An Analysis of COVID-19 In Ontario

William M. Briggs

April 11, 2021

1 Declaration of William M. Briggs, PhD

Her Majesty the Queen in Right of Ontario v. Adamson Barbecue Limited and William Adamson Skelly.

Court File No. CV-20-00652216-0000

My name is William M. Briggs, and I received a Ph.D of Statistics from Cornell University in 2004. I am the author of about 100 professional papers, including many in biostatistics and those investigating the usefulness and performance of models. I am the author of the Springer volumte *Uncertainty: The Soul of Modeling, Probability & Statistics*, a critical work examining model overcertainty. I am also co-author of the Regnery book *The Price of Panic: How the Tyranny of Experts Turned a Pandemic into a Catastrophe.*

From 2003-2007 I was a Assistant Professor of Biostatistics in Medicine at Cornell Medical School, and an Adjunct Professor of Statistics at Cornell University from 2004-2016. I have been consulting professionally in statistics for nineteen years. Most of my clients are in medicine, such as NewYork-Presbyterian Brooklyn Methodist Hospital, where I have been teaching residents and engaging in clinical analyses.

2 Summary

Nonpharmaceutical interventions such as lockdowns, social distancing, reduced capacity in public venues and masks did nothing to slow or stop the SARS-CoV-2 virus from spreading nor did they prevent the disease COVID-19 (or COVID for short) from taking its toll, though these interventions did cause other irreperable harms.

How strange for a government to call a people and businesses "non-essential."

3 Misunderstandings

One consequential misnomer needs explanation. Media and governments report on "cases", when what is meant are positive COVID tests (of which there are

different kinds of varying accuracy). Positive tests can be generated by an enthusiasm for testing, especially from "rapid" tests[1], such as encouraging the non-sick to be tested. We saw media and government encouraging testing even when not ill; required tests for employment, etc. Widescale testing turns up marginal, slight, and asymptomatic infections, as well as false positives. Therefore, increased testing can give the impression the course of the disease is worse than it is.

The original concern, long since laid to rest, was in asymptomatic transmission, i.e. the suspicion that those with no symptoms could still transmit the disease. This was laid to rest in a large meta-analysis in JAMA of 54 separate studies, that showed, even inside households were person-to-person contact was inevitable, asymptomatic transmission was estimated at only 0.7%.[2] This number could only drop outside homes.

In medicine before 2020, a "case" was a patient requiring treatment, and registered as such, for example by admission to hospital. In the literature, there were distinctions between population fatality rates, infection (not case) fatality rates, and case fatality rates. CFRs were always larger than IFRs for the obvious reasons. During the COVID panic, many mistakes were made confusing these three rates.

Better indicators of severity exist, such as hospitalizations and directly attributable deaths. But as I and co-authors documented in *The Price of Panic: How the Tyranny of Experts Turned a Pandemic into a Catastrophe* [3], (POP), zeal in COVID attributions heightened the perception the disease was worse than it was. For instance, in England any death between between April and August 2020 with a positive COVID test at any time was listed as a COVID death.[4]

One study by the American CDC discovered the sole cause of death was COVID only about 6% of the time, the remaining deaths attributed to COVID being associated with an average of 2.7 serious comorbidities.[5]

In Ontario as late as October 2020, the "daily pandemic counts...include people who have tested positive for COVID-19 but have not necessarily died from the virus."[6] According to Vinita Dubey, Toronto's associate medical officer of health, "This means that individuals who have died with COVID-19, but not necessarily as a result of COVID-19, are all included in the case counts for COVID-19 deaths in Toronto."

Because of the difficulty in attributing cause of death, or even reasons for

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[1]Source: `https://www.aafp.org/afp/2020/0701/p5a.html`

[2]Source: `https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2774102`

[3]Douglas Axe, William M Briggs and Jay Richards, Regnery, Washington, DC.

[4]Source: `https://www.reuters.com/article/uk-factcheck-data-idUSKBN29J2TH`, referencing the official source: `https://publichealthmatters.blog.gov.uk/2020/08/12/behind-the-headlines-counting-covid-19-deaths/`.

[5]`https://www.health.com/condition/infectious-diseases/coronavirus/cdc-6-percent-covid-deaths`

[6]Source: `https://www.thechronicleherald.ca/news/canada/ontario-death-count-includes-people-who-didnt-die-of-covid-19-but-exactly-how-many-is-unknown-507544/`

admission to hospital, the number of all-cause deaths is less controversial in gauging the severity of the pandemic and pandemic response. This is shown later.

4 Modeling

COVID and coronavirus models have been relied upon heavily in public decisions. Some take these models as having low to no uncertainty, but there are excellent reasons not to award them blanket trust.

4.1 Imperial College Model

The most infamous example of a COVID prediction was the Imperial College Model, the group led by Andrew Ferguson.

The *Financial Times* said [7] Ferguson was recognized by authorities as "a big name in epidemiological modelling." Which is why his initial coronavirus model "sent a shockwave through the system in both the UK and the US, leading to the introduction of the present British policy of 'social distancing' and suppression, with its heavy economic and social costs for the public."

Their model in March 2020 predicted *40 million* worldwide deaths, including 2.2 million in US (Canada was not specifically mentioned).[8] Lockdowns, social distancing, and mask usage were already in place in some countries when this forecast was issued, but Ferguson said more were needed.

Pictured in 1 is the early Ferguson model. Notice peak deaths were forecast for May and June 2020 for the UK and US, which was wrong. The majority of deaths were to occur from April through August, which was also wrong.

They said (my emphasis), "In the most effective mitigation strategy examined, which leads to a single, *relatively short epidemic*...[and] even if all patients were able to be treated, we predict there would still be in the order of 250,000 deaths in GB, and 1.1–1.2 million in the US."[9]. The American CDC said about 675,000 died in the US from the Spanish Flu[10], which means COVID was predicted to be *about twice as bad* as the Spanish Flu during the "short [April-August 2020] pandemic", *after* a century of progress in medicine, *even with* strict restrictions.

As of 19 March 2021, there were 126 thousand UK deaths and 540 thousand attributed deaths in the US, with the rate rapidly declining.[11].

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[7]Jonathan Ford, "The battle at the heart of British science over coronavirus," Financial Times, April 15, 2020, `https://www.ft.com/content/1e390ac6-7e2c-11ea-8fdb-7ec06edeef84`.

[8]`https://www.imperial.ac.uk/media/imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-NPI-modelling-16-03-2020.pdf`

[9]Extracts from the IC model paper, analyzed at `https://wmbriggs.com/post/30383/`

[10]`https://www.cdc.gov/flu/pandemic-resources/1918-pandemic-h1n1.html`

[11]Daily US attributed deaths are here: `https://covid.cdc.gov/covid-data-tracker/#trends_dailytrendsdeaths`
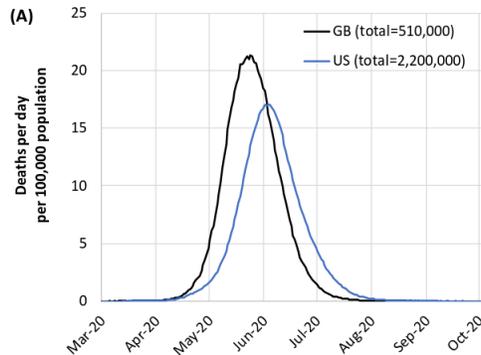
Figure 1: The early 2020 Imperial College COVID deaths prediction for Great Britain and the US. The model predicted 56 thousand deaths on a single day in the US in June 2020, and 2.2 million deaths total. That would make COVID 3.3 times *worse* than the Spanish Flu, a shocking prediction . In the figure, 17 *daily* deaths per every 100,000 in a population of 328.2 million people translates to 55,794 deaths on a single day.

Given these observations, it might not sound like Ferguson's model made terrible predictions (yet it was only off by double). But then it is recalled Ferguson's model predicted peak deaths occurring in *May and June of 2020*, with no second flu-like peak in the winter of 2020. In fact, deaths dropped to very low levels in the northern hemisphere summer of 2020, as would be normally be expected. Deaths are about half of what they said, over a much longer period, even though many localities never took the measures his model insisted upon.

The forecasted total deaths (and concomittant hospitalizations) naturally terrified those who believed the model. It should never have been believed. This is because simple calculations show the pictured forecast translates into about 14,000 deaths *per day* in Great Britain and 56,000 *per day* in the US at the June peak. The awfulness of this prediction was not recognized perhaps because of the form in which it was put. Deaths per 100,000 make it hard to translate to actual numbers.

There was another sufficient reason to distrust Ferguson's group; namely, its long dismal track record and habit of wild over-forecasts. As we document in POP:

- In 2001, Ferguson's group produced a model that called for a mass culling of animals in the UK, costing over 10 billion pounds. There were severe criticisms of this model afterwards.[12]

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[12]Steerpike, "Six questions that Neil Ferguson should be asked," The Spectator, April 16, 2020, https://www.spectator.co.uk/article/six-questions-that-neil-ferguson-should-be-asked.

- Ferguson projected as many as 150,000 would die in the UK alone from bovine spongiform encephalopathy (mad cow disease) in 2002, but only 177 died.[13]

- Again drawing on a Spanish flu analogy, in 2005, Ferguson projected up to 200 *million* people could die worldwide from the bird flu. Fewer than 300 died from 2003 to 2009, a six-year period.[14] Not coincidentally (noted in the same article), a WHO spokeswoman forecasted a "best case scenario" of 7.4 million deaths globally for the bird flu.

- In 2009, Ferguson said a "reasonable" guess was 65,000 dead in the UK from Swine flu. Only 457 died.[15]

4.2   Canadian Modeling

In Fig. 2 are the official COVID Public Health Agency of Canada projections from 15 January 2021.[16] There are three scenarios, each with projections assuming which of the different scenarios held. The first is "maintain" the restrictions that were already in place at this time (lockdowns, mask mandates, and so forth). The second is "increase" liberty of Canadian citizens, allowing them increased freedom of contact. And the last is "reduce" the few liberties left in place, further restricting movement.

The scenario that held in reality was the "maintain", as restrictions neither increased or decreased. The aggressive "reduce" scenario was not attempted. Neither was the liberty scenario of "increase" allowed.

The actual data better matched the "reduce" scenario, as can be seen in the actual number of daily "cases" and attributed deaths, seen in Figs. 3 and 4.[17] Note that the forecasts are through the end of February, and that the actual data goes trough mid March.

It's easy to see that the actual "cases" dropped rapidly at the time when the official prediction said they would rise. Most infections and deaths from flu-like diseases decrease in the spring, as will be demonstrated later in the all-cause death analysis.

The "cases" stopped decreasing in early March, but recall that "cases" are an imperfect measure, as increased testing with a constant infection rate can make it appear the virus is spreading (increased use of less accurate tests can also do this). To back this up, we examine attributed deaths, which did not become flat, and kept decreasing.

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[13]Lee Elliot Major, "BSE-infected sheep a 'greater risk' to humans," The Guardian, January 9, 2002, `https://www.theguardian.com/education/2002/jan/09/research.highereducation`.

[14]James Sturcke, "Bird flu pandemic 'could kill 150m,'" The Guardian, September 30, 2005, `https://www.theguardian.com/world/2005/sep/30/birdflu.jamessturcke`.

[15]Sturckeop.cit.

[16]Source, page 9: `https://www.canada.ca/content/dam/phac-aspc/documents/services/diseases-maladies/coronavirus-disease-covid-19/epidemiological-economic-research-data/update-covid-19-canada-epidemiology-modelling-20210115-en.pdf`

[17]Graphs made from data here, accessed 15 March 2021, `https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html`
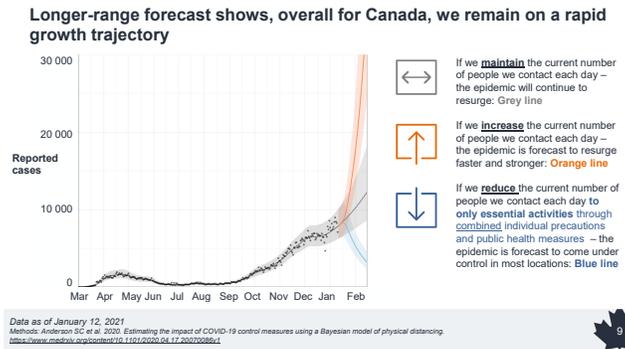
Figure 2: Official predictions under various scenarios of COVID "cases" through the end of February 2021, produced on 15 January 2021.
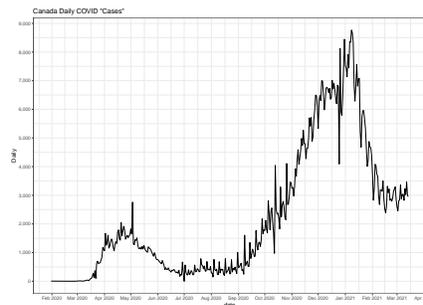

Figure 3: Canada daily COVID "cases" through mid March 2021.
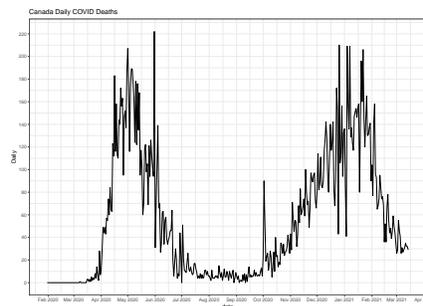

Figure 4: Canada attributed daily COVID attributed deaths through mid March 2021.

In any case, it is clear Ferguson's forecast was blown and never should have been believed.

4.3   Lockdown Model

The only evidence for lockdowns and other nonpharmaceutical interventions have been models, which all begin by *assuming* lockdowns (and other measures) will slow infection rates. Models based on this assumption predict reduced "cases", reductions which are taken as proof lockdowns work. The reasoning is circular. It's never recalled that lockdowns working was an assumption of these models. We examined this in detail, including the origin of the "social distancing" (not recommended by the WHO as late as 2019) in POP.[18]

Below are several comparisons of localities with and without lockdowns. There is no evidence from these that lockdowns work. And indeed, some policies, like New York's nursing home policy, are responsible for greater deaths. This has been investigated in POP, and also in papers. One *Nature: Scientific Reports* paper examined 87 regions around the world, which resulted in 3741 pairwise comparisons between lockdowns and non-lockdowns. Their conclusion: "we were not able to explain if COVID-19 mortality is reduced by staying at home in $\sim 98\%$ of the comparisons after epidemiological weeks 9 to 34." [19]

4.4   Masks

Space does not exist for a complete literature review of the efficacy of masks. But like with lockdowns, two broad study types exist: those based on observation of masks in the general public, and those (like lockdowns) based on theory, which assume masks work, and then make projections based on this assumption, projections which are used to justify mandates.

Two papers are sufficient to give the idea. The first is from 1919, one of several written after the Spanish Flu, investigating the use of mask mandates, which were in force in certain localities.[20] After noting that "the highly infectious nature of the respiratory infections adds to the difficulty of their control", a fact which has not changed, the paper noted, "It is not desirable to make the general wearing of masks compulsory." The paper also recommended that the ill themselves be quarantined, which as ever is sensible, but there was no recommendation to isolate the healthy, as in lockdowns.

The best current paper is a direct study of the use of masks in people *trained* in using them. This is the Danish study where some participants were given *surgical masks* and taught to use them properly (change when moist, etc.), advantages most won't have, and some participants walked about at liberty. The study concluded there was no difference in COVID infection rates in the two groups.[21].

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[18]POP, chapter 7, "The Blind Models".

[19]Source: https://www.nature.com/articles/s41598-021-84092-1

[20]G.A. Soper, 1919, The Lessons of the Pandemic, Science, v. 49, p 501-506.

[21]Source: https://www.acpjournals.org/doi/10.7326/M20-6817

5   All Cause & COVID Deaths

Fig. 5 shows the weekly all cause deaths in black, and the attributed COVID deaths in red, from 2010 through mid March 2021.[22] From this several things are immediately clear. Deaths from all causes always peak around or just after the new year, reflecting the time soon after people spend more time indoors. Deaths are at their lowest in summer. This is well known in the medical literature. One paper said, "In the 1970s scientific research focussed for the first time on dramatic rises in mortality every winter...Following the recent decline in influenza epidemics, approximately half of excess winter deaths are due to coronary thrombosis. These peak about two days after the peak of a cold spell. Approximately half the remaining winter deaths are caused by respiratory disease, and these peak about 12 days after peak cold."[23] That signal in clear in the data, including the 2020-2021 winter.
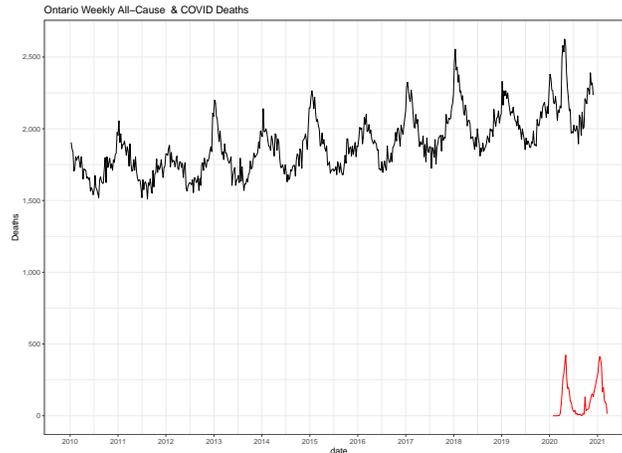

Figure 5:   Ontario attributed weekly all cause and COVID attributed deaths from 2010 through mid March 2021.

Deaths from all causes have been increasing, at least due to an increasing an aging population.[24] There is a variability in the deaths, with some years have higher peaks and some lower, even after accounting for population increase.

The initial bump in April 2020, in part due to COVID, is obvious. Ontario as of mid-March 2021 has not yet reported the total all cause deaths for any

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[22]Source: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310076801&pickMembers%5B0%5D=3.1&cubeTimeFrame.startDaily=2010-01-01&cubeTimeFrame.endDaily=2021-03-15&referencePeriods=20100101%2C20210315

[23]W.R. Keatings, 2002, Winter mortality and its causes, International Journal of Circumpolar Health, vol. 61, p 292-299, https://www.tandfonline.com/doi/abs/10.3402/ijch.v61i4.17477

[24]Statista estimates the median Canadian age in 2000 was 36.8, rising to 40.9 by 2020. https://www.statista.com/statistics/444844/canada-median-age-of-resident-population/

dates in 2021. COVID attributed deaths are available, and in scale with the remaining deaths.

Another way to look at this same data is in Fig. 6, which shows the all cause mortality per week, with 2020 highlighted in bold red. The all cause minus COVID deaths are shown as a dashed red line.
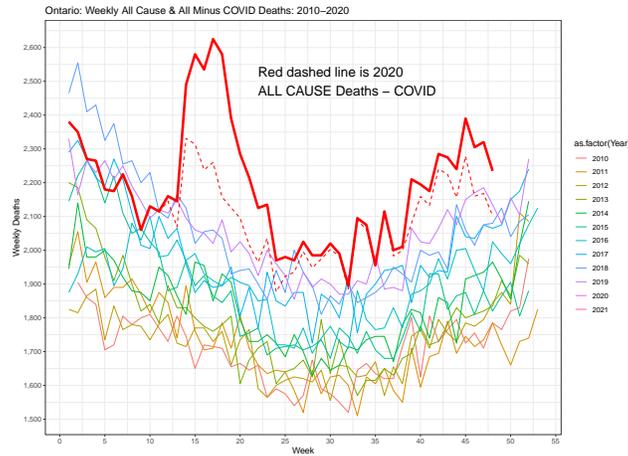

Figure 6: Ontario attributed week on week all cause and all cause minus COVID attributed deaths from 2010 through mid March 2021.

It's clear deaths at the beginning of 2020 were much lower than expected, which were made up in April, and later at the beginning of winter. The later-year peaks were not just COVID, however, and included spikes in deaths from other causes.

Fig. 7 shows the yearly all cause deaths (black) for Ontario, from 2010 through November 2020. A simple regression (dashed red) using data from 2010-2019 is used to predict the total of 2020, since data is yet incomplete. This model assumes COVID is absent. This simple model shows total deaths increase about 3% a year.

Even without COVID, and assuming the average increase, Ontario deaths were expected to be just under 110 thousand, with a 95% prediction range of about 108 to 111 thousand.

Through November 2020, the actual total 2020 deaths were just over 105 thousand. We want to guess what the total 2020 deaths will be, adding a guess of December 2020 deaths to the total through November. Given most deaths in every year occur in December and January, and assuming a 3% increase from December 2019, we can calculate an expected number of deaths for December 2020 of about 11.3 thousand deaths.

That means the expected 2020 deaths are about 105.3 thousand (through November) + 11.3 thousand (estimated December) = 116.6 thousand. That is slightly larger than the total forecasted using only the years 2010-2019 (the
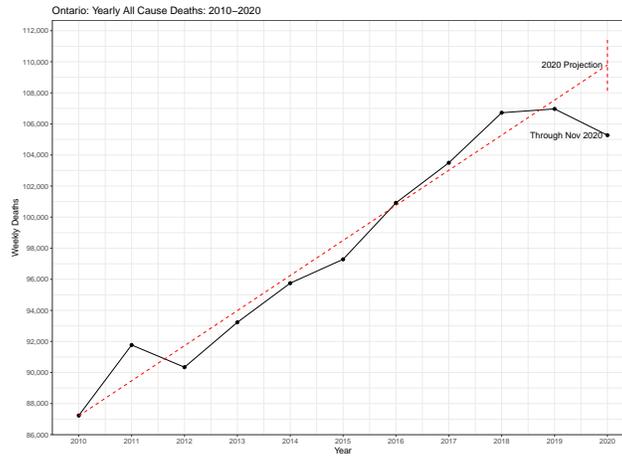
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Figure 7: Ontario yearly deaths through from 2010 through November 2020, with a projection to 2020 considering the absence of COVID. A simple regression using data from 2010-2019 is used to predict the total of 2020, since data is yet incomplete. This model assumes COVID is absent.

no-COVID model), which again was just under 110 thousand. The "extra" or "excess" deaths due to COVID (the disease plus its reactions) is thus about 117 (2020 estimated) - 110 thousand (the no-COVID projection) = 6,800, with a 95% prediction window of about 5,100 to 8,500 (all numbers rounded).

It is important to stress that the 6,800 "excess" deaths are *not* solely caused by COVID, but by that disease and "solutions" like lockdowns.

This analysis is not markedly different than one provided by Statistics Canada for the whole country.[25]

They say, "From January to mid-December 2020, there were an estimated 296,373 deaths in Canada, representing an excess of 13,798 deaths above and beyond what would have been expected had there been no pandemic." And "The direct impacts of COVID-19 cannot fully account for the excess deaths observed in Canada in 2020, particularly in the fall".

And, "The number of deaths was 24% higher than expected for men aged under 45, followed by women aged 45 to 64, who recorded 14% more deaths than expected." This is important because COVID generally kills the old and infirm. Some 92.6% of all attributed COVID deaths (in all Canada) were in individuals 80+ years old, and a further 7% in the ages 70-79.[26]

This is contrasted with the life expectancy from birth. Figures vary slightly depending on the source, but in Canada it has been steadily rising, from 39 years (averaged over both sexes) in 1800 up to 82.2 years in 2020, an increase

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[25]Provisional death counts and excess mortality, January to December 2020, `https://www150.statcan.gc.ca/n1/daily-quotidien/210310/dq210310c-eng.htm`

[26]Source, Fig 5. `https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html`, as of 19 March 2021.

from 81.8 years in 2019 even during the pandemic.[27]

Statistics Canada emphasized that "As these shifts imply an increase in deaths not directly caused by COVID-19, it is important to note that some deaths may be due to the indirect consequences of the pandemic, which could include increases in mortality due to overdoses." And, for instance, ", the number of deaths caused by heart disease in Ontario rose from 4,125 in the spring of 2019 to 4,345 in the spring of 2020, which was higher than in the spring of any of the previous five years".

Another example. There are other indicators that suicides might increase in 2020 and 2021.[28] Suicide ideation is up. Prepandemic levels of suicide ideation were 2.6% in Canada, and were up to 10% during the lockdowns.[29] Acutal suicide data runs complete only through 2019 and can't yet be compared by age group for 2020 with previous years.[30]

In the Canada COVID-19 Weekly Epidemiology Report for 14 March to 20 March 2021[31], there is a breakdown of where COVID deaths were found. As of the report date, 13,518 total deaths were noted across Canada by source (not all attributed deaths also report a location). Not surprisingly, the majority, or just under 92% (12,372 in total), where recorded in "Long term care and retirement residences". The next largest, at 6%, was in healthcare. The remaining 2% were spread across other areas. For instance, 3 (3 *total*, not percent) were found in "Food/drink/retail", 0 (zero) in "Personal care", 1 (again, 1 *total*) in "School & Childcare Centre".

It is helpful to contrast these with other causes of death. For instance, there were 1,922 traffic fatalities in Canada in 2019.[32], which is 67% more than all the reported non-Longterm care COVID deaths. The government could, of course, lockdown all roadways and eliminate these deaths.

In Ontario in 2015, there were 6,364 accidental deaths.[33]. Since many of these deaths occur in the home, to prevent them would require keeping people out of their homes, the opposite of lockdowns.

To repeat, the number of COVID deaths in Food/drink/retail was 3, which matches the average number of deaths by lightning strike in Canada.[34]

It is difficult to find numbers to rival the 0 (zero) COVID deaths at School

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[27]Source: https://www.statista.com/statistics/1041135/life-expectancy-canada-all-time/. The United Nations - World Population Prospects has similar figures, also showing an increase in 2020. https://www.macrotrends.net/countries/CAN/canada-life-expectancy

[28]Sources: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7236718/, https://www.nature.com/articles/s41562-020-01042-z

[29]Source: https://www.thestar.com/news/gta/2020/12/05/one-in-10-canadians-say-theyve-contemplated-suicide-since-the-pandemic-began.html

[30]Source: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310039401

[31]Source: https://www.canada.ca/content/dam/phac-aspc/documents/services/diseases/2019-novel-coronavirus-infection/surv-covid19-weekly-epi-update-20210326-en.pdf

[32]Source: https://www.cacp.ca/index.html?asst_id=2143

[33]Source: https://www.publichealthontario.ca/en/data-and-analysis/injuries-data/injury-mortality

[34]Source: https://www.canada.ca/en/environment-climate-change/services/lightning/safety/fatalities-injury-statistics.html

& Childcare Centres, but there was a death of a student in a technology class in Ottawa in 2011.[35]

In Ontario, according to the official weekly update, there were as of 20 March 2021 2 COVID deaths of those 19 years old and under, and 33 ages 20-39. To contrast, in Ontario in 2015 (the latest date available), there were 192 accidental deaths of those 19 and under, and 1,372 accidental deaths of those 20-44, the closet comparison demographic. There were 304 COVID deaths in those 40-59, and 1,576 accidental deaths in 45-64 year olds. Most COVID deaths were in the 80+ group, the people least likely to be at work, school, and so forth.

Ontario (population 14.5 million) or all Canada (population 37.6 million) may be contrasted with no-lockdown Florida (population 21.5 million). As of this date, in Florida there have been 1 attributed COVID death in ages 0-5, 5 attributed deaths in ages 6-12, 7 attributed deaths in ages 13-18, 19 attributed deaths in ages 19-23. As everywhere else, the bulk of the attributed deaths are in elderly: 82% are in ages 66+.[36]

6   Lockdowns

In Fig. 8 are the Ontario attributed weekly COVID deaths, overlaid with indicators of certain government actions.[37]

Attributed deaths rose rapidly even after the first lockdown. They were already falling when the mask mandate occurred (including "social distancing", reduced capacities in public venues, and so on). Deaths were low over the summer, as would be expected for most weather-related communicable diseases (such as flu). The lockdowns were not in place, but the mask mandates were when attributed deaths began rising in the fall of 2020, as deaths from communicable diseases do every year.

Clearly, either the masks did not stop the spread of infection, or the spread would have been much worse. The same is true of lockdowns. Both theories are possible, but if the "mask+lockdown work" theory is true, we should see this in comparisons of areas without these restrictions.

Shown in Fig. 9 are the weekly attributed COVID death rate per 100,000 population, arranged in decreasing order (from left to right, top to bottom) of lockdown severity, as calculated by the Blavatnik School of Government at Oxford university.[38] This was calculated on a weekly basis, and so there is some subjectivity in this plot. However, of these countries the Oxford score shows the UK had the harshest and longest lockdowns, followed by Ontario and Belgium, whereas Denmark and Sweden had very light restrictions, and Japan none at

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[35]Source: https://ottawa.ctvnews.ca/eric-leighton-s-death-ruled-accidental-at-inquest-1.1759311

[36]Source: Floriday COVID-19 Deaths by Age Groups, https://business.fau.edu/covidtracker/data/florida-data/

[37]Source: https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html

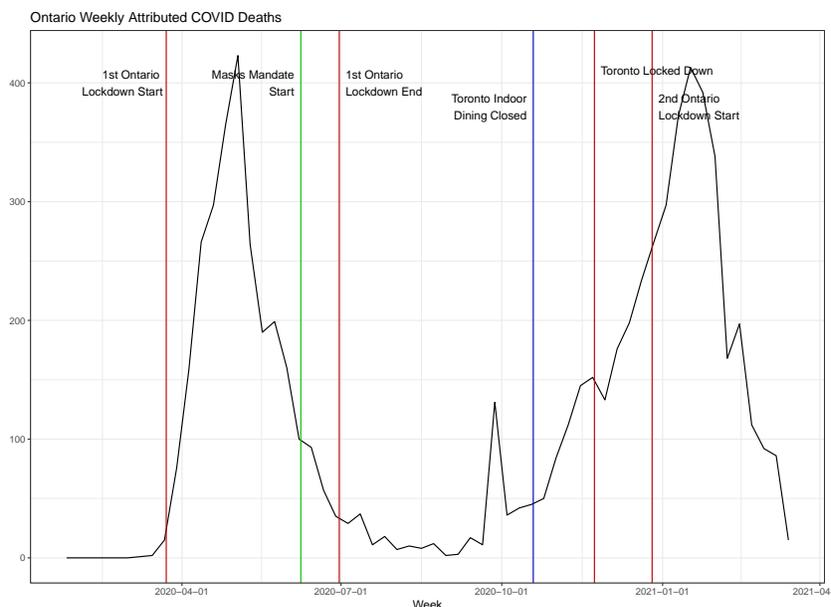[38]Source: https://ig.ft.com/coronavirus-lockdowns/

Figure 8: Ontario attributed weekly COVID deaths, overlaid with indicators of certain government actions.

all until recently, except for travel into the country.[39]

Eurostat, the EU statistics agency, reported "Sweden had 7.7% more deaths in 2020 than its average for the preceding four years. Countries that opted for several periods of strict lockdowns, such as Spain and Belgium, had so-called excess mortality of 18.1% and 16.2% respectively."[40] And "Twenty-one of the 30 countries with available statistics had higher excess mortality than Sweden."

Another country not shown, but like Japan with no lockdowns, is Taiwan (pop 23.6 million), which had 8 COVID deaths (*in total*; some sources report 10). Indeed, east Asians countries, especially those close to the equator, had low death rates. Indonesia, the Philippines, Thailand, Vietnam for example, ranked far below European and American countries in death rates.[41] This indicates genetic reactions to the disease (for better or worse) have not yet been well explored.[42]

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[39] About Japan: "Japan's virus state of emergency is significantly looser than lockdowns elsewhere in the world." https://www.dw.com/en/coronavirus-digest-japan-extends-state-of-emergency-months-before-olympics/a-56411830

[40] Source: https://www.reuters.com/article/us-health-coronavirus-europe-mortality-idUSKBN2BG1R9?taid=605b506d9d53350001994fe3

[41] Source: https://www.worldometers.info/coronavirus/, ranked by deaths per million.

[42] For example, S. Zhou et al., "A Neanderthal OAS1 isoform protects individuals of European ancestry against COVID-19 susceptibility and severity", 2021, Nature Medicine, https://www.nature.com/articles/s41591-021-01281-1. Also H.H. Musa et al., "Addressing Africa's pandemic puzzle: Perspectives on COVID-19 transmission and mortality in sub-
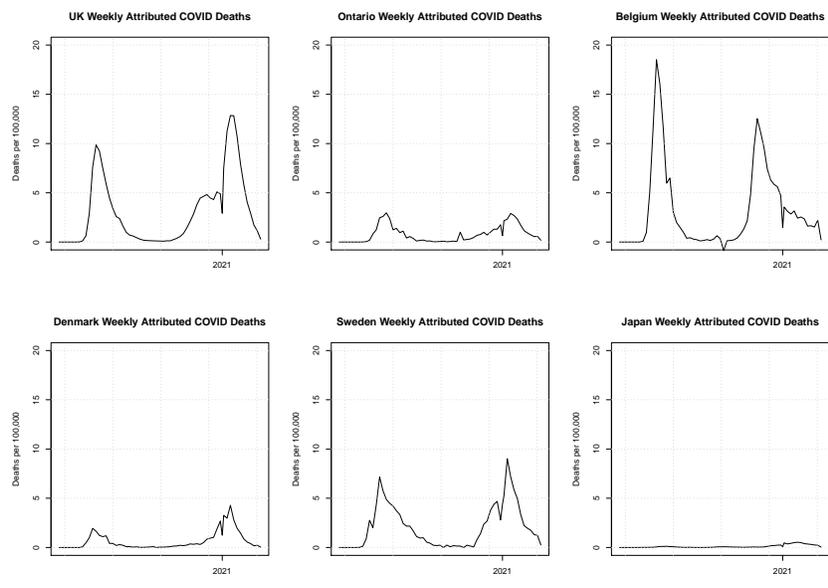
Figure 9: The weekly attributed COVID death rate per 100,000 population for various countries, arranged in decreasing order (from left to right, top to bottom) of lockdown severity, as calculated by the Blavatnik School of Government at Oxford university. The small dip is caused by a 2020 "week 53", which sometimes occurs when the new year begins midweek.

A comparison in the United States. Figure 10 shows the weekly attributed COVID death rate per capita for six US states. The left column (California, New York, and North Dakota) all had serious lockdowns. The right column (Texas, Florida, North Dakota) did not have lockdowns, or have removed them. The "600" at NY is the spike caused by the policy to shop COVID-positive patients to nursing homes, resulting in many deaths.[43]
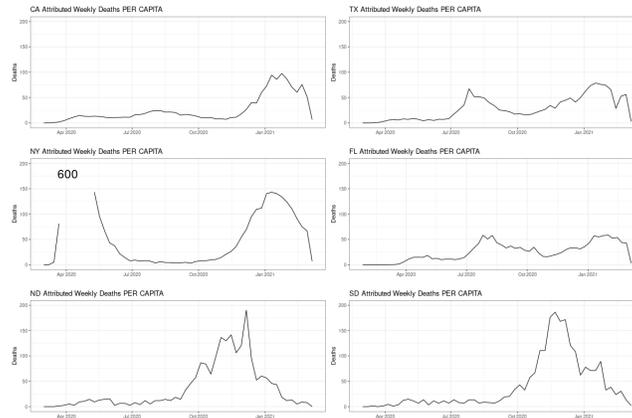

Figure 10: The weekly attributed COVID death rate per capita for six US states. The left column (California, New York, and North Dakota) all had serious lockdowns and mask mandates. The right column (Texas, Florida, North Dakota) did not have lockdowns, or have removed them. The "600" at NY is printed to keep the axes with the same limits.

The point of all these graphs, between countries and within, is to show the lockdowns and mask mandates have little to no bearing on the course of attributed COVID deaths.

Other government policies, like New York's decision about moving positive patients to nursing homes, were consequential. Instead, the weather, genetics, and now the increasing availability of vaccines appear to have much more influence. Indeed, there is no positive evidence for lockdown or mask efficacy except that provided by models, as noted above.

The United Nation's *Direct and indirect effects of the COVID-19 pandemic and response in South Asia* estimated COVID responses "may have led to 239,000 maternal and child deaths" in " in Afghanistan, Nepal, Bangladesh,

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Saharan Africa", International Journal of Infectious Diseases, Volume 102, January 2021, p 483-488, https://www.sciencedirect.com/science/article/pii/S120197122032172X. Both papers suggest two populations less at risk.

[43]The "state attorney general, Letitia James, said it's likely that the Cuomo administration failed to report thousands of Covid-19 deaths of nursing home residents." And "Ms. James's report had suggested that the state's previous [COVID] tally could be off by as much as 50 percent." New York Times, https://www.nytimes.com/2021/01/28/nyregion/nursing-home-deaths-cuomo.html

India, Pakistan and Sri Lanka (home to some 1.8 billion people)",[44] among other deleterious outcomes. A second UN report[45] "estimated that an additional 207 million people could be pushed into extreme poverty over the next decade due to the long term impact of lockdowns."

7 Other Pandemics

According to the American Center for Disease Control (CDC), the 1957-1958 Asian Flu pandemic killed as many as 4 million people worldwide, when the earth's population was just under 3 billion. They also estimated the 1968 Hong Kong Flu killed as many as 4 million, when the earth's population was about 3.53 billion.

So far, attributed worldwide COVID deaths are about 2.7 million, with population about 7.67 billion people.

Even in raw numbers, these earlier pandemics were deadlier, but in relative terms they were much deadlier. Asian Flu killed 0.13% of the world's population, Hong Kong Flu about 0.11%, and COVID is now at 0.035%. Even if COVID matches the Asian Flu's total, which is unlikely given how rapidly deaths are decreasing, the percentage only grows to 0.052%, half as deadly as the earlier pandemics.

The US CDC estimated as many as 575,000 from H1N1, or Swine Flu, in 2009. In one sense this pandemic was worse, because many of the deaths were in the very young. That death toll that increases yearly, too, as the H1N1 flu virus has never left us.[46]. Indeed, the WHO tracks 8 variants of flu.[47] The WHO also estimates there are as many as 650,000 killed every year by flu.[48] There is rarely any panic over this huge number, however.

The obvious point is that there were no panics in these earlier outbreaks. And they went away without government interventions.

During the Spanish flu, the Canadian government said "approximately 55,000 people in Canada" were killed, when the population was about 7.2 million.[49] This gives a death rate of 7.2 per thousand. For COVID, with a current Canada population of 37.59 million and (rounding up) 23,000 attributed COVID deaths (so far), gives 0.6 per 1,000[50]. The Spanish flu was therefore about 10 times worse.

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[44]Source: https://www.sott.net/article/450288-Lockdowns-killed-228000-children-in-South-Asia-says-UN-report and https://www.unicef.org/rosa/media/13066/file/Main%20Report.pdf

[45]Source: https://news.un.org/en/story/2020/12/1079152

[46]Source: https://www.cebm.net/covid-19/covid-19-deaths-compared-with-swine-flu/

[47]Source: https://apps.who.int/flumart/Default?ReportNo=10

[48]Source: https://www.who.int/influenza/surveillance_monitoring/bod/WHO-INFLUENZA-MortalityEstimate.pdf

[49]Source: https://www.pc.gc.ca/en/culture/clmhc-hsmbc/res/information-backgrounder/espagnole-spanish

[50]As of 21 March 2021