagion. (Kelm 2005) By the early years of the 20th century, separate Indian hospitals were being established to keep the tubercular "Indian" isolated from settler populations. (Lux 2016) As Mary Jane McCallum from the Munsee Delaware Nation has rightfully put it, the key words for Indigenous health history are "Starvation, Experimentation, Segregation and Trauma." (McCallum 2017)

Local public health authorities mounted a considerable effort aimed at reforming what they perceived to be defective health habits. While there is nothing wrong with providing educational materials around parenting per se, the refusal by public health personnel to confront what even they understood were the social roots of infants' and children's ill health and mortality—family poverty—was hardly a strategy calculated to win the trust of their working class and immigrant

clients. More progressive local authorities, such as in Toronto, built close relationships with community organizations in workers' neighbourhoods. (MacDougall 1990, p165)

Public health education aimed to teach mothers what were considered modern health practices. This was part of a larger movement designed to teach mothers "scientific" practices around parenting and housekeeping. (Apple 2006) In effect, this was a process for assimilating poor immigrant families into cultures of housekeeping, parenting, and hygiene that were not determined by families themselves, but by social workers and public health nurses from dominant Anglophone or Francophone backgrounds. Immigrant mothers, who came from distinct health cultures, with traditions and practices of their own, and working-class women who trusted the health advice of their female kin, often found themselves on the wrong side of this equation, facing judgement rather than assistance.

A growing number of public health staff employed by municipal and provincial governments, in both rural and urban areas, built upon the work of voluntary organizations, such as Winnipeg's Margaret Scott Nursing Mission. Founded by reformist lay women and progressive physicians, such groups organized services such as well baby clinics, pure milk depots for mothers who did not breastfeed (critical before the widespread pasteurization of milk), and home visiting nursing programs. These clinics, located in working class neighbourhoods, survived on a combination of private donations and municipal grants. In Montreal, Anglophone and Francophone Gouttes de lait (or, Milk Depot) clinics increased in number from four in 1903, to 28 in 1915. The City of Montreal became directly involved in delivering such services in 1919; within a decade, it operated 27 baby clinics. (Baillargeon 2009, p167-168)

Over time, professionalized staff displaced the volunteer women who had founded organizations like the Gouttes de lait. (MacDougall 1990, p13, Stuart 1994, p53) At the same time, public health planning and leadership was, by then, seen as the purview of male experts, especially physicians. As the public health system developed, then, it evolved into a gendered form of health service. Female public health nurses and social workers were seen as especially suited to working with mothers, in part because they were women; but also because nurses were characterized by their apparent unique feminine qualities of caring and nurturing. Nurses could also be paid significantly lower salaries than male health care professionals, and thus constituted a cheap source of labour for public health work with women and children. Seen as subservient, public health and visiting nurses were clearly instructed to steer clear of diagnosing illness, prescribing medicines, or treating illness.

Pandemic Influenza and its fallout: health inequity and the failure to reform

Thus, public health at the time of the influenza pandemic of 1918-1920 was in the midst of an only partially-completed transition from its 19th century roots. Although provincial government investment was increasing, local governments and tax payers still bore the burden of supporting public health. They responded to the influenza outbreak with few, or sometimes no, permanent staff (especially in rural areas). Accessibility—both economic and geographic—was an issue. It is impressive, considering this fact, what local health officers were able to accomplish in combating influenza. Armed with decades of accumulated experience with infectious disease outbreaks officials, like Winnipeg's Alexander Douglas, were able to undertake extensive public education campaigns on how to prevent the transmission of the disease (including, in Winnipeg's case,

translation into multiple languages), oversee public closures and quarantine policies, and do a reasonable job of keeping track of case mortality.

Yet, the pandemic exposed festering social conditions. It challenged public health's ameliorative approach to the health problems caused by urban, rural and Indigenous poverty, and lack of access to health care. In urban centres, death rates per population varied considerably by socio-economic status, ethnicity, and race. Poorer neighbourhoods, including those with recent immigrant families, had higher mortality rates in cities like Winnipeg and Hamilton. In Hamilton, Ontario, for example, those living in the city's poorer northern wards had a 1.75-2 times higher chance of dying of influenza than residents of the more affluent southern wards. (Herring and Korol 2012)

The wealthy were not immune during the influenza pandemic, but they had a capacity to combat the disease that the labouring majority did not. Financial security made it easier to isolate when ill; homes were larger with better indoor air quality; servants could attend to sanitation and cleanliness and ensure the ill were cared for. In addition, higher incomes meant greater access to physician and nursing care, which still remained solidly in the private medical marketplace.

By contrast, influenza spread quickly through households in congested urban areas, where families had limited access to hot running water, houses were cheaply constructed and poorly ventilated, and where the physical isolation of the infected was virtually impossible. The poor state of housing and the lack of key sanitary infrastructure (such as hot running water) in working class districts was not a new issue. But governments did little to address it. Had they done so, influenza may not have spread as rapidly, infecting entire families.

In Saskatchewan, rural death rates were nearly double the provincial rate. On farms and in villages, families suffered food shortages and hunger. During the prairie winter some adults fell too ill to tend their livestock or to get fuel to heat their homes. The pandemic's impact was deepened by the difficulties of isolation and poor communication, which hampered volunteer support. There was limited access to health care. (Lux 1997)

Deaths among Indigenous peoples were significantly higher than among the non-Indigenous: 6.2 out of every thousand non-Indigenous Canadians died of influenza, while death rates among on-reserve Indigenous people ranged from 10.3 per 1000 population in Prince Edward Island, to 61 per 1000 in the province of Alberta. (Humphries 2013, p128)

The health impact of inequality, racism, and colonialism during the pandemic outbreak was not one of the 'lessons learned' from influenza in 1918-1920. Public health practitioners focused on the failure of measures such as masks and quarantines to contain the spread of the disease, and called for more research into effective vaccines and diagnostic testing. They also discussed the importance of gaining the public's trust and overcoming resistance through cooperation rather than coercion. But the emphasis remained, as with maternal and child health, on education. Public health remained in its professional corner, advising the sick, but not treating them, partly out of respect for the demands of private medical practitioners for control of the medical marketplace. If public health advocates recognized the problem this posed, they said little about that fact that lack of access to curative treatment had served to undermine the relationship between public health advocates and the public. As the century progressed, this bifurcation between prevention and cure would only deepen.

In influenza's wake the first federal Department of Public Health was created in 1919. Although medical leaders and public health reformers had been calling for national leadership in disease prevention since the 1870s, the division of powers under Sections 91 and 92 of the British North America Act and a postwar depression would hobble the new department. Supporters hoped that cooperation across the country would be facilitated by the creation of the Dominion Council of Health, an advisory body made up of the provincial deputy health ministers and lay representatives whose task was to identify current and emerging health problems and national approaches to them. The perceived need for a federal role in public health was created by over 50,000 influenza deaths, anxieties about the poor level of physical health among Canadian soldiers, and persistently high infant mortality rates. (Cassel 1987) The new federal department added divisions for venereal disease control, child welfare, housing, narcotic drugs, publicity and statistics, laboratory services, and public engineering, although these would later suffer retrenchment. In 1927, the King government amalgamated the former Department of Soldiers' Civil Re-establishment with the federal Health Department to form the Department of Pensions and National Health. Much of the funding for VD control and other shared cost programs was eliminated. Voluntary groups like the Canadian Social Hygiene Council and its successor, the Health League of Canada called for the resumption of funding but also took on many of the health education tasks, such as calls for sustained national child immunization against diphtheria.

In 1925, diphtheria was still estimated to be the second most frequent killer of children between the ages of 2 and 14; between 1880 and 1929, over 36,000 Ontario children died from the disease—despite the availability of anti-toxin serum. (Bator 1990, p2) It was difficult to administer the serum in time because diphtheria could be easily confused with other childhood illnesses. (Carstairs, Philpott and Wilmshurst 2018, p55) The painstakingly slow progress against such diseases can be partly explained by the gradual increase in available vaccines, but other contributing factors were less scientific than they were social and political.

For example, until the early 1950s, the leading cause of death among First Nations was tuberculosis. Its impact upon children in the Indian Residential School system was especially devastating. According to data compiled by the Truth and Reconciliation Commission, "for any given five-year period between 1926 and 1950, the residential school death rate was at least double the rate for the five- to fourteen-year-old cohort of the general population. For some periods, it was as much as 4.73 times higher. It is also clear from the statistical analysis that the major cause of death was tuberculosis. It accounted for 47% of the deaths for which there is a known cause." (TRC 2015, p58)

Since the turn of the twentieth century, the campaign against tuberculosis in Canada had been led by semi-private Anti-Tuberculosis Leagues, with government support. In the 1920s, as a result of infection control and rising standards of living, tuberculosis rates among white settlers declined—as did the demand for institutional care in the large tuberculosis sanitaria that had emerged across the country (to which Indigenous people were rarely admitted). Arguments about tuberculosis shifted towards the presumptive risk of infection posed by diseased Indigenous peoples, who were experiencing high infection and mortality from the disease. "Tuberculosis associations had increased public awareness of tuberculosis prevention and treatment, and exerted steady pressure on the federal government to control the tuberculosis 'menace' on reserves." (Lux 1998, p282) A growing network of inadequately funded Indian Health Services hospitals was characterized by racial segregation, medical experimentation, overcrowding and coercive measures. Indigenous people

were taken far from their home communities for treatment. (Lux 2016) Even in this colonialist and racialized setting, as Meijer Drees's research has shown, Indigenous patients and staff found ways to draw upon Indigenous healing traditions, and to form strong human relationships—countering historical perceptions of Indigenous victimization and passivity. (Meijer Drees 2013)

Non-Indigenous anti-tuberculosis advocates, such as Saskatchewan's Dr. R.G. Ferguson, held racist views of Indigenous peoples as "primitives," a biologically inferior race to whites, and more susceptible to tuberculosis because they lacked "white blood." (Lux 1998, p282, 284) Indigenous peoples also became research subjects in the battle against infectious disease. In the early 1930s, Ferguson, with the support of the National Research Council and the Department of Indian Affairs, conducted a Bacillus Calmette–Guérin (BCG) vaccine trial in the Indigenous reserve communities of the Qu'Appelle region in southern Saskatchewan (Treaty 4 territory)—Cree, Assiniboine, and Salteaux bands of the Ojibwe people. Mary-Ellen Kelm argues that in British Columbia, health research studies in Indigenous communities during this period were "key to a society that sought control through knowledge and the creation of a colonizing archive of data, rather than overt displays of force." As "thousands of Aboriginal bodies came under the gaze of medical researchers," little was done to address the underlying social and economic causes of high tuberculosis rates. (Kelm 1999, 120)

Ferguson's BCG vaccine trials, which ran for over a decade from 1933 until 1945, were considered a success. But the trials also demonstrated that poverty and poor health conditions on reserves contributed to high mortality rates from diseases other than tuberculosis. Seventy-seven of the trial's participants died before their first birthdays—an infant mortality rate of 12 percent. After seven years, 105 children had died—17 percent of the trial group—mostly from gastroenteritis or pneumonia. "The most obvious result of the BCG vaccine trials was that poverty, not tuberculosis, was the greatest threat to Native infants," Maureen Lux argues. (Lux 1998, p289) Yet this knowledge elicited little response from governments. Historian Mary Jane Logan McCallum concludes: "the state legitimately wished to identify and analyze significant inequities without saddling it with a commitment to change." (McCallum 2017, p104)

Provincial Investment and Innovation in an Era of Public Engagement

At the provincial level stand-alone health departments were slow to emerge. As Peter Twohig observes, "although it is possible to identify a general expansion of public health in Canada from the 1880s to the 1920s, there were variations from province to province that limited what could be achieved." (Twohig 2002, p123) The first province in Canada to create a stand-alone department of health was New Brunswick, in October 1918—coincidental timing that acted in favour of the new department, which became key in the province's influenza pandemic response. Public health reformers in New Brunswick were influenced less by the British model than they were by transnational influences across the Canada-US border. As Jane Jenkins has argued, it adapted "innovative public health ideologies" from the eastern US to the problems of rural public health. (Jenkins 2017) The new Public Health Act divided the province into districts, with local health boards. District medical health officers, sanitary inspectors, and public health nurses ran free government- financed clinics in order to control tuberculosis and venereal diseases, offered education classes on nutrition and infant care, inspected the health of school children, and administered mandatory smallpox vaccinations. These measures contributed to declining infant mortality. (Jenkins 2017, p517)

During the interwar years, rural areas became sites of public health innovation, although the Depression did lead to budget cuts in a number of provinces. The Rockefeller Foundation was an active international participant (and funder) in public health developments beyond American borders in this period; in Canada, they supported the creation of rural health units in several provinces, as well as the first Canadian School of Hygiene at the University of Toronto in 1927. (Bator 1990, Twohig 2002, Fedunkiw 2005) The Rockefeller Foundation also funded public health training fellowships for Canadians (almost all men) in this period. Dr. Alphonse Lessard, the Director of the Quebec Provincial Bureau of Health was one example. Lessard was influenced by his study of county health units in rural sections of North Carolina and Ohio, and applied this model in Quebec, beginning with a demonstration unit in Beauce, established in 1926. In the next five years, 23 county health units were established in Quebec, with 160 staff serving over three quarters of a million rural people. Nurses formed the largest staffing category. (Nadeau 1931, p91) These unités sanitaires delivered care closer to where people lived, largely through the efforts of public health nurses who worked outside of major centres.

Other provinces were well aware of developments in Quebec, which were profiled in publications such as the *Canadian Public Health Journal*. For example, in Nova Scotia a new Department of Health was created in 1931, which invested heavily in tuberculosis control. After a Rockefeller Foundation-supported report on public health was issued in 1935, the province created five new public health units to provide health education, maternal health supports, inoculation, and treatment for childhood respiratory and digestive diseases, delivered by public health nurses. This system, as historian Sasha Mullally notes, did not replace the existing patchwork of rural physicians and boards who provided rudimentary public health services—it ran parallel to that system. In the mid-1930s, most rural health officers were local physicians, who were paid a modest honorarium to undertake basic public health tasks, such as infectious disease notification. (Mullally 2009, p103) The new public health nurses were not meant to supplant that physician role, but to augment and support it.

These nurses, who were paid less and had less authority than physicians, "walked a fine line between science and humanism." (Davies 2002, p78) Proactive nurses also pushed against the boundary between preventing and curing, expanding the role of public health in rural areas. Their work was polyvalent. Nurses divided their time between clinics, schools, home visitation, and bedside care, in addition to significant time spent in the office completing paperwork. For example, in some cases midwifery became a part of public health nursing practice. Given the shortage of physicians in rural areas and the large distances to be traveled—a problem by no means unique to the Maritime region—public health nurses were fulfilling a need and responding to local demand. By being present in the home when children were born, the public health nurse built a relationship with her clients, which would come to include monitoring infant health and administering vaccinations. This approach, however, was out of step with the goals of policymakers. When Nova Scotia assessed the public health program in its 1950 Survey of Health Services and Facilities, it drew a firm line between public health nursing and private medical practice. (Mullally 2009, p114)

The Nova Scotia experience resonates with conclusions drawn by Megan Davies about the contradictory results of BC's 1930s reforms. "Community health-care initiatives with strong grassroots support from local residents were replaced by a system that emphasized central surveillance and administration, scientific methodology, and public health professionalism." Davies

argues that this created a "depersonalized" model for public health. (Davies 2002, p82) It was a lost opportunity to sustain effective preventive programs for infectious disease that benefitted from community trust.

For public health nurses, this meant fewer chances to serve the needs of local communities, as they were hemmed-in by a system led by a new cadre of elite male public health administrators. One of Davies's informants reflected years later that these public health advocates "had secured professional recognition for their efforts but had failed to convey to the people of the province the value of what they had created." (Davies 2002, p83) The failure to secure public support was deepened by the division between prevention and treatment.

Despite public health professionalization in the 1930s, the Dominion Council of Health and the Canadian Public Health Association, an NGO founded in 1910 focusing on public health, emphasized the disturbing lack of consistent progress in the development of public health infrastructure. In 1939, a survey found that only 85 Canadian municipalities had permanent full-time health officers; half of the population had no permanent health officer. Authors of this study found that less than 10% of public spending on health in Canada was spent on disease prevention. It called upon the federal government to address this situation through public health grants to provinces. (Bator 1990, p103)

Interestingly, it was not just the state that played a role in promoting public health in this time period. Organizations like the Health League of Canada also played a role in promoting diphtheria immunization, milk pasteurization and educating Canadians about chronic diseases like arthritis, heart disease and cancer, which were becoming bigger threats than infectious disease. The Health League's activities would expand along with provincial public health programs in the years after WWII. In 1943, it started National Immunization Week and the following year it initiated National Health Week. These national campaigns peppered Canadians with guilt-inducing messages about the importance of vaccinating their children, eating well, preventing accidents and supporting water fluoridation. (Carstairs, Philpott and Wilmshurst 2018) At the same time, The Red Cross stressed the importance of first aid training and water safety. (Glassford 2016) In the postwar period, disease-specific organizations such as the Canadian Cancer Foundation (1938), Canadian Arthritis and Rheumatism Society (1947) and the Canadian Heart Foundation (1956), began playing a major role in public health.

Medicare debates, missed opportunities, and the changing role of public health

By the late 1930s, the political landscape around health care was shifting. Political support was building in Canada, the US, and Britain for the socialization of health care. Although Canada was still three decades away from the introduction of insured medical care, by the late 1930s the need for some form of medical and hospital coverage already seemed a foregone conclusion. Perhaps even more consequentially for public health, calls for health care and access to treatment came to dominate public conversation about health reform. As J. J. Heagerty (future Chair of the federal Advisory Committee on Health Insurance) put it, "The trend of public health is toward health insurance." (Heagerty 1940, p112) For the first time since the late 19th century, the focus was not on the role of public health and prevention, but on how to give ordinary people access to care when they became ill. Public health, with its emphasis on technological expertise and individual responsibility, lost touch with the zeitgeist.

On economic issues such as employment, the Depression, which left one-third of Canadians unemployed at its peak, was a harsh lesson in collective responsibility. The population grew to resist the idea that people were unemployed through their own personal flaws or unwillingness to work. Structural inequities in the economy were revealed to workers and to farmers—giving rise to parties on the political left which argued for broad transformations to, if not the abolition of, capitalism. A similar trend can be seen in a move away from support for the private medical marketplace. Its critics argued that the existing medical system had failed to address the needs of the majority, including those of many physicians and nurses themselves, who were poorly paid and inadequately supported in their work. Commentators drew connections between poverty, ill health, and the lack of health care. Poverty caused ill health, but so did the lack of treatment. Illness, left untreated, caused disability and poverty. This was a circle of health inequity that had to be broken.

Advocates for socialized medicine, the most radical of proponents for state involvement in health care provision, developed a model for health reform to provide access to quality health care, along a continuum from preventive medicine through specialized physician services. Activists in Saskatchewan, for example, drew upon ideas from the Soviet Union, Britain, New Zealand, and the US. In Canada and the US, the health centre model was particularly innovative in its plans for how to deal with rural health inequality, thus accessibility to quality services. The model had several principles that distinguished it from the health insurance models then circulating. One of those was the integration of prevention and cure. Seen as one of the successful aspects of Soviet medicine, integrated care was to be delivered at 'all in' health centres, as conveniently located to families as possible. As Esyllt Jones argues, the failure to implement this model in Saskatchewan during the 1940s had lasting consequences for medicare. An opportunity to draw together preventive and curative medicine was lost. (Jones 2019) Some of these concepts were taken up later for example by the CLSC's in Quebec, but they never became defining elements of health care delivery.

In the context of wartime debates, when Canada appeared poised to introduce a national health insurance program, the Canadian Public Health Association called for an expansion to 'public health' to include health insurance and health care provision by physicians, nurses, dentists, and full-time local health departments. Its "Public Health Charter" (1942) and 1943 Brief to the House of Commons Special Committee on Social Security supported a national health insurance plan, while continuing to press for grants-in-aid to provinces for existing public health programs in areas such as tuberculosis and venereal disease control, and towards the establishment of full-time health units with health officers. (Bator 1995, p104) These proposals attempted to marry long-standing demands for better preventive infrastructure with the new societal focus on medical care. It was an equation that would meet with very mixed success in the post-war era.

In 1944, the federal Department of Health was transformed into the department of National Health and Welfare, "in anticipation of a Canadian version of the [British] National Health Service," and the enhancement of the social safety net. (MacDougall 2007, p955) As Heather MacDougall has argued, the prospect of a Canadian NHS vanished "into thin air" in the immediate post-war years, a casualty of the fiscal conservatism of the federal Liberals, and resistance from several provinces in a federal system that gave them constitutional responsibility for health. (MacDougall 2009) At the same time, medical advances (such as the almost miraculous effect of antibiotics) contributed to a growing emphasis on medical treatment over prevention.

This trend was buttressed by a shift in the perceived nature of disease in Western societies over the course of the 20th century, during which infectious disease mortality rates fell significantly, and a greater share of deaths were caused by non-infectious conditions. For example, the percentage of deaths in Canada due to tuberculosis fell from 7.3% in 1931 to 0.1% in 1981; infectious and parasitic diseases declined from 5% to 0.4% of deaths in the same period. At the same time, cancer and cardiovascular diseases killed proportionately more Canadians, albeit in an overall context of declining mortality and increasing longevity. (Nagnur and Nagrodski 1990, p14) As early as the mid-1950s, the mortality transition necessitated adaptations in public health, such as the discourse of personal risk. "A critical component in the spreading view that chronic diseases had become the dominant health problem of the era was the widespread adoption of risk factor [or population-based] epidemiology as the basis of public health," which emphasized healthy individual behaviour over social conditions. (Weisz 2014, p190-191)

At the same time, with the development of several vaccines to prevent prevalent (and lethal) childhood diseases such as polio (1955), measles (1963), mumps (1964) rubella (1968), and the first measles-mumps-rubella (MMR) vaccine (1971), prevention became synonymous with mass vaccination, delivered through provincial programs and campaigns. This had ambiguous consequences for public health, in that it highlighted pharmaceutical and technological fixes, while de-emphasizing public health's traditional expertise in non-pharmaceutical and non-medical forms of prevention. Thus, Bator refers to a growing "trend to replace the traditional Public Health model of healthiness and a multidisciplinary approach with a preoccupation that reduced Public Health to the medical model of treatment of disease." (Bator 1995, p14)

These significant developments led to something of an identity crisis in public health, as it sought to maintain its autonomy and its profile. The more conservative public health practitioners slowly adapted to this context by focusing on health education on a fairly narrow range issues such as drug and alcohol abuse and smoking, and sexually transmitted diseases, as well as developing preventive approaches to mental health. Others promoted new roles and spoke to emerging issues, such as the environment. The Director of the University of Toronto School of Hygiene, Andrew Rhodes, compiled a new plan for public health in 1962, which included a call for a reduction in air and water pollution, while outlining a role for community-based public health in the management of chronic illness and support of the elderly through expanded home care. Rhodes put forward a logical model for community-based home care plans, in which local health departments would coordinate public health nursing services in seniors' homes. He referred to this sort of service as "secondary prevention," designed to halt the progress of chronic disease. (Rhodes 1962, p320) In the absence of national health insurance, public health practitioners argued that it had a role to play in providing health services to under-served populations. Public health began to refer to this role as "Community Health."

In 1965, the Report of the Royal Commission on Health Services (Hall Commission) downplayed this model for community-based preventive and supportive care in favour of a fee-for-service medical insurance system, and tertiary curative intervention. At the outset of the Royal Commission, there was a promising attention to public health; the Commission included a detailed report on public health's role, "Organized Community Health Services," authored by John Hastings and William Mosley. The volume recommended "comprehensive Public Health services across the country with strong links to social services, as well as a major role for Public Health within a coordinated health services structure of regional planning and executive boards." (Bator 1995, p39)

At this moment, public health advocacy was caught up in the politics of medicare, and found itself on the opposite side of mainstream medicine over the issue of public health insurance. Physician opposition to medicare had crystalized around the 1962 physicians' strike in Saskatchewan, in reaction to that province's introduction of publicly funded physician care. Those who supported publicly insured care were accused of being communists. For example, Andrew Rhodes and the University of Toronto School of Hygiene were referred to by some members of the Faculty of Medicine as "The Little Red Schoolhouse," because of faculty commitment to medicare. (Bator 1995, p39)

The School of Hygiene's brief to the Hall Commission supported universal health insurance, while insisting on the need for preventive care. When the Hall Commission released its report in 1965, public health advocates like Rhodes supported the recommendations for health coverage, but were disappointed by its limited reference to public health. Evidence from interviews and private correspondence suggests that the minimal reference to Hastings and Mosley's recommendations in the Hall Commission report was the result of the Commission's attempts to placate organized medicine and the hospital sector. (Bator 1995, p39) Public health's model for reform was, then, downplayed in the drive for insured medical services.

However, it is clear from a careful assessment of the two volumes of the Hall Commission report, that it actually recognized the gravity of other issues, aside from medical care coverage, including the health status of Indigenous peoples, environmental problems and the need for a continuum of care. The opportunity existed for a deep reform and re-organization of health care. However, rather than promoting the more ambitious elements of the Commission's report, legislators made their main focus the introduction of the Medical Care Act (1966). The Act provided federal-provincial cost-shared public insurance for medical services. The legislation was passed by a minority Liberal government, with the support of the NDP, despite that party's criticism that the legislation did not include other key Hall Commission recommendations, including pharmaceutical coverage, dental care, and home care. We are still trying to get these remaining pieces in place today.

After medicare: the contradictions of health promotion

The implementation of the Medical Care Act by all the provinces would not be complete for several years. Even as medicare was emerging, so was anxiety about the future costs of health services. From the 1970s on, the federal government has focused on two apparently contradictory roles in Canadian health policy making: cost control and new paradigms intended to embed prevention and promote population health. Yet, prevention has never received the sustained funding and popular attention that would ensure a real re-balancing of preventive and curative services. (Pinder 1994, 2007) By this point, of course, infectious disease no longer seemed to be a serious menace, meaning that public health interventions beyond routine vaccinations, focused primarily on behavioural modification.

This twinning of prevention and cost containment is evident in the 1972 Report of the Community Health Centre Project to the Conference of Health Ministers (Hastings Report). It begins by stating that the costs of curative health system were growing at an unsustainable rate, and argues that "community health centres are increasingly seen as an important means for slowing the rate of increase in the cost of health services and for more fully reflecting the objectives, priorities, and relationships which society wishes to establish for health care in the future." (Hastings 1972, p362)

The Hastings Report echoed the call for health centres first articulated in the 1930s and '40s—by the 1970s now referred to as Community Health Centres (CHCs). Hastings referenced the Saskatchewan experience, where health centres had been envisioned system-wide (although this was never fully attained). As with the earlier iteration of a health centre model, the integration of prevention and cure was key. Using the contemporary language of health promotion, the report argued:

> The emphasis must be on high quality initial and continuing care for meeting the health needs of individuals and families. There must be a balance in services among health promotion and prevention, diagnosis and treatment, and rehabilitation. … Health promotion and prevention includes counselling to prepare people for the various phases of life, education to improve living habits, family planning, and specific protective measures, such as immunization. (Hastings 1972, p363)

Public health nurses were envisioned as key members of the health care team, as were nurse practitioners with expanded scope of practice and midwives. The report employed a 'people-centred' approach, arguing that "the active and responsible involvement of people in their own health care and the care of others is essential to our concept." (Hastings 1972, p364)

The Hastings Report failed to gain traction because of harsh criticism from the health care professions, especially doctors. The most obvious red flag for physicians (who defended the fee-for-service system) was the recommended salaried payment. But the report's commitment to lay input and multidisciplinary health care teams also alienated physicians because their power in the health care system would be reduced. Some health professionals argued that a team approach to care would only increase costs, not reduce them. As with the controversy surrounding the Hall Commission, public health advocates were again drawn into the struggle between organized medicine, which insisted that fee-for-service was the profession's hill to die upon, and alternative models that would have given public health a more significant seat at the table, and greater recognition of their role in health promotion. Given the polarity of this discussion, and medicine's social and political power, carving out an expanded role for public health in a community-based model was an uphill battle. The CHC model failed to grow outside of Quebec (where CHCs called *Centres Locaux de Services Communautaires* or CLSCs had greater government support than did CHCs elsewhere) largely because of successful opposition from organized medicine.

Yet, the need for greater health equity and transformation in mainstream medicine was articulated by the public in the midst of an era of significant social change. By the late 1960s, resistance to expert authority arose from a number of organized social movements, including student and patient activism, alternative healing, environmentalism, and feminism. Here, public health faced another challenge to its relevance, but also a way forward. Movements such as feminism, for example, advocated for improved access to reproductive health education and birth control, issues on which public health had failed to provide leadership.

Some of these movements embraced the CHC model, and created health centres at the grassroots level. An early example led by the labour movement was the Sault Ste Marie and District Group Health Centre, founded by the United Steelworkers of America, which opened in 1963. The clinic was modeled on building trades' and garment workers' health centres in Philadelphia, and longstanding US worker health plans such as that of Kaiser Permanente in California. (Lomas 1985, p4, 18-19) Other community-based initiatives emerged across Canada. In Winnipeg, Klinic

Community Health Centre began providing inner city health services in 1971; a decade later, its women's health programming moved to the new Women's Health Clinic.

The search to find a better balance between preventive and curative approaches continued with the publication of *A New Perspective on Health for Canadians* by then Minister of National Health and Welfare, Marc Lalonde, in 1974. This report has acquired almost mythical national and international status as the first government document to challenge the dominance of curative medicine by stating that human biology, the environment and lifestyle choices were more important factors in determining health and longevity than episodic medical and hospital care. *A New Perspective* enabled federal civil servants to make prevention and inter-sectoral cooperation an ongoing operational issue in the national policy arena. In a changing social context, however, a top-down approach to health policy faced challenges and critiques not just from health professionals, but from social movements and communities as well.

Scholars have argued that *A New Perspective* had more influence internationally than it did in Canada. (MacDougall 2007, Rutty 2010, p8.8) It took four years after the report's release for the federal government to open the Health Promotion Directorate, housed within National Health and Welfare. It developed social marketing campaigns which targeted smoking, drinking, drugs and exercise. (Pinder 1988) From the beginning, however, the directorate faced budget cuts and was criticized for its apparent focus on individual behaviour modification programs instead of dealing with the underlying social pathologies of racism, sexism and economic inequality which produced the conditions leading to various addictions and unhealthy behaviour. (Labonté 1981, Pinder 1994) The concept of health promotion articulated in the Lalonde Report was perceived by some as a form of "victim-blaming," by placing the responsibility for health status on the behavioural choices of the individual rather than the structural conditions impacting health, such as poverty or poor housing. Ronald Labonté made the astute criticism that the Lalonde Report characterized feminist and trade union health activism as "vehicles to communicate healthier lifestyles to 'housewives … and sedentary employees.'" (Labonté 1994)

A broad scepticism about the level of government commitment to addressing social determinants was fed by the larger context of neo-liberalism and state austerity. In 1977, barely more than a decade after the passage of the Medical Care Act, the federal government ended open 50-50 cost sharing, and introduced the Established Programs Financing Act (EPF), effectively limiting federal health care spending. Inflation and the economic fall-out of the oil crisis heralded what would become a very long period of fiscal tightening and subsequent changes in health and social welfare policy by governments at all levels. By the 1980s, neo-liberal doctrine had become influential for health policy globally, and in Canada. "The health impact of personal lifestyles was advanced as an argument in favour of reduced state responsibility for health and health care." (Irwin and Scali 2007, p245) Inside the federal government, a new Health Promotion Directorate was established by 1979 and it started to develop federal/provincial programs dealing with drug and alcohol use, physical fitness and smoking cessation as well as to develop international ties through the WHO-Europe Region. In recognition of its leadership in the field, the WHO asked Canada to host the first International Health Promotion Conference which was held in Ottawa in 1986.

This meeting produced the Ottawa Charter for Health Promotion, which identified key determinants ("prerequisites") of health: peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice, and equity. This focus on social determinants was also reflected in the

federal document, *Achieving Health for All: A Framework for Health Promotion*. (Epp 1986) Unfortunately, while the government recognized the social determinants of health, tackling these issues would require significant state investment which was not forthcoming.

The end of infectious disease?

Over the course of the post-World War II period, public health necessarily shifted its emphasis from the prevention and control of infectious diseases, to include programs to address the chronic illnesses that increasingly drove morbidity and mortality. But this is not to say that infectious disease threats had disappeared. Anxiety remained about low childhood vaccination rates for diseases such as measles. Laurence Monnais's (2019) work on measles immunizations in Quebec shows that childhood vaccination rates were extremely variable throughout the province in the 1980s, ranging from 40% in some schools to 95% in others. Uneven vaccination rates were caused by accessibility issues for immunization services, nurses, and clinics, especially in big cities such as Montreal. CLSCs were not particularly keen to offer sustainable vaccination services, shortages in vaccines were frequent and budgets to purchase them grossly insufficient. (Until 1977 the Quebec government could not afford MMR vaccines and kept purchasing monovalent measles and rubella vaccines that found themselves often in competition with one another both logistically and financially). To put it differently, vaccine hesitancy was probably not the main issue at the time— accessibility was. This being said, education about the benefits of vaccination and of specific vaccines was missing as emphasis was put on new risks to children's health (accidents, asthma and allergies), not the emerging/re-emerging infectious diseases.

The renewed risk posed by infectious diseases, for many of which there were no cures or vaccines, complicated post-World War II public health paradigms, if not the narrative arc of medical modernity itself. HIV-AIDS exposed the fragmented nature of an under-funded system, characterized by "confusion," "foot-dragging," and "unclear messaging." (Rutty 2010 p8.18) The social stigma around homosexuality deepened a problematic response, as did the slow commitment of funds from provincial and federal governments. It was effective mobilization by gay rights movements themselves that led the way towards treatment and research for those infected with HIV. In the case of AIDS, too, trust in the public health system was eroded: among affected communities and among a general public who reacted negatively to a faltering disease response out of fear and homophobia. (Royal Society of Canada 1988, McKay 2017)

HIV-AIDS should have been a significant warning sign that Canada's preventive infrastructure would have difficulty responding efficiently to a new disease threat. The risk, however, was easily dismissed by early characterizations of AIDS as a 'gay disease' which presumably would have little impact on the heterosexual community. Like other emergent infectious disease threats, HIV-AIDS entered the picture at the height of neo-liberalism, when calls for new investment in public health had limited chance of success. Like its counterparts in Britain and the United States, the Mulroney government made deficit reduction through budget cuts to social programs such as health transfers a political priority. At the provincial level, provinces such as Ontario, led by premier Mike Harris, undertook significant restructuring of various aspects of health care delivery, motivated by the desire to limit spending. (MacDougall 2006, p75)

While the public health approaches developed in the 1970s and 80s were intended, in part, to increase preventive capacity and reduce the financial burden upon acute care, public health budgets nevertheless became easy targets for budget-cutting. Public health was less visible than

hospital and medical care, and had fewer public advocates. Federal and provincial budget cuts were achieved by reducing transfers and downloading to lower-level governments. One problematic consequence was a deterioration in inter-governmental relationships and cooperation, which hampered public health planning.

Early in the new millennium, widespread anxiety about 'the next pandemic,' particularly the potential for a new deadly strain of influenza, led to calls for a national pandemic strategy. When SARS hit in 2003 that plan was still not in place, and the level of coordination needed to ensure an effective response was difficult to mount. Much of the public health response to SARS had to be coordinated at the provincial or even local level, as was the case in Toronto, where a newly-enlarged Toronto Public Health (TPH) faced significant challenges, including a lack of experience with potentially large-scale infectious disease events. "For more than 50 years, TPH had not imposed quarantine on its citizens, and although the provincial Health Promotion and Protection Act contained provisions to do so, TPH staff lacked recent experience." (MacDougall 2007, p77) Contact tracing, for example, had to be done without the appropriate technology or resources. (Wilson and Lazar 2006)

In addition to revealing communication and coordination problems between levels of government, MacDougall argues "the SARS outbreak illustrated the gap between prevention at the community level and care at hospitals or other tertiary facilities." (MacDougall, 2007, p77-78) While hospitals had knowledge of internal infection-control measures for organisms such as MRSA or *C. difficile*, they were ill-prepared to deal with potential external sources of infection. In the end, the SARS outbreak proved to be a nosocomial infection, and those at risk were mainly health care workers, their families, and patients. But the pandemic did serve to highlight the need to ensure effective coordination and communication between public health, hospitals, and other institutions such as long-term care facilities.

Ultimately, Canadian health officers did stop the spread of SARS—a virus they knew very little about at the outset, for which there were no available vaccines or specialized treatments. The tools they used to do so were the traditional mechanisms deployed by public health officials to contain epidemic outbreaks: isolation, case identification, contract tracing, and quarantine.

The response to SARS was not unified, either socially or within the health care system. Fragmentation occurred along lines of jurisdiction and responsibility. During a national or global disease event, some fragmentation is very difficult to overcome in a system of government such as Canada's. At the same time, SARS also demonstrated the importance of local decision-making during a public health crisis. Thus, a balance must be struck between the need for coordination of messaging, capacity and service provision, and the value of having public health work from the bottom up, in close interaction with local communities. MacDougall (2007) observed that in 1918-1920, health officers at the local level had closer relationships with public and private health care facilities, community groups and NGOs, and networks of volunteers than did public health during SARS. Volunteer engagement was a significant part of the societal response to pandemic influenza. This was, in part, a function of the fact that the public health care system was much less fully developed in the early 20th century, and private, charitable and religious organizations still played a significant role in health provision, particularly for those who could not afford to pay for hospital or physician care. When the influenza outbreak occurred, these groups mobilized to raise funds, provide basic nursing care, food, and clean clothes. In cities such as Winnipeg, those volunteer efforts were often coordinated by ethnic communities, with which local health officers had a prior

relationship. The broad engagement of the public had a potential unifying impact, at least in the short-term, and probably served to soften public criticism of health measures. Today, organizations such as the Canadian Public Health Association argue that community input and engagement is essential to the work of public health. Data from the City of Toronto shows what a devastating impact COVID-19 has had on racialized communities, and yet there is still a way to go in terms of consulting with these communities and ensuring their representation in the public health work force. (Cheung, 2020).

Socially, SARS was an example of a disease outbreak characterized by scapegoating and blaming. Disease history is certainly replete with instances where, out of fear and pre-existing prejudice and bigotry, a disease outbreak becomes racialized. SARS, understood to have originated in China, was used by opponents of Chinese immigration to Canada. But stigmatization extended beyond Chinese immigrants to people from Asian backgrounds, such as Filipinos, clearly suggesting that discriminatory responses to SARS were based in racial anxiety among white Canadians.

SARs, alongside other new (HIV-AIDS, West Nile, Ebola, coronavirus) or re-emerging (measles, antibiotic resistant tuberculosis) infectious diseases, raised the ante for public health in Canada, after decades of limited attention to infectious disease risk. The challenge highlighted by SARS was the need to increase capacity in relation disease outbreaks, without losing the important awareness of public health's role in promoting a healthier society more resilient to future risks.

The creation of the Public Health Agency of Canada (PHAC) in 2004, following the recommendations of the Report of the National Advisory Committee on SARS and Public Health, also known as the Naylor Report, (2003) was meant to be a response to these issues. Its first report to Parliament, in 2008, was entitled *Report on the State of Public Health in Canada: Addressing Health Inequalities*—a clear indication that social determinants remained high on the public health agenda. Neither the creation of PHAC nor the publicly-funded Canadian Institutes for Health Research, however, have solved the most pressing problems facing public health: the lack of public awareness about its role in the health care system; and, persistently low funding. Although public health practitioners have historically been strong advocates, the latter problem cannot but lead to the former. Government investment in public health (which is unfortunately very difficult to track with any precision) is but a tiny fraction of overall health spending, at both the provincial and federal level. For example, it was reported in 2013 that public health dollars were only *three percent* of the health budget of British Columbia; in Nova Scotia it was 1.5%. (Dutt 2013)

Conclusion

In 2007, David Butler-Jones and David Mowat set out the following mandate for public health in Canada: "The role of public health is not only to prepare for and respond to emergencies, (of all types, infectious and non-infectious, human-made or natural) but also to improve the health status of the population, reduce disparities, and enhance the sustainability of the health services system." Theoretically, public health strikes a balance between responding to infectious disease crises and addressing ongoing health inequities. In reality, it is not clear this balance is being achieved.

Our goal in this paper has been to explain why, from a historical perspective, this balance has proven so difficult to achieve, thereby weakening our overall resilience to disease outbreaks; and, to point to moments of opportunity for change in the past that might inform our present.

Certainly, the barriers to reform are significant. From the 1920s to today, the stress on medical cures and the relative decline in infectious disease has undercut public interest in prevention. (MacDougall 1990, p250) The introduction of medicare (the result of significant public pressure as much as it was policy prognostication) was essential to improving health care access, but resulted in a health system that poorly integrates prevention and cure. Alternative models, which aimed to create a continuum of public health and medical treatment, failed to take root. (Marchildon and Dyck, 2018)

Over time, attempts to contain health care costs have resulted in perceptions that medicare is perpetually under threat. This has mobilized social movements, health care workers, and powerful voices from the medical profession to keep the reform of insured *curative* care at the heart of public debate. These actors have raised alarms about the state of medicare, often for different and potentially politically competing reasons; nevertheless, public health has lacked the same vocal and organized promoters since the 1950s.

Although governments and public health leaders have agreed for many years (at least in theory) on the importance of prevention, including addressing the social determinants of health, an emphasis in real terms upon tertiary interventions still drives the system. In the past decade, some public health advocates have attempted to counter this trend by making economic arguments for prevention, and the efficiencies that might result from 'upstream' interventions in social determinants. (CPHA 2012) The belief that demonstrating the cost-effectiveness of prevention will result in greater public health spending and recognition is reminiscent of the 1970s, also a period of crisis in government revenues and escalating costs in medical and hospital care provision. At that time, health promotion was lauded by the highest levels of government, including by ministers of health, as a way to reduce the burden on hospital and medical budgets; but, significant increases funding to public health and social welfare did not follow.

As in all areas of health and social welfare policy, policy change in the public health arena has required not just (or perhaps even most importantly) federal leadership, but also commitment from provincial and municipal levels of government. Andrea Migone refers to a style of policy development in Canada (punctuated gradualism), in which innovations are aggressively promoted by federal policy makers, but then flounder with provincial resistance. "This dynamic leads to a process of gradual reform punctuated by bursts of 'over-promising and under-delivering." (Migone 2020, p392) The history of public health since the 1960s reflects this pattern.

Another important cause of this innovation/stalemate dichotomy is the centrality of policy elites and political leaders in setting the public health agenda, and a relative failure to meaningfully engage non-governmental actors, communities, or social movements. Because policy formulation is top-down, public mobilization is lacking, however much it is needed to sustain recommendations for change over the longer term. At the same time, the disconnect between discourse and reality in public health, especially on key concepts such as social determinants, generates public cynicism and the very lack of engagement that prevents a more lasting change.

Public ambivalence is further heightened in a society less acquiescent to expert health opinion than in the past. The decline of faith in science and public health is particularly evident in debates about vaccination. Ever since the US unrolled a massive vaccination campaign to prevent a swine flu epidemic in 1976 (an epidemic that never materialized) that resulted in a significant uptick in Guillain-Barré Syndrome cases, concern about routine childhood immunization has increased.

Since the late 1990s, debunked claims regarding the measles vaccine and the adjuvant thimerosal as contributors to increased cases of autism helped to increase vaccine hesitancy (concern about the safety and efficacy of vaccinations). The role of the Internet in spreading misinformation has expanded since the 1990s and in 2019, the WHO labelled vaccine hesitancy as one of the ten leading causes of ill health. The speed with which various COVID vaccine candidates have been rushed through development and testing fuels fear that the safety standards developed since the 1960s will not be applied. Public health experts have a challenging task ahead as they seek to reassure a sceptical public that all necessary tests have been completed and that the vaccine or vaccines are safe for their intended users.

The PHAC's 2020 Annual Report urges greater attention to the differential impacts of COVID-19, and the public health measures taken to control it, using a health equity framework. Consistent with public health approaches that emphasize social justice and human rights, the Report gives a comprehensive set of policy recommendations, many of them social policy reforms to improve employment, housing, early childhood education, and other key determinants. As the Report argues, we are at a critical moment of opportunity, when we can make a decision to take meaningful action to remedy social inequities. If we repeat history, that opportunity will be lost. If we learn from it, we have a path forward.

Policy Recommendations

1. Invest in prevention through a dual approach:

- allocate more resources at all levels of government to enhance accessible preventive services;
- increase efficiency in public health by empowering nurses and other health professionals aside from physicians to play a key role in its delivery;
- reduce social inequalities in order to improve the health status and resilience of those differentially impacted by disease.

2. Enhance health equity and social determinants accountability:

- assess relevant areas of public policy at all levels of government (housing, income support, the justice system, health care services, etc) using a health equity lens;
- establish a federally funded health equity auditor's office, with Parliamentary reporting mechanisms, and encourage other levels of government to do the same.

3. Engage the public to address historic inequities and gaps in public health:

- Fund world-class public health advocacy organizations. These would provide input into public health decision making; highlight patients' rights; document and propose solutions for intersectional inequality and racism; and advocate for important public health interventions and more balanced funding;
- Gather better data and make it publicly accessible. We require better information about the social differentials in disease vulnerabilities, and routinely collected data that helps us to trace patterns of race, income, location, etc. When we have that information, public health leadership must acknowledge social differentials and inequities, and plan to support the most vulnerable;

4. Create an equitable public health culture through education:

- encourage a horizontal, not vertical (top-down, one disease at a time), approach to public health. Recognize that technological 'fixes' will never fully protect society, and that human work in various aspects of care, non-medical measures and education will always be essential to resilience and preparedness;

- increase public health education to health care professionals, and to the general public. This must be done routinely, not only during a time of crisis;

- establish multidisciplinary training programs for public health personnel that are attractive to students from marginalized and racialized communities. Breaking down barriers and building trust will not occur unless the hidden assumptions, beliefs and practices that currently exist are eliminated. The history of attention to under-serviced communities and the recognition of the inequities of the capitalist system displayed by previous generations of professional and amateur public health activists can be used as a foundation.

- promote an inclusive and sustainable public health that would build upon various forms of health activism and advocacy and have communities and non-medical/healthcare actors participate in debates and decisions regarding public health.

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