



## Canada and COVID-19: learning from SARS

The 2003 SARS epidemic killed 44 people in Canada, and led to many proposals for reforms. Paul Webster looks at how the SARS outbreak has affected Canada's COVID-19 response.

In an exclusive interview with *The Lancet*, David Naylor, one of Canada's leading experts on pandemic control, says Canada's response to coronavirus disease 2019 (COVID-19) is vastly benefiting from the country's experience with a 2003 epidemic of severe acute respiratory syndrome (SARS) that killed 44 Canadians.

In October, 2003, after the SARS epidemic, Naylor and a group of Canada's top epidemic control experts made a sweeping set of recommendations to Canada's federal, provincial, and territorial leader in a report titled *Learning from SARS*.

Canada's public health and epidemic control systems have been largely refashioned around those recommendations since then. Most prominently, the recommendations made by Naylor and his co-authors led to the creation of the Public Health Agency of Canada, which now leads the response to COVID-19, with at least 324 Canadian patients as of March 16.

"I'd say the government of Canada responded in some concrete way to

about 80% of the recommendations in the 2003 report", Naylor, who is a former dean of medicine and former president of the University of Toronto, where he is a professor emeritus, told *The Lancet*.

The response to the recommendations made by Naylor and his co-panellists to "provide the necessary

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funding for renovation to achieve minimal facility standards for infection control in emergency departments" and to "ensure that each hospital has sufficient negative pressure rooms for treatment of patients with infectious disease" has been uneven, says Michael Schull, president of the Institute for Clinical Evaluative Sciences and an emergency department physician at Sunnybrook Hospital in Toronto.

"One of the biggest lessons of SARS was that it is imperative to reduce all

avoidable hospitalisations ahead of the outbreak, and treat patients at home as much as possible", says Schull. "I don't think we've implemented the necessary measures at nearly enough scale unfortunately, because the real challenge we face now with COVID-19 is that the number of cases may very quickly overwhelm hospitals."

The failure to forge integrated province-wide and nationwide digital health capabilities now impedes efforts to scale up "virtual" health care at precisely the time it is most needed, notes Ewan Affleck, who chaired the Virtual Care Task Force created by the Canadian Medical Association, the College of Family Physicians of Canada, and the Royal College of Physicians and Surgeons of Canada that issued a report in February warning of "a risk that a series of fragmented virtual care services will be established that detract from continuity and potentially lead to quality of care issues".

The *Learning from SARS* report was early to recognise that in the digital environment health-care providers can help patients with greatly reduced risks of infection exposure, says Affleck, who is a physician based in Canada's Northwest Territories. "We have to change how we as medical professionals work", he says, as COVID-19 is spreading across Canada and minimal virtual care capacity is available to help respond, "because we largely are practising analogue health care in a digital world".

However, there have been other improvements. "One of the challenges that emerged painfully during the 2003 SARS outbreak was weak federal-provincial collaboration in the context of a public health emergency", Naylor said. "A number of improvements were made in response to our recommendations, ranging from



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legislative changes to new standing committees that sorted out ground rules for jointly managing a public health crisis and built a new culture of collaboration.”

Canada was affected by SARS more than anywhere else outside Asia. Like COVID-19, SARS was a respiratory coronavirus originating in China, which infected more than 8000 people worldwide. More than 900 people died. Canada saw 438 suspected cases and 44 deaths, mostly in Toronto, Canada’s largest city. During the epidemic, WHO issued a travel ban for the Greater Toronto Area, which has a population of about 6 million.

Following the disaster, the Canadian Government charged Naylor with leading a thorough review. Canada’s public health system was deemed by Naylor and his co-panellists to have stumbled badly, especially in Ontario, Canada’s most populous province.

In their report, Naylor and his co-panellists outlined scores of challenges for epidemic and pandemic control. While various other outbreaks in the 16 years since SARS have “road-tested those mechanisms and enabled refinements”, says Naylor, “COVID-19 is emerging as the most severe test to date, and I think the coordinated response has been impressive.”

Inevitably, says Naylor, there have been some inconsistencies in the overall public health response as COVID-19 continues to make its mark in Canada, where Prime Minister Justin Trudeau is currently in voluntary isolation while his wife is being treated for the virus.

“This is a vast country, and provinces have substantial administrative authority, including over health care”, says Naylor. “But at all levels of government and public health oversight, Canadian leaders are staying in close touch and working well together.”

Perhaps most importantly, says Naylor, public health communications are vastly improved. “Obviously, digital media have evolved since

2003, opening up channels for misinformation but also ways for public health officials and governments to get messages out very widely on a more or less instantaneous basis”, he reflected in his comments for *The Lancet*. “I think the threat of COVID-19 was underestimated and understated at the outset, but federal and provincial officials have raised their game

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dramatically in the last 2–3 weeks, and have been communicating effectively. The Canadian media by and large have also been constructive and responsible.”

One concern that Naylor echoes is that there are too many spokespeople. “The Government of Canada and all the larger provinces are approaching this crisis on a whole-of-government basis. A good thing, to be sure, but it also means lots of ministers want a turn at the microphone! Above all, what I like is that the politicians take their obligatory 1–2 minutes in the limelight, and then defer to the public health experts who do most of the talking.”

There have also been some technical “glitches”, says Naylor. “For a while, there were conflicting guidelines on use of personal protective equipment, but that’s largely been settled. The federal government has done very well on many fronts, but has been slow in sorting out safe and streamlined procedures for processing passengers arriving at international airports. Procurement could be better coordinated, and testing should be rolling out faster. But any holes are getting patched pretty quickly.”

Not all of the recommendations made by Naylor and his co-panellists to help Canada to prepare for future crises such as the ongoing COVID-19 pandemic have proved fruitful, observers note.

Efforts to build a national digital health “infostructure” including an epidemic surveillance system “to enhance disease surveillance and link public health and clinical information systems” have yet to yield a pan-Canadian digital system to track COVID-19 testing, infections, and treatment.

Canada’s response to the scientific recommendation of the 2003 SARS report has been similarly uneven, notes John Bergeron, co-director of the Laboratory of Systems Medicine and Cell Biology at McGill University in Montreal. Despite the call for “enhanced national public health science capacity” in the 2003 Naylor report, funding for biomedical research as a whole has been reduced in spending-power terms over the past decade and many of the country’s elite epidemic researchers have struggled to find support. “We are not keeping pace proportionately with the rate of scientific investments in the USA, and that means we aren’t playing the scientific leaderships roles we should be in responding to COVID-19 internationally”, Bergeron charges.

SARS taught an entire generation of Canadian public health providers and leaders “that it’s imperative that we take COVID-19 extremely seriously”, says Schull, “Our experiences with SARS have undoubtedly put us in a much better position than we would otherwise have been in now.”

Paul Webster

