Pandemic Data Sharing:
How the Canadian Constitution Turned Into a Suicide Pact

Amir Attaran & Adam R. Houston

> "The choice is not between order and liberty. It is between liberty with order and anarchy without either. There is danger that, if the court does not temper its doctrinaire logic with a little practical wisdom, it will convert the constitutional Bill of Rights into a suicide pact."
>
> Justice Robert Jackson in *Terminiello v. City of Chicago*, 337 U.S. 1 (1949)

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For decades, public health professionals, scholars, and on multiple occasions the Auditor General of Canada, have raised warnings about Canada's dysfunctional system of public health data sharing. These warnings have been reiterated in the wake of repeated outbreaks – most prominently SARS in 2003, but also foodborne listeriosis in 2008, and H1N1 influenza in 2009. Every single time, the warnings have been clear that unless Canada better prepares itself for a pandemic, many thousands could die, as when the "Spanish Flu" killed an estimated 55,000 Canadians between 1918 and 1920.

Almost exactly a century later, COVID-19 arrived. While SARS killed 44 people in Canada, currently (mid-May 2020) COVID-19 kills several fold that *every day*. Nor is satisfactory progress being made, for unlike some countries, including very seriously affected ones that promptly reversed the epidemic's growth, in Canada there is still no reversal after approximately two months of lockdown.

Why? There are countless reasons, but legally, the most fundamental problem is that epidemic responses are handicapped by a mythological, schismatic, self-destructive view of federalism, which endures despite being flagrantly wrong. Who among us has not heard it emptily parroted that "health is provincial", rather than the shared jurisdiction the Supreme Court regularly says it is[1]?

Nowhere is federal-provincial dysfunction more apparent than in the realm of epidemiological data. When provinces collect detailed "microdata" on each COVID-19 case—the *absolutely indispensable* raw data that epidemiologists require to analyze a pandemic and model strategies to vanquish it—the provinces insist the data belongs to

[1] *RJR-MacDonald Inc. v. Canada (AG)*, [1995] 3 SCR 199, at para 32; *Eldridge v. British Columbia (AG)*, [1997] 3 SCR 624, at para. 24-25; *Reference re Assisted Human Reproduction Act*, 2010 SCC 61, at para. 57; *Canada (AG) v. PHS Community Services Society*, 2011 SCC 44, at paras. 67-70.

them to share or not with the federal government as they please. Worse, the Public Health Agency of Canada does not challenge this view.

The thesis of this paper is that as between them, the federal and provincial governments have failed to exchange the data which are the *sine qua non* of Canada battling COVID-19 scientifically and effectively. Just as farmers need accurate weather information from Environment Canada to plant, and businesses need precise economic information from Statistics Canada to thrive, public health planners need timely and complete epidemiological information to battle emerging pandemics. Without complete, timely epidemiological data from all parts of the country, it is *impossible* to navigate scientifically, and Canada must instead cross this maelstrom blinded, at an intolerable cost of wasted lives and money.

We discuss the history of how Canada reached this situation, and what can be done to fix it, while reminding readers of our previous warnings foretelling the very crisis of epidemiological data sharing and unavoided death that Canada now faces.[2]

Canada's Pandemic Governance History:

Canada has a sorry history of reactively legislating for public health only after being clobbered by a crisis.

Parliament created the first federal Department of Health in 1919, while the failures in Canada's response to the Spanish Flu pandemic were on full display[3]. It did so *in terrorem*, following a massive second wave of the influenza in fall 1918 that claimed nearly as many as died in the First World War.[4] While the *agent* of the pandemic was a new influenza virus, the *cause* of much excess death was Canada's dysfunctional federation: despite measures the federal government imposed at national borders, the provinces proved unable to coordinate competently on basic measures within Canada such as identifying the ill and ensuring they were isolated. All this was grimly admitted in a report completed for Cabinet amidst the second wave by Vincent Massey, the future Governor General, which read that *"A federal department of public health is justified now that it is clear that Provincial Governments are no longer competent to deal with*

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[2] Attaran, Amir and Wilson, Kumanan, A Legal and Epidemiological Justification for Federal Authority in Health Emergencies, 52 *McGill Law Journal* 381 (2007); Attaran, Amir, A Legislative Failure of Epidemic Proportions, 179 *Canadian Medical Association Journal* 9 (2008); Attaran, Amir and Chow, Elvina, Why Canada is Dangerously Unprepared for Epidemic Diseases: A Legal and Constitutional Diagnosis, 5 *Journal of Parliamentary and Political Law* 287 (2011).

[3] An Act respecting the Department of Health, (1919). Canada 8-9 George V, Parliament of the United Kingdom; 9-10 George V, 13th Parliament, 2nd Session, 1919(9-10 George V, 13th Parliament, 2nd Session), 87-90.

[4] Mark Humphries, The Last Plague: Spanish Influenza and the Politics of Public Health in Canada (University of Toronto Press, 2012).

Public Health in its new and wider application, and that their efforts require correlation and amplification".[5]

Yet the same incoordination and provincial inability of a century ago is now repeating with COVID-19. There is no uniformity in the quarantine or social distancing rules of the provinces, and even on the seemingly uncontroversial matter of screening who has the disease, no two provinces agree.[6] The disunity is tragic farce: in mid-March as Quebec's Premier called to isolate returning travelers, Ontario's Premier encouraged families to "go away, have a good time, enjoy yourself" for spring break[7], and the Prime Minister dithered, perhaps because of his Health Minister's scientifically wrong opinion that shutting borders to disease was "not effective at all".[8]

But Canada should be better coordinated than this, because between the Spanish Flu and COVID-19 was the Severe Acute Respiratory Syndrome ("SARS") epidemic of 2003. Canada was the most severely affected country outside of Asia, so SARS gave the federal and provincial governments impetus to prepare effectively for the future if they wished.

They did not.

SARS presented different challenges than Spanish Flu. Not only was it extremely dangerous, with a case fatality rate over 10%, but this time the World Health Organization ("WHO") demanded epidemiological data from Canada about the scope of the epidemic, particularly in Toronto.

Problem is, Canada had no way to fulfill WHO's demand, because a jurisdictional fight broke out and Ontario refused to share its epidemiological data with Health Canada. So little sharing occurred that Health Canada had to glean data from Ontario's press conferences![9] This left Health Canada in no position to answer WHO, which grew afraid that Canada was concealing epidemiological data—which it was, via immature federal-provincial squabbling. WHO therefore recommended against travel

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[5] The Report to the Vice-Chairman of the War Committee, File 10-3-1, vol. 2, vol. 19, RG 29, Library and Archives Canada.

[6] Olibris, Brieanne and Attaran, Amir, Lack of coordination and medical disinformation in Canadian self-assessment tools for COVID-19. *medRxiv* 2020.04.14.20065631, doi: https://doi.org/10.1101/2020.04.14.20065631.

[7] Coronavirus outbreak: Doug Ford tells families to 'have fun' and 'go away' during March Break [Internet]. 2020. (Global News). Available from: https://globalnews.ca/video/6668414/coronavirus-outbreak-doug-ford-tells-families-to-have-fun-and-travel-during-march-break

[8] Coronavirus outbreak: Hajdu stresses shutting down borders over illness 'not effective at all' [Internet]. 2020. (Global News). Available from: https://globalnews.ca/video/6560512/coronavirus-outbreak-hajdu-stresses-shutting-down-borders-over-illness-not-effective-at-all

[9] Canada, Naylor CD, editors. Learning from SARS: renewal of public health in Canada: a report of the National Advisory Committee on SARS and Public Health. Ottawa: National Advisory Committee on SARS and Public Health; 2003. p.202.

to Toronto, making Canada one of only two countries ever to face that sanction (the other was notoriously secretive China).[10]

One of us (Attaran) advised WHO in its decision, particularly as backlash grew in Canada. Later, Ontario established a SARS commission of inquiry to probe the causes of WHO's sanction.[11] In a blistering report, Justice Archie Campbell accurately found that a jurisdictional battle between Ontario and Ottawa got in the way, and exhibited little judicial restraint warning about its consequences:

> If a greater spirit of federal-provincial cooperation is not forthcoming in respect of public health protection, Ontario and the rest of Canada will be at greater risk from infectious disease and will look like fools in the international community.[12]

Justice Campbell also reviewed three other federal and provincial investigations into SARS—it was a cottage industry—and concluded that "one thing [is] crystal clear: the greatest benefit from new public health arrangements can be a new federal presence in support of provincial delivery of public health."[13]

SARS led to the creation of a new branch of the federal government, the Public Health Agency of Canada ("PHAC"), but as we discuss in the next section, PHAC has utterly failed to solve the federal-provincial schism, which places Canada in violation of international law. According to WHO's *International Health Regulations* ("IHR") passed after SARS, Canada must share epidemiological information with WHO, including:

> clinical descriptions, laboratory results, sources and type of risk, numbers of human cases and deaths, conditions affecting the spread of the disease and the health measures employed.[14]

Not one of these things is now being exchanged reliably between the provinces and PHAC, to say nothing of Canada being able to supply it to WHO. Simply put, Canada failed to learn the lessons of SARS.

The Public Health Agency of Canada:

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[10] WHO extends its SARS-related travel advice to Beijing and Shanxi province in China and to Toronto, Canada. World Health Organization; April 23, 2003. Available from: https://www.who.int/mediacentre/news/notes/2003/np7/en/

[11] Ontario, The SARS Commission, Reports Vol. 1-5 (2006). Available at: http://www.archives.gov.on.ca/en/e_records/sars/report/index.html

[12] Campbell A, Ontario, SARS Commission. The SARS Commission: spring of fear. Vol. 4, SARS and Public Health in Ontario (2004). Toronto: SARS Commission, p.193.

[13] *Ibid.*

[14] *International Health Regulations* (2005), Article 5 and Annex 1.

PHAC was originally created under the Liberal government in 2004, although the legislation formalizing its creation was left to the incoming Conservative government[15]. As the Parliamentary Secretary to the Minister of Health explained:

> First, the Public Health Agency of Canada must have specific regulatory authorities for the collection, management and protection of public health information to ensure that the agency can receive the information it needs. As the SARS outbreak clearly showed, it is important for the government to have the ability and the means to assess accurate information… This is of particular importance because of the growing threat of an influenza pandemic or other public health emergencies... The bill provides that authority.[16]

Presciently, the NDP complained at the time that although the legislation gave Cabinet the power to make regulations to collect epidemiological information, it placed *no corresponding duty on provinces* to share information.[17] This omission is echoed in the 2018 WHO review of Canada's compliance with the IHR obligations, which states:

> While existing legislation does not specify terms for interjurisdictional sharing – which remains voluntary between provinces and territories and the federal levels – informal collegial relationships with provincial and territorial health authorities have been essential for public health surveillance and response to acute public health events across Canada[18].

WHO went on to caution that the failure to ensure information sharing might, "negatively affect [Canada's] ability to efficiently and effectively implement public health actions in response to an acute public health event."[19]

A decade before the WHO evaluation, in 2008, the Auditor General of Canada similarly warned:

> To obtain routine surveillance information, the [Public Health Agency of Canada] relies on the goodwill of the provinces and territories. However, due to gaps in its information-sharing agreements with them, it is not assured of receiving timely,

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[15] Minister of Health. An Act respecting the establishment of the Public Health Agency of Canada and amending certain Acts [Internet]. C–5 2006. Available from: https://www.parl.ca/LegisInfo/BillDetails.aspx?Language=E&billId=2162144

[16] Canada, Parliament, *House of Commons Debates*, 39th Parl, 1st Sess, Vol 141, No 039 (13 June 2006) at line 1605. https://www.ourcommons.ca/DocumentViewer/en/39-1/house/sitting-39/hansard

[17] Canada, Parliament, *House of Commons Debates*, 39th Parl, 1st Sess, Vol 141, No 039 (13 June 2006) at line 1725. https://www.ourcommons.ca/DocumentViewer/en/39-1/house/sitting-39/hansard

[18] Joint external evaluation of IHR Core Capacities of Canada: Geneva: World Health Organization; 2019 (WHO/WHE/CPI/2019.62), at p. 27.

[19] Ibid. p.2.

> accurate and complete information. A data-sharing agreement recently signed with Ontario re-established the regular flow of information about individual cases after two years when this flow was limited. However, the Agency has not reached similar data-sharing agreements with the remaining provinces and territories.[20]

This was hardly the Auditor General's first warning: her 2008 report complains that "fundamental weaknesses noted in our 1999 and 2002 reports remain".[21]

With over 5,000 dead at this writing and no ceiling in sight, COVID-19 bears out the consequences of these ignored warnings, and the unalloyed failure of voluntary agreements with the provinces. On any given day, comparing the total number of cases in Canada known to PHAC, and PHAC's available epidemiological "microdata" (containing details of sex, age, hospitalization or intensive care status, means of infection, deaths, and so forth) demonstrates that PHAC lacks particulars on *half* of cases that exist. Such a giant omission essentially makes accurate epidemiological modelling and forecasting—basically scientific planning to manage the pandemic—entirely impossible.

Indeed, Canada is so primitive that the provinces and PHAC often exchange COVID-19 epidemiological data by fax machine! Fax rules because a federal-provincial project to establish modern "national surveillance and reporting systems" through the Canada Health Infoway never bore fruit.[22]

So too with two failed intergovernmental agreements since SARS. The first, a Memorandum of Understanding for public health emergencies, is so jejune as to be self-parodying:

> "This [memorandum of understanding] is an expression of intent by the parties to explore, review and undertake the measures set out in this MOU with a view to making appropriate administrative, policy and legislative changes considered advisable by each party to give effect to the intentions expressed in this MOU.[23]"

Not until 2014, over a decade after SARS, and following the listeriosis and H1N1

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[20] Commons, May 2008. Ottawa: Office of the Auditor General of Canada; 2008 at Chapter 5, p.2. https://www.oag-bvg.gc.ca/internet/English/parl_oag_200805_05_e_30701.html

[21] Canada, Office of the Auditor General. Report of the Auditor General of Canada to the House of Commons, May 2008. Ottawa: Office of the Auditor General of Canada; 2008 at Chapter 5, p.2. https://www.oag-bvg.gc.ca/internet/English/parl_oag_200805_05_e_30701.html

[22] Public health surveillance: developing a pan-Canadian solution to protect Canadians [Internet]. Available from: https://www.infoway-inforoute.ca/en/174-what-we-do/digital-health-and-you/stories/clinician-stories/380-public-health-surveillance-developing-a-pan-canadian-solution-to-protect-canadians

[23] Federal/Provincial/Territorial Memorandum of Understanding (MOU) on the Sharing of Information During a Public Health Emergency. Available from: http://www.phn-rsp.ca/pubs/mou-is-pe-pr/index-eng.php

influenza outbreaks, was this lame Memorandum of Understanding superseded by another intergovernmental pact, the *Multi-Lateral Information Sharing Agreement* ("MLISA").[24] The language of MLISA sounds legalistic—Ottawa and the provinces are "Parties" in the style of a treaty—but it is misleading, because MLISA's so-called "mandatory obligations" to share information lack any legislated foundation and are non-binding. The trickery is not surprising: MLISA was drafted by Alberta, notoriously opposed to federal powers.

Yet foolishly, PHAC behaves as if MLISA were binding anyway, including certain "mandatory" provisions intended to neuter PHAC's ability to publish timely, important analyses such as disease models and forecasts. Clause 20(f) stipulates that before publishing any analysis of data sourced from a province, PHAC must first give the province "thirty (30) calendar days from receipt of the notice and Analysis to provide its comments". Worse, if the analysis makes use of sub-provincial data—by region, city, or postcode, for example—then PHAC must "obtain the written permission of the Originating Party before it may Publish the Analysis", which is tantamount to a veto.

MLISA thus made the sharing of timely epidemiological information *worse* since SARS. No public health planner in his or her right mind wishes to confront a disease that changes by the week with an epidemiological analysis that is a month obsolete (if permission is granted at all), and doing so is as dumb as sailing the ocean with last month's weather forecast. Yet the constitutional delusion that "health is provincial" has so thoroughly displaced constitutional realities that PHAC thinks this natural.

Thanks to MLISA, several months into the pandemic, PHAC has failed to publish a epidemiological model of the COVID-19 crises unfolding in the provinces or cities, though it unveils crude, nonscientific forecasts for show. The western democracies that have turned the course of COVID-19 most effectively, like Australia, Germany, New Zealand, Norway, and Switzerland have proper scientific models, in some cases *published daily*.

How and Why to Fix This:

<u>There must be federal laws imposing a duty on the provinces to collect and share epidemiological data, in a timely, coordinated manner that is transparent, accessible to scientists, and auditable by Parliament</u>.

There is no doubt that such laws can affect provincial health institutions yet be constitutionally valid.[25] But some—including Professor Robitaille in this volume—think

[24] Multi-Lateral Information Sharing Agreement (MLISA) (2014) Available from: http://www.phn-rsp.ca/pubs/mlisa-eng.pdf
[25] *Canada (AG) v. PHS Community Services Society*, 2011 SCC 44, at para. 50.

federal legislation undesirable.

We think Professor Robitaille is wrong. Imagine a hypothetical future coronavirus pandemic that combines the high transmissibility of the COVID-19 virus, with the 30% case fatality rate of the Middle Eastern Respiratory Syndrome ("MERS"). Nightmare pathogens of this kind could kill a billion in the absence of a vaccine, and are not only evolutionarily possible in nature, but are being made in laboratories performing controversial, euphemistically-named "gain of function" experiments.[26] Either way, and given enough time, a pandemic of such intensity is *inevitable*.

Seen in this light, is Professor Robitaille's plea to rely on federal-provincial cooperation logical? Certainly not: cooperation has failed epidemics like SARS and COVID-19 that would look mild in comparison. Any constitutional advice which naïvely overlooks terrifying biological realities truly makes Canada's Constitution into a suicide pact, for history teaches countries have been toppled by pandemics before.

Currently, there are two statutory powers which could be used, but aren't.

Section 15 of the *Public Health Agency of Canada Act* permits the Governor in Council to make regulations respecting "the collection, analysis, interpretation, publication and distribution of information relating to public health", subject to parts of the *Department of Health Act*, and in turn the *Statistics Act*. It would be simple for Cabinet to issue a regulation requiring provinces to share designated epidemiological data, and to do so in a prescribed, secure electronic form, which experts like Statistics Canada could build. Section 15 also helpfully empowers Cabinet to craft bespoke protections for confidential or personal health information, which is indispensable for critical lifesaving interventions such as cellphone-based contact tracing of persons exposed to the COVID-19 virus, and in doing so Cabinet may deviate from the *Privacy Act* and the *Personal Information Protection and Electronic Documents Act*.[27]

Alternatively, section 13 of the *Statistics Act* permits the Chief Statistician of Canada to issue a mandatory request for epidemiological data to any "person having the custody or charge of any documents or records that are maintained in any department [including in a province] or in any municipal office, corporation, business or organization". While easier to use than s. 15 of the *PHAC* Act, this mechanism has the disadvantage that it only allows *existing* data to be collected.

We recommend using both these statutory powers at once for COVID-19.

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[26] Talha Burki, "Ban on gain-of-function studies ends", 18 *Lancet Infectious Diseases* 148 (2018).
[27] See the derogations in ss. 7(3)(c.1)(iii) and 7(3)(e) of the *Personal Information Protection and Electronic Documents Act* (S.C. 2000, c. 5), and s. 8(2) of the *Privacy Act* (R.S.C., 1985, c. P-21).

We further recommend that: (i) any Cabinet regulation under s. 15 of the *PHAC Act* should concomitantly declare an emergency under the federal Peace, Order, and Good Government power ("POGG") and the ratio in *Re: Anti-Inflation Act*[28]*,* and; (ii) that a province's eligibility to receive billions of dollars of federal COVID-19 relief should be conditioned on furnishing epidemiological data per the ratio in *Re: Canada Assistance Plan (B.C.)*.[29] Supreme Court precedent leaves no doubt that both the POGG emergency and federal spending power may be used to enforce compliance with the epidemiological data sharing scheme prescribed under s. 15 of the PHAC Act.

Taken together, these legal authorities can:

- Oblige provinces to hew to a single COVID-19 case definition established by the Public Health Agency of Canada;
- Oblige provinces to report epidemiological according to a single method established by Statistics Canada;
- Oblige telecommunications and "Big Data" companies to furnish cellphone-based data for tracing COVID-19 case contacts;
- Implement bespoke privacy and confidentiality rules which are precisely tailored to the COVID-19 pandemic*;*
- Create a both a precedent and a template for future pandemics.

We understand others dislike these proposals, and that provinces will object. So what: timely, effective epidemiological information is the *sine qua non* of saving lives from COVID-19, probably many thousands of them, and for being ready for future pandemics. The choice is either to use legal tools existing in statute and Supreme Court precedent, or to fashion Canada's Constitution into the scaffold of its own demise.

[28] [1976] 2 SCR 373.
[29] [1991] 2 S.C.R. 525, at p. 567.

AIDS quarantine plan draws protest

By Kelly Toughill
TORONTO STAR

Anyone infected with the AIDS virus who continues to have intercourse could be forcibly confined under a new public health proposal — even if a condom is used and the person warns his or her sex partner of the risk.

The proposal by Dr. Richard Schabas, Ontario's chief medical officer of health, has drawn howls of protest from AIDS activists who say it misleads the public about the dangers of the disease and could force the province to lock up thousands of people.

"This is absolutely outrageous," said Stephen Manning, executive director of the AIDS Committee of Toronto. "It's irresponsible, unscientific and deeply disturbing.

"It would put thousands of people in this province in legal jeopardy and turn public health officers into the sex police. It's our worst nightmare."

Both Wayne Fitton, director of the Toronto PWA (People With AIDS) Foundation, and Miriam Mayhew, executive director of Casey House, a hospice for people with AIDS, have called for Schabas' resignation.

Schabas defended the proposal yesterday, saying it is an appropriate public health measure to prevent the spread of the disease.

"The risk of intercourse with someone who is infected, even when a condom is used, is known to be too high," he said in a phone interview. Those who have intercourse with infected people are taking their lives in their hands, he warned.

Manning disputed his statement, and pointed out that the Ontario health ministry has spent millions of dollars urging the public to use condoms during sex to avoid contracting the virus.

Ontario public health officials now have little power to stop someone from knowingly spreading the virus.

Local medical officers of health can order a carrier not to expose others, but they have no way to enforce the order, other than referring the case to police for prosecution under the Criminal Code.

Schabas has recommended to Health Minister Elinor Caplan that she reclassify AIDS as a "virulent" disease under provincial law, allowing public health officials to ask the courts to confine carriers to hospital if they are exposing others to the virus.

The court order would be reviewed after four months.

Caplan is travelling in India and could not be reached for comment.

Most people had assumed that Schabas hoped to confine only those few carriers who continue to have unprotected sex with partners who have no idea the person is infected.

But Schabas said yesterday that public health orders should be issued to anyone infected with the virus who continues to have any form of sexual intercourse.

"My opinion is that the appropriate recommendation or order to someone known to be infected is not to have sexual intercourse.

Trustees oppose tax dollars for condoms

By Rita Daly
TORONTO STAR

North York trustees have decided high-quality condoms will be sold to high school students, but not at taxpayers' expense.

The board of education has approved installing 40 condom machines in all 20 North York public high schools by the fall, at an estimated cost of $12,000.

But trustees will not know what the condoms will cost until they seek tenders sometime next month. They have decided to base the winning contract on the highest quality, not the lowest price.

"The question is, do you want a real cheapie . . . or do you want a Caddy?" a board official said yesterday.

A proposal to charge students 50 cents apiece for condoms was scrapped at Wednesday's standing committee meeting after several trustees complained that it might not cover the total cost of the project.

Trustee Ken Crowley said taxpayers, facing a 10 to 15 per cent tax hike in 1990, would revolt over the cost, he said.

"We're not going to shift that cost to the taxpayers," Crowley said.

A staff report says a supplier suggested 90,000 condoms could be sold annually in the schools, providing the board with a net revenue of $18,000 if the condoms were bought wholesale for 30 cents and sold for 50 cents apiece.

North York plan targets used needles

Containers for used needles are being placed in North York municipal vehicles and works yards.

"A used syringe is like a gun," Councillor Tony Perruzza, a member of the city's board of health, said yesterday.

Starting next week, all outdoor city employees will be attending a series of talks by the health department on how to handle and dispose of used needles.

City health officials are concerned about the number of syringes found in public areas resulting from a growing problem with illegal drug use.

Dr. Joan McCausland, associate medical officer of health, said an accidental stabbing by a contaminated needle could result in someone becoming infected with hepatitis or AIDS.

Severe acute respiratory syndrome: Did quarantine help?

Richard Schabas, MD MHSc FRCPC

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Quarantine, the isolation of asymptomatic individuals who are thought to be incubating infection, was a prominent control strategy used in the recent severe acute respiratory syndrome (SARS) outbreaks. A recent report about the public health efforts to control SARS in Toronto concluded that in future outbreaks "for every case of SARS, health authorities should expect to quarantine up to 100 contacts" (1).

This is a remarkable conclusion. It is one thing to resort to an unproven intervention in the crisis posed by a novel disease threat; however, it is quite another to recommend the continued use of this intervention after the dust has settled and we know, or should know, a great deal more about the problem at hand. Mass quarantine for disease control was essentially abandoned last century. Does it deserve a second look?

An outbreak should meet the following three criteria for quarantine to be a useful measure of disease control:

- first, people likely to be incubating the infection must be efficiently and effectively identified;
- second, those people must comply with the conditions of quarantine; and
- third, the infectious disease in question must be transmissible in its presymptomatic or early symptomatic stages.

The use of quarantine in the Toronto outbreak failed on all three counts.

SARS quarantine in Toronto was both inefficient and ineffective. It was massive in scale. Toronto public health authorities quarantined approximately 100 people for each SARS case, while Beijing public health quarantined about 12 people for each SARS case. An analysis of the efficiency of quarantine in the Beijing outbreak conducted by the American Centers for Disease Control and Prevention concluded that quarantine could have been reduced by two-thirds (four people per SARS case), without compromising effectiveness if authorities had "focused only on persons who had contact with an actively ill SARS patient" (2).

This analysis suggests that Toronto quarantined at least 25 times more people than was appropriate. Concerns about this inefficiency were raised quite early in the outbreak (3,4).

The Toronto quarantine was clearly ineffective in identifying potential SARS patients. At least the first 50 cases in the second phase of the outbreak were not quarantined.

Compliance with the Toronto quarantine was poor. Only 57% (13,291 of 23,103) of people quarantined were 'compliant', according to Toronto officials (1), although how this was defined

and measured is not clear. It is hard to understand how anyone could attribute the rapid and effective elimination of an infectious disease to an intervention with such low compliance.

We now know a great deal more about the natural history of SARS and its transmission. In fact, the evidence is compelling and shows that SARS is not infectious during the preclinical phase and does not become significantly infectious until the symptomatic illness is well-established. Peak infectivity is in the second week of clinical illness (5). If ever an infectious disease was ill-suited for quarantine, it is SARS.

Did quarantine work for SARS? Notwithstanding the conclusions of the Toronto public health group, I think the evidence is now overwhelming that quarantine played little or no role in controlling SARS. Furthermore, mass quarantine, as practiced in Toronto, did considerable harm by sapping public health resources and fueling public anxiety.

SARS was rapidly controlled and eradicated in Toronto and everywhere else that it appeared. Fundamentally, this is because SARS is only capable of sustained transmission in hospitals that do not suspect its presence. SARS is not capable of sustained transmission in the community (6). Case identification and isolation in hospitals is what controlled SARS. Quarantine, as such, played no role.

In the unlikely event of another SARS outbreak in Canada, public health officials should quarantine no one. Instead, they should identify and observe close contacts of cases, ie, people with a 'reasonable suspicion' of SARS. These close contacts should be isolated if, and only if, they develop symptoms consistent with the current recommendations of the World Health Organization (5).

Go to:

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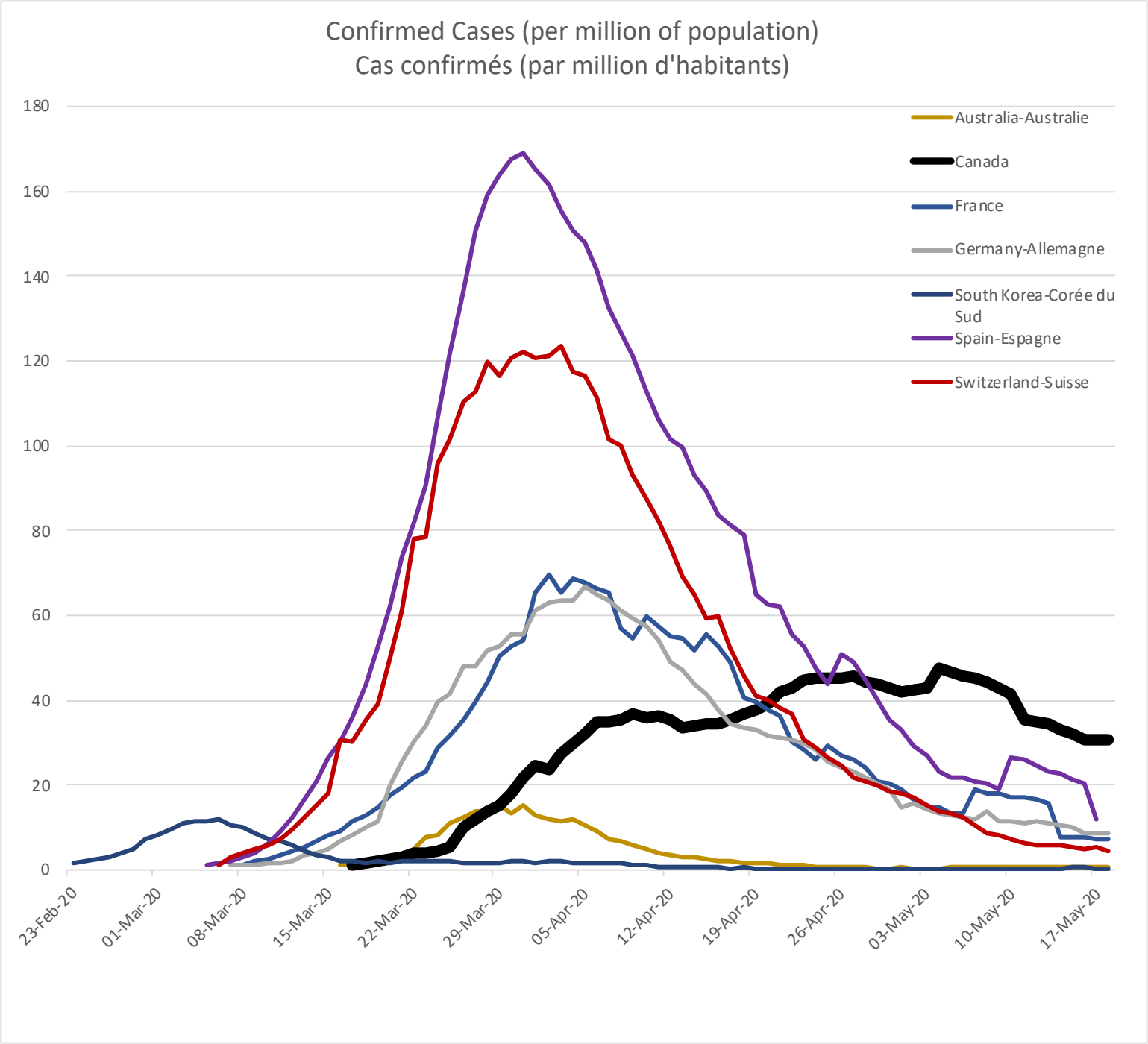
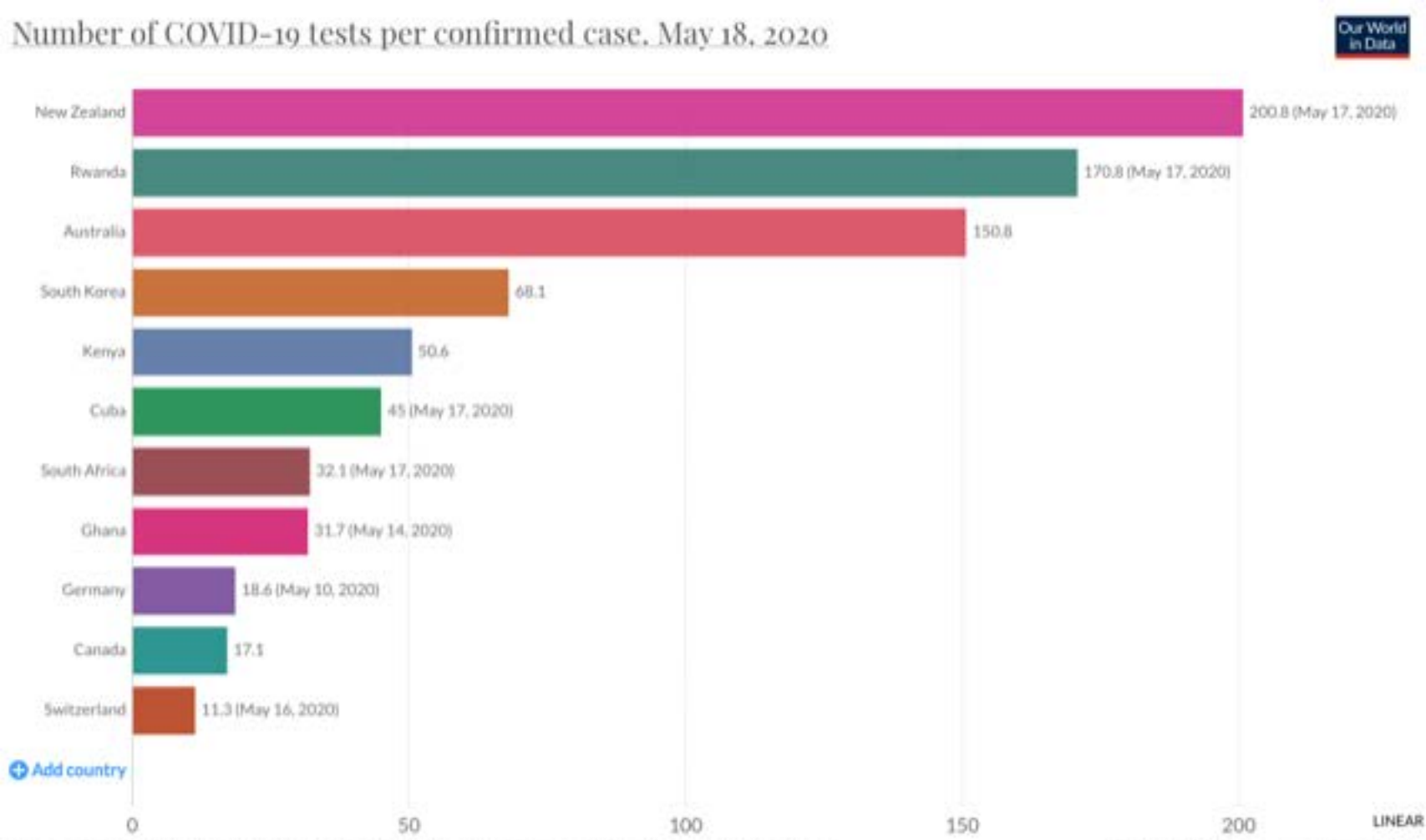

Confirmed Cases (per million of population)
Cas confirmés (par million d'habitants)
180
160
140
120
100
80
60
40
20
0
23-Feb-20
01-Mar-20
08-Mar-20
15-Mar-20
22-Mar-20
29-Mar-20
05-Apr-20
12-Apr-20
19-Apr-20
26-Apr-20
03-May-20
10-May-20
17-May-20
Australia-Australie
Canada
France
Germany-Allemagne
South Korea-Corée du Sud
Spain-Espagne
Switzerland-Suisse

Number of COVID-19 tests per confirmed case, May 18, 2020



Source: Tests: official data collated by Our World in Data. Confirmed cases: European CDC – Situation Update Worldwide
OurWorldInData.org/coronavirus • CC BY
Note: For testing figures, there are substantial differences across countries in terms of the units, whether or not all labs are included, the extent to which negative and pending tests are included and other aspects. Details for each country can be found at the linked page.