

# The Covid Report

By Nelle Maxey

*"Of all tyrannies, a tyranny sincerely exercised for the good of its victims may be the most oppressive...This very kindness stings with intolerable insult. To be "cured" against one's will and cured of states which we may not regard as disease is to be put on a level of those who have not yet reached the age of reason or those who never will; to be classed with infants, imbeciles, and domestic animals."*

– C.S. Lewis, *God in the Dock: Essays on Theology*  
Published Posthumously, 1974

Nelle is the proprietor of Maximum Graphics where she offers technical writing, illustration, graphic design, electronic publishing and administrative services. Over the 25 years of running her business she administered three non-profit trade societies and worked with technical committees to develop and produce [training manuals](#) for residential heating and cooling contractors. The worksheets in these manuals are used for residential inspections by many regional district and city inspection departments in British Columbia. She has also illustrated four children's [books](#). Nelle has retired to the Slocan Valley, British Columbia, where her four unvaccinated grandchildren and two of her three children live. She volunteers her skills to Vaccine Choice Canada and has researched and written a number of reports for VCC including the [Vaccine Safety Report](#) series and the 2019 [Measles in Canada](#) report.

## Part I. Looking at the Covid Data

**Empirical scientific data** is claimed as the basis for the policy decisions that have been made by many levels of government in Canada and around the world regarding the novel corona virus pandemic. Therefore, it is necessary to examine the data being used to establish those actions. “What are we really looking at?” is the paramount question.

### Science or Statistics?

The Latin and Greek roots of the word **empirical** trace back to [empirics](#): “An empiric was a member of an ancient sect of doctors who practiced medicine based exclusively on experience, as contrasted with those who relied on theory...” Whereas, the [etymology](#) of the word **statistics** is from the “German *Statistik*: study of political facts and figures, from New Latin *statisticus*: of politics, from Latin *status*: state.”

In relation to science, *empirical* is [defined](#) as “capable of being verified or disproved by observation or experiment”. Further, [to verify](#) is defined as “to establish the truth, accuracy, or reality of”. This is the basis of all scientific inquiry. Using the [scientific method](#), research scientists define a problem, propose a hypothetical solution, and design an experiment to verify or disprove that hypothesis using empirical data. If the theory is disproved, a new theory is proposed and a new experiment is designed. If the original hypothesis is verified by the experiment, the result is considered **scientific proof** of the original theory.

Statistics are different. They are math, not science. [Statistics](#) are defined as “a branch of mathematics dealing with the collection, analysis, interpretation, and presentation of masses of numerical data”. Statistical data may show meaningful correlations that scientists use as clues to establish theories and experiments to prove causation. But statistics, in and of themselves, **do not and cannot prove anything ever**, because correlation is not causation.

Epidemiological models are statistical in nature. They posit **probable outcomes**, or “best guesses”, dependent on the assumptions and data fed into them. They are not science *per se* even though they are almost always referred to that way by government bureaucrats, elected officials, in the media and even sometimes by statisticians themselves. Though these models are not actually predictive, they are used to make policy choices.

This distinction between science and statistics is important to understand as it was statistical modelling, not science, that led to social control strategies implemented around the world. It is also why British Columbia’s Provincial Health Officer, Dr. Bonnie Henry, stated there was “no scientific evidence” for social control measures in one of her televised Covid-19 status reports. She knows the difference between statistical modeling and scientific studies as the co-author of a 2011 review paper, [Social Distancing as a Pandemic Influenza Prevention Measure](#). It references 79 studies on these measures. As the introduction states: “*Despite the importance given to SD [social distancing] measures in influenza pandemic plans, there is limited evidence on the effectiveness of such interventions.*” The paper even suggests, “*Resources should instead be dedicated to case identification and patient treatment and isolation.*”, which points to the mitigation or herd immunity approach to pandemic control. [Dr. Johan Giesecke](#) agrees with Dr. Henry. He is a Swedish physician and epidemiologist, the former State Epidemiologist for Sweden, former Chief Scientist for the European CDC and currently an advisor to Sweden on their pandemic plan. In this April 30 [interview](#) he says: [Emphasis ours]

“...the Swedish government, decided early in January that the measures we should take against the pandemic should be **evidence-based**. And when you start looking around for the measures that are being taken now by different countries you find that very few of them have the shred of evidence base. But one we know, that’s known for a hundred and fifty years or more, and that is washing your hands...But the rest, like border closures, school closures, social distancing, there’s almost no science behind most of these.”

Again agreeing with Dr. Henry, he continues:

**“...our most important task is not to stop spread, which is all but futile, but to concentrate on giving the unfortunate victims optimal care.”**

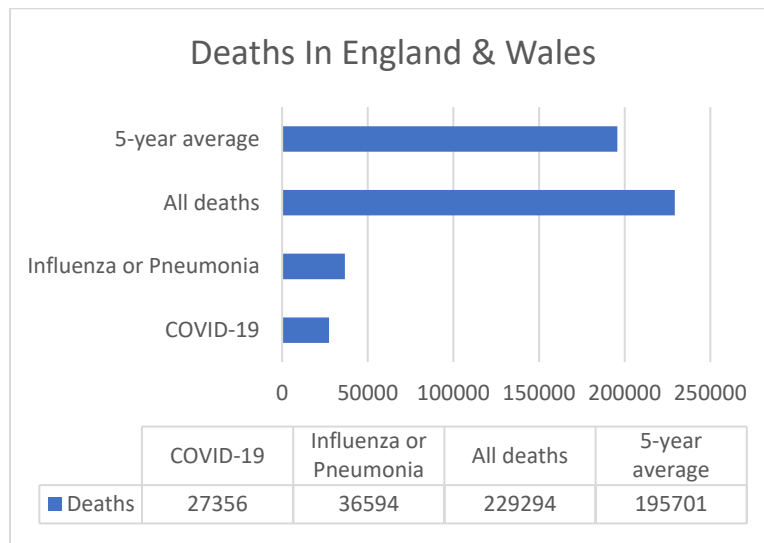
### Access to Health Data is a Problem in Canada

Government agencies in Canada are responsible for collecting and disseminating medical and health related data. Statistics Canada, Health Canada (through various arms) and the Public Health Agency of Canada (PHAC) collect and distribute almost all of the health-related statistics and surveillance data. But the Canadian government health data is largely **not current**. For some reason it takes our government 2 to 3 years to update statistical information. The [Statistics Canada Mortality tables](#) are stuck at 2018. The [Notifiable Diseases](#) database is stuck at 2017. The [last annual report](#) on adverse reactions to vaccines was for 2017 data. This makes it impossible for citizens to access current information, except certain Covid-19 data of course.

In a feeble attempt to address this issue, Statistics Canada released a mortality report discussed in this May 13 Globe and Mail article, [Statistics Canada mortality report too limited in data to be useful during pandemic, experts say](#). Wayne Smith, Statscan’s chief statistician from 2010 to 2016 said, “*They’re basically saying, Here’s what we’ve got, and here’s why you shouldn’t believe any of it.*”

Nowhere, will we find Canadian government data publicly available as it is in this UK chart—which tackles the question of influenza/pneumonia deaths vs. covid deaths vs. all deaths so far this year vs. excess deaths above the 5-yr average. Source for the chart: UK Office of National Statistics, Weekly [Covid-19 statistical data](#). The latest publication on May 5, 2020 was for the week ending Apr 26.

### Year-to-date analysis for deaths registered in England and Wales, 2020



- So far in 2020 there have been 33,593 excess deaths (above the 5-year average)
- Influenza/Pneumonia deaths have exceeded Covid deaths to date

## When Infections become Diseases

Language is a powerful tool. One of the more disturbing trends in the “new covid-normal” is the redefinition (or misuse) of many medical terms, standards and processes. These changes are largely promulgated by the WHO and adopted by national, regional and local public health officials.

This has profound effect on the data being presented by governments and media and on the public’s understanding of what is being presented. Below are three areas where liberties are being taken with the concepts of disease testing, disease standards and various medical/epidemiological processes. When definitions are changed, especially if the changes are not acknowledged, confusion reigns.

### PCR Test: Fit for Purpose?

The main statistics being flashed across TV screens and in media headlines are the numbers of cases and deaths due to Covid-19 infection caused by the SARS-Cov-2 virus. In the beginning of the outbreak (though not exclusively today), the most important statistic—the number of cases—was defined as confirmed by testing. The test used, qRT-PCR (qualitative, rapid-time, polymerase chain reaction), is said to confirm the SARS-COV-2 virus presence in a patient sample. More generally, in the media and in public health press releases and in the literature, this test is referred to as a [PCR test](#) or an **antigen test**.

However, the RT-PCR, is **not actually an antigen test**, as it does not test for the SARS-COV-2 virus (the antigen) itself. Rather it tests for the presence of viral genetic material, i.e., RNA ([ribonucleic acid](#)). Thus, it is sometimes also referenced as a nucleic acid test or a molecular test. There are scientific concerns regarding the use of this complicated and error-prone process as a diagnostic tool, notably as it was never intended for this purpose.

**This is especially concerning as the PCR test is the basis for the entire covid data-pyramid beginning with total cases determined by PCR testing, deaths from those cases, recoveries from those cases, hospitalizations from those cases, age groups in those cases and actual active cases. Total case numbers are also used for other epidemiological metrics like severity and prevalence.**

At the same time, since the test was only used on serious symptomatic cases, we have absolutely no idea how many people experienced infections including non-hospitalized serious, mild or even asymptomatic cases, all of whom would be immune. These cases will be many times more than the reported “total” cases. The real epidemic (defined by the greatest number of cases) is **not particularly virulent** and is going on **silently** in the population.

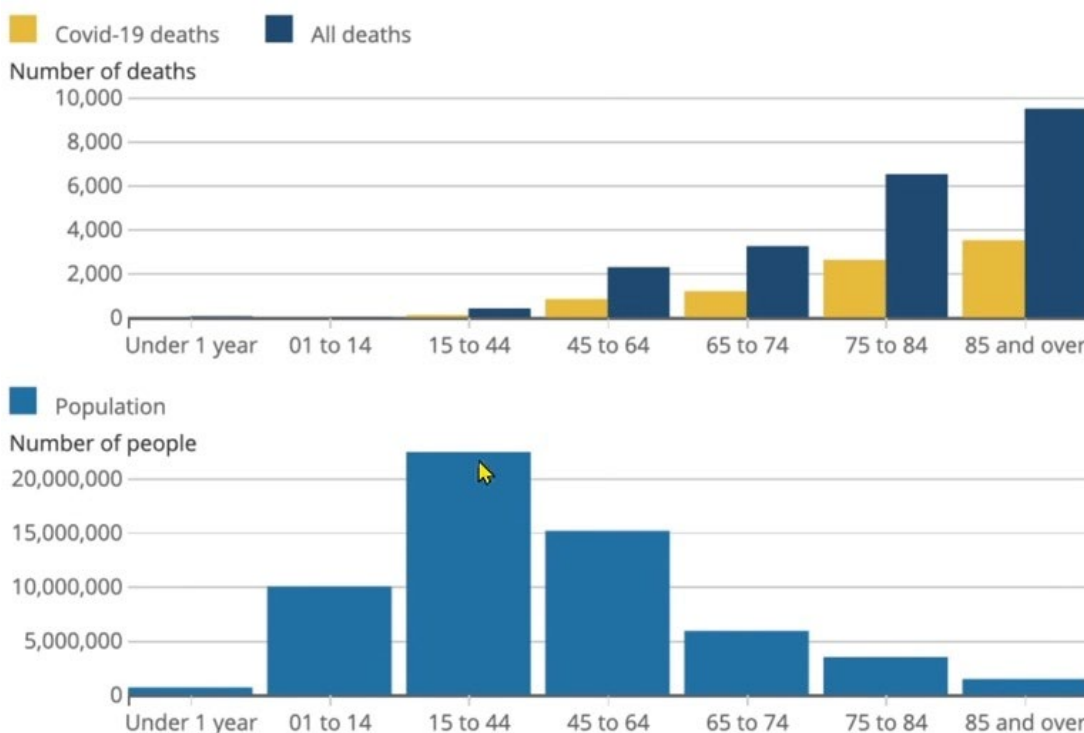
**There are other problems with the RT-PCR test.** It is not a “yes or no” binary test. Results depend on an **arbitrary** number of cycles (the Ct number) to determine infection. False positive tests are of particular concern as they incorrectly inflate the case numbers. False negatives are also a problem. A testing process with a **high false discovery rate** (both positive and negative tests) and a **specificity rate** that detects a virus **other than** the SARS-CoV-2 target in **15% to 20%** of the tests places the entire rationale for using this test as a diagnostic tool for Covid-19 in jeopardy.

The PCR process itself, problems with infection interpretation and how false positive tests affect many other epidemic calculations are detailed in *Appendix A Testing*. There is also a discussion of anti-body testing, which is the proper diagnostic test to use, especially at the stage of the epidemic we are in now. Only when we can more accurately estimate the true total number of cases through anti-body testing to include untested cases, will we be able to generate epidemiologic data that is meaningful to our understanding of this virus and its effect on human populations.

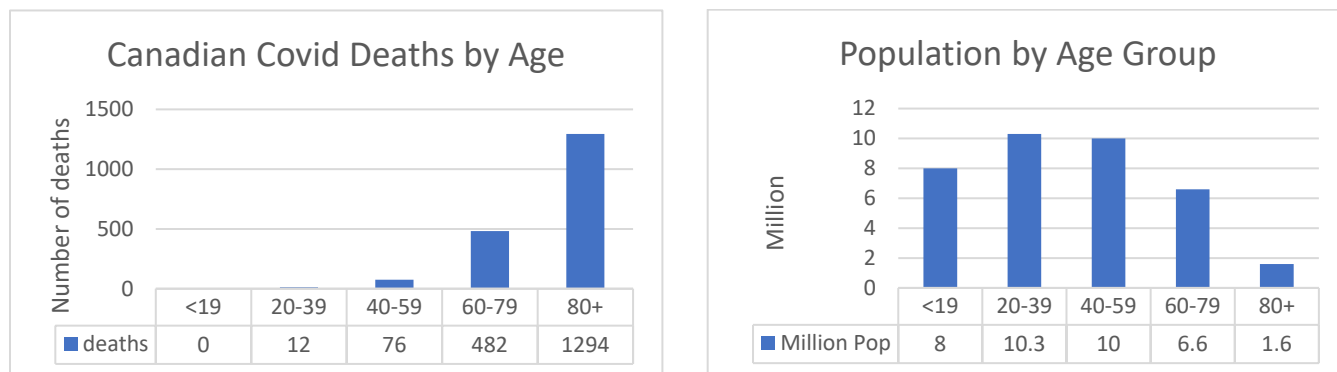
## The Silent Epidemic

By testing only the most seriously ill with the PCR tests, the data is not available on how many cases there actually are in Canada or anywhere else. This can be inferred from death data. In this chart from the UK one can see how few covid deaths are occurring in the population under 65. With all the shock about elderly deaths, one wonders when we forgot that the old die and always first in epidemics? (This, of course, is why the fragile must be protected, not abused, by the care system they find themselves in.)

Deaths by age group, England and Wales, week ending 24 April 2020



Below, in comparison to the UK chart, are Canadian Charts for May 9, 2020 data. Canadians have no access to current 'all deaths' data for comparison to covid deaths. But in other respects, the charts are similar: only a small portion of the population is experiencing deaths from Covid-19.



12 deaths among 10.3 million 20-39 year olds, 76 deaths among 10 million 40-59 year olds and even 482 deaths in 6.6 million 60-79 year olds are incalculably small percentages. For the 1.6 million who are 80 years old and older, 1294 deaths are 0.08% of that population, meaning 8 in every 10,000 die.

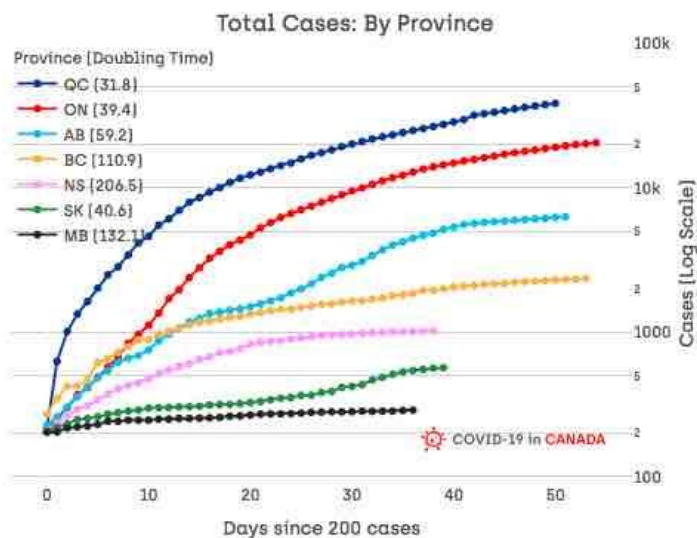
### WHO Guidelines: Changing Standards

WHO (the World Health Organization) establishes public health standards that are explicitly adopted by countries, including Canada and the USA. These standards, including case definitions for diagnostic purposes and causes of death, are coded and used for **disease surveillance purposes** through the database collections of disease statistics. In this way national and global databases can be established through the consistent coding of data. When pandemics occur, the WHO issues emergency codes if required to collect the statistics on any new diseases that have not previously been coded. This was done for Covid-19.

On March 25, 2020, the WHO issued [Covid-19 coding in ICD-10](#) to explain the emergency coding process for Covid-19 cases. Under these two, new codes, Covid-19 cases do not necessarily need to be verified by testing, but can be coded as “**probable**, suspected or clinically-epidemiologically diagnosed”.

This has caused confusion as to what the case statistics the public sees actually represent. In Canada, all provinces and territories (except Quebec) were originally calling **probable** cases those that did not have two confirmed PCR tests—one from the local jurisdiction and one from the national testing laboratory. Probable case numbers have now disappeared from the data. [PHAC](#) now reports the same number for “total cases” and “confirmed cases” in their current situation reports, so we must assume the total case numbers include both “virus identified” and “virus not identified” cases.

**This change to case definition increases the total number case reports.** But it also distorts any understanding of how quickly the virus spread. When jurisdictions made the reporting change (if they did—we don’t necessarily know), the volume of cases would have increased. Lines on graphs of doubling times of total case numbers would steepen, indicating faster doubling time or rate of transmission. Even though that increase is more from an administrative virus than a biological one, the way the data is presented gives no sense of when this change happened for the various provinces, nor is mention made of this possible effect. Bottom line: “Flattening the curve” takes longer with this distortion.



Source: <https://covid-19incanada.com/index.html>

The March 25 WHO document had further and more egregious ramifications as well. On April 20, 2020, WHO issued the [International Guidelines for Certification and Classification \(Coding\) of Covid-19 as Cause of Death](#). Under this directive the definition for ‘deaths due to Covid-19’ states: [Emphasis ours]

“A death due to COVID-19 is defined for **surveillance purposes** as a death resulting from a clinically compatible illness, in a **probable or confirmed COVID-19 case**, unless there is a clear alternative cause of death that cannot be related to COVID disease (e.g. trauma)...A death due to COVID-19 **may not be attributed to another disease** (e.g. cancer) and should be **counted independently of preexisting conditions** that are suspected of triggering a severe course of COVID-19.”

The document also states that, “COVID-19 should be recorded on the medical certificate of cause of death for **ALL** decedents where the disease caused, or is **assumed to have caused**, or **contributed to** death.”

This turns on its head the medical standard of listing co-morbidities in the chain of events leading to death, and removes the certifying physician’s “**best medical opinion**” standard for determining cause of death as this quote from page 8 testifies: [Emphasis ours]

“...the purpose of mortality classification (coding) is to **produce the most useful cause of death statistics possible**. Thus, whether a sequence is listed as ‘rejected’ or ‘accepted’ may reflect interests of importance for public health **rather than what is acceptable from a purely medical point of view**. Therefore, always **apply these instructions, whether they can be considered medically correct or not**.”

Apparently due to the need for “most useful cause of death statistics”, surveillance purposes have thoroughly overridden medical science and ethics as they have stood for generations. These changing standards—including ramifications for physicians filling out these forms and of the clearly **unscientific** “clinical-epidemiological diagnoses” of Covid-19—are discussed in further detail in the *Appendix B WHO Standards*.

Finally, we must point out that when it comes to causes of death, the WHO in their [AEFI Guidelines](#) for coding adverse events following vaccinations, takes the exact opposite stance as they have with Covid-19 deaths. Namely, regardless of the fact a vaccine triggered a serious immune reaction leading to death, if there is **a pre-existing condition then that is almost always considered the cause of the death**. Whereas in the directive above they say the pre-existing condition triggers a severe covid immune reaction, which then is the cause of death. Co-morbidities seem to be surveillance footballs at WHO.

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### **Transmissibility: the $R_0$ Number**

The  $R_0$  number (pronounced R naught) is a statistical, epidemiological construct. It is used to estimate transmissibility of the Covid-19 disease. An excellent peer-reviewed paper (Delamater, et al 2019), [Complexity of the Basic Reproduction Number \( \$R\_0\$ \)](#) was published in the *Journal of Emerging Diseases* in January of 2019. The Abstract states: [Emphasis ours]

“The **basic reproduction number ( $R_0$ )**...is an epidemiologic metric used to describe the contagiousness or **transmissibility** of infectious agents.  $R_0$  is affected by numerous biological, sociobehavioral, and environmental factors that govern pathogen transmission and, therefore, is usually estimated with various types of complex mathematical models, which make  $R_0$  easily misrepresented, misinterpreted, and misapplied.  **$R_0$  is not a biological constant for a pathogen, a rate over time, or a measure of disease severity, and  $R_0$  cannot be modified through vaccination campaigns**.  $R_0$  is rarely measured directly, and modeled  $R_0$  values are dependent on **model structures and assumptions**. Some  $R_0$  values reported in the



scientific literature are likely obsolete.  $R_0$  must be estimated, reported, and applied with great caution because this basic metric is far from simple.”

Of particular interest here is the author’s explanation of how the  $R_0$  number is often misused during epidemics when public health measures (lockdowns or vaccination campaigns) reduce the number of infection-susceptible people in the population. **The  $R_0$  number is defined as assuming a fully susceptible population.** A different metric—either the **effective reproduction number (R)** or its **rate over time ( $R_t$ )**—with more complicated equations and more assumptions—must be used to track the changes in transmissibility in a changing population base during epidemics.

To date, most public health officials reference  $R_0$  numbers and model with them. Clarity is needed as to whether they are using  $R_0$ , R or  $R_t$  numbers and what assumptions they have made in determining them.

### **CFR, IFR and Prevalence**

A Case Fatality Rate is a standard epidemiological statistic, [defined](#) as the “proportion of people who die from a specified disease among all individuals diagnosed with the disease over a certain period of time.” This is another statistic that has been chosen to be bandied about in relation to Covid-19. Anyone in the public hearing about high CFRs of 7% or even 18% may think these rates apply to everyone, themselves included, and be unduly concerned. But this is not true. For example, we see CFRs for different localities, age groups and so on. Care must be taken in interpreting what is shown.

More to the point, an **IFR or Infection Fatality Rate** would be a much more reasonable number to judge severity of Covid-19 for the general population. An IFR is defined as the number of deaths divided by the **true or actual** number of infections with a pathogen, in this case SARS-CoV-2. This statistic is harder to calculate, as it requires estimating the number of undetected infections. But now that some anti-body testing has begun we have an inkling of the number of cases that were never diagnosed because they were very mild or completely asymptomatic or because testing was not recommended.

An example will illustrate the difference between CFR and IFR. Recently public health officials from Los Angeles County, California conducted [antibody tests in a sample population](#) to test how many people had unknowingly contracted Covid-19 and developed antibodies. They reported the following:

“Based on testing results from 863 adults, the research team estimates that approximately 4.1% of the county’s adult population has an antibody to the virus. Adjusting this estimate for the statistical margin of error implies about 2.8% to 5.6% of the county’s adult population has an antibody to the virus — which translates to approximately 221,000 to 442,000 adults in the county who have been infected. That estimate is **28 to 55 times higher** than the 7,994 confirmed cases of COVID-19 reported to the county at the time of the study in early April. The number of COVID-related deaths in the county has now surpassed 600.”

Using the Los Angeles county numbers for calculations, CFR and IFR (at the time of the study) are shown.

- **CFR is 7.5%**, meaning for every **100 people diagnosed, more than 7 have died.**
- Lower population **IFR is 0.26%**, meaning for every **1,000 people infected less than 3 have died.**
- Higher population **IFR is 0.13%**, meaning for every **1,000 people infected 1 has died.**

This April 5 [article](#) says, “The Centre for Evidence-Based Medicine (CEBM) at the University of Oxford currently estimates the **CFR globally at 0.51%**, with all the caveats pertaining thereto. CEBM estimates the **IFR at 0.1% to 0.26%**, with even more caveats pertaining thereto.” According to CEBM, [currently](#) Canada has a **CFR of 7.5%** and the **USA 6%.**



It must be remembered these numbers only apply for those infected with Covid-19. The **Prevalence** of Covid-19 in an entire population is calculated using the total number of cases divided by the total population. As of May 5, 2020, PHAC reported 63,469 diagnosed cases of Covid-19 in Canada. Canada's population is 37,691,027. So, the proportion or **prevalence** of Covid-19 diagnosed (infected) people in Canada is currently calculated as only 0.17%. This is similar to the prevalence of influenza in the [2018-2019 season](#) of 0.13%. The reality is the fatality rates discussed above can only apply to much, much less than 1% of the population.

**This is why lockdowns and other similar social control measures have never been instigated for pandemics of such low prevalence. Imposing massive hardship on so many to protect so few has never before been contemplated as either reasonable or efficacious or within the bounds of good governance.**

As more Antibody testing is done, we will have a much clearer idea of the **true** seriousness of Covid-19 for the Canadian population. We will be able to better estimate the **true** number of cases, so **true** virulence (IFR) and **true** spread (Rt) can be correctly determined. We will know how many people are immune and be able to determine the herd immunity rate. Personal immunity is of particular importance to healthcare workers in all settings.

## Statistical Modelling and Lockdowns

Even more complicated and manipulatable than all the other epidemiological metrics we have looked at are the statistical models that led to social controls and the on-going modelling that is being done by governments around the world in an attempt to justify this approach to the epidemic.

### Herd Immunity vs Lockdowns until Vaccines: The Stage is Set

Much has been written about the original March 16 [modelling study released by Imperial College](#) in England that led to [lockdown strategies](#) being swiftly imposed by many western nations (UK, USA, France, Germany and Canada to name a few). The model specifically challenged the herd immunity (mitigation) response to the epidemic and supported lockdowns and other social measures (suppression). Quote from the Imperial college study:

“We find that that optimal mitigation policies (combining home isolation of suspect cases, home quarantine of those living in the same household as suspect cases, and social distancing of the elderly and others at most risk of severe disease) might reduce peak healthcare demand by 2/3 and deaths by half. However, the resulting mitigated epidemic would still likely result in hundreds of thousands of deaths and health systems (most notably intensive care units) being overwhelmed many times over. For countries able to achieve it, this leaves suppression as the preferred policy option.

“The major challenge of suppression is that this type of intensive intervention package—or something equivalently effective at reducing transmission—will **need to be maintained until a vaccine becomes available** (potentially 18 months or more—given that we predict that transmission will quickly rebound if interventions are relaxed.”

We know now the suggested probabilities of more than half a million deaths in the UK and more than two million deaths in the USA without any public health interventions that captured headlines were wildly pessimistic. Within days of the Imperial College release, a group of [modelers at Oxford University](#) released their own probability model saying **at least 50% of the population** had already likely been exposed meaning herd immunity would function in the control of the epidemic: [emphasis ours]

“The spread of a novel pathogenic infectious agent eliciting protective immunity is typically characterised by three distinct phases: (I) an initial phase of slow accumulation of new infections (often undetectable), (II) a second phase of rapid growth in cases of infection, disease and death, and (III) an eventual slowdown of transmission due to the depletion of susceptible individuals, typically leading to the termination of the (first) epidemic wave. Before the implementation of control measures (e.g. social distancing, travel bans, etc) and under the assumption that infection elicits protective immunity, epidemiological theory indicates that the ongoing epidemic of SARS-CoV-2 will conform to this pattern.”

“There is an inverse relationship between the proportion currently immune and the fraction of the population vulnerable to severe disease. **This relationship can be used to determine how many people will require hospitalisation (and possibly die) in the coming weeks if we are able to accurately determine current levels of herd immunity.** There is thus an urgent need for investment in technologies...which provide reliable read-outs of protective immunity...”

This March 24 [article](#) contains a good review of the implications of the Oxford model. However, despite the Oxford model, the death estimates in the Imperial College model were adopted to assume the medical system would be overwhelmed unless we could “flatten the curve” (reduce transmission). The model was developed under the direction of Neil Ferguson whose track record of modelling and funding sources then came under wide scrutiny. For example, this *Global Research* article, [The Dubious COVID Models, The Tests and Now the Consequences](#), sums up these concerns:

“Ferguson and his Imperial College modelers have a notorious track record for predicting dire consequences of diseases. In 2002 Ferguson predicted that up to 50,000 people in UK would die from variant Creutzfeldt-Jakob disease, “mad cow disease”, possibly [up] to 150,000 if the epidemic expanded to include sheep. A total of 178 people were officially registered dead from vCJD. In 2005, Ferguson claimed that up to 200 million (!) people worldwide would be killed by bird-flu or H5N1. By early 2006, the WHO had only linked 78 deaths to the virus. Then in 2009 Ferguson’s group at Imperial College advised the government that swine flu or H1N1 would probably kill 65,000 people in the UK. In the end, swine flu claimed the lives of [457 people](#).”

“Neil Ferguson and his modelling group at Imperial College, in addition to being backed by WHO, receive millions from the Bill & Melinda Gates Foundation. Ferguson heads the Vaccine Impact Modelling Consortium at Imperial College which lists as its funders the Bill & Melinda Gates Foundation and the Gates-backed GAVI—the [vaccine alliance](#). From 2006 through 2018 the Gates Foundation has invested an impressive \$184,872,226.99 into Ferguson’s Imperial College modeling [operations](#). Notably, the Gates foundation began pouring millions into Ferguson’s modelling operation well after his catastrophic lack of accuracy was known, leading some to suggest Ferguson is another ‘science for hire’ operation.”

Mr. Ferguson resigned his position as a government advisor on May 5. That resignation may have had less to do with his indiscretion in breaking physical distancing rules than with the release of the code on which his model was based, and the subsequent analyse of that code within the IT community. This May 7 article, [Computer Model That Locked Down The World Turns Out To Be Sh\\*tcode](#), describes what was discovered. Please note that the term “shitcode” is [defined](#) as an actual “Term used by programmers to describe code badly written, inefficient or full of hacks.” The article explains:

“It was an [Imperial College computer model](#) that forecasted 500K deaths in the UK (and 2.5 million in the US) should policymakers pursue a “herd immunity” approach (a la Sweden), [that influenced them](#) to reverse course and go full lockdown instead...The source code behind the model was to be made available to the public, and after numerous delays and excuses in doing so, has finally [been posted to GitHub](#).”

“The most worrisome outcome of the review is that the code produces “non-deterministic outputs”.

**“Non-deterministic outputs.** Due to bugs, the code can produce very different results given identical inputs. They routinely act as if this is unimportant. ***This problem makes the code unusable for scientific purposes,*** given that a key part of the scientific method is the ability to replicate results. Without replication, the findings might not be real at all...Even if their original code was released, it’s apparent that the same numbers as in Report 9 might not come out of it.”

“The documentation proffers the rationalization **that iterations of the model should be run and then differing results averaged together to produce a resultant model.** However, any decent piece of software, especially one that is creating a model, should produce the same result if it is fed the same initial data, or “seed”. This code doesn’t.”

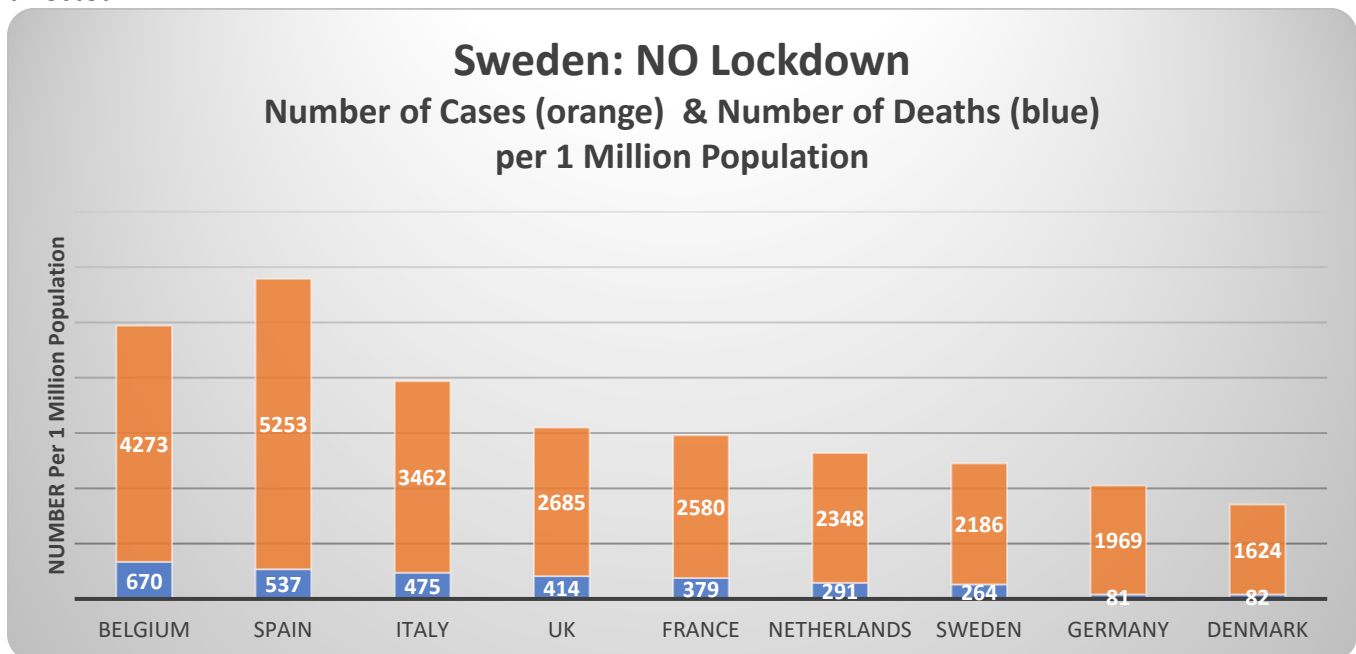
“Most of us are familiar with the computing adage, “Garbage In/Garbage Out” and the untrained reader may think that’s what being asserted in this code review. It isn’t. What’s being asserted is that **output is garbage, regardless of the input.**”

“In this case, the output we’re experiencing as a result is a worldwide lockdown and shutdown of the global economy, and we don’t really know if this was necessary or not because we have no actual data (aside from Sweden) and severely flawed models.”

Read the entire May 6 [Code Review here](#) and May 9 update [here](#).

### Mitigation or Suppression Strategy?

If one actually looks at the data, lockdowns have not necessarily protected citizens from Covid-19 infections and death. All the European countries in the chart below chose a suppression strategy with lockdowns, school closures, travel restrictions, and so forth. Except for Sweden. They chose a mitigation approach to Covid-19: wash your hands, stay-at-home requested of citizens—especially the elderly, no visitors to care homes, no gatherings of more than 50 people, bars and restaurants remained open but with sit-down service only to respect social distancing, high schools and universities closed but lower grades remained at school. Parents and all others continued to work, the economy was not severely affected.

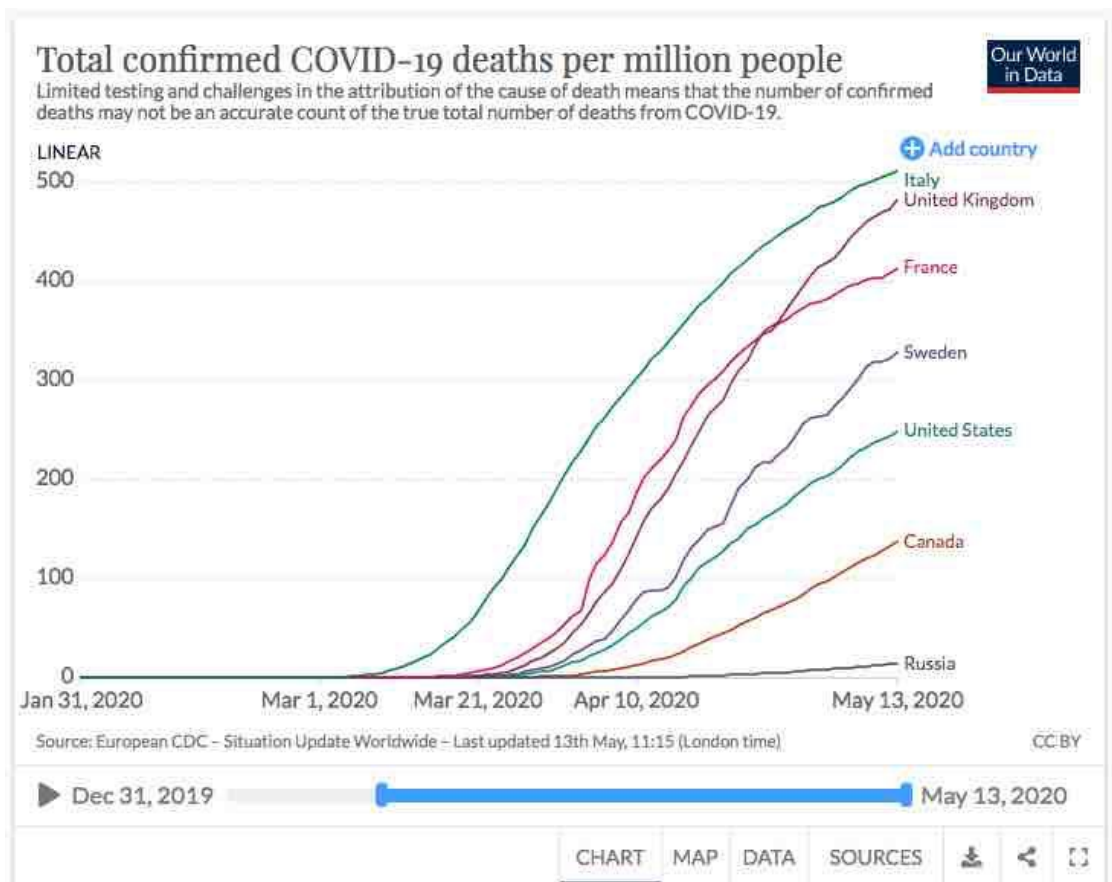


This chart is based on [WorldOmeter](#) data published on May 2, 2020.

In contrast to mitigation, under the suppression strategy the secondary costs are enormous. In many countries, hospitals moved elderly patients to long-term care homes and closed elective surgeries, treatments and screening services to prepare for the flood of Covid-19 patients predicted by probability models. Many physicians' offices and clinics closed their doors as well. The non-covid ill were left to their own devices. Critically ill patients stopped going to ERs and died at home.

This was all deemed necessary so health services would not be overwhelmed: *flattening the curve* would save the health systems until sometime in the future when pharmaceuticals (anti-virals and vaccines) could be developed to produce some unknown level of **induced immunity** in the population. Meanwhile, the majority of locked-down citizens have no work. Millions are forced to apply for [unemployment](#) or government subsidies to pay the rent and buy groceries. Many [personal](#) and [business](#) bankruptcies will be filed. Psychological and sociological effects will take a heavy toll as [suicides](#), [domestic abuse](#) and other crimes increase. Government are spending billions to support citizens and economies.

**Immunity is the only solution to any epidemic. It is obvious that the crux of the Covid-19 response dilemma is a matter of natural herd immunity following mitigation strategy versus possible vaccine-induced herd immunity following suppression strategy.**



Here is another way of looking at Sweden Covid-19 deaths based on a population rate for specific countries. This chart includes Sweden and three other European countries as well as Canada, the United States and Russia. The chart is from [OurWorldinData](#). Note they include a caveat on number of deaths.

It was reported at the end of April that the WHO had publicly changed its stance again on lockdowns, which they had first opposed and then supported. These reports were based on [comments made by Dr. Michael Ryan](#) at the World Economic Forum on April 29 in a media briefing. It should be noted that Dr. Ryan, Chief Executive Director of the World Health Organization's Health Emergencies Programme is both a physician and an epidemiologist:

"Governments looking for long-term solutions for managing COVID-19 could start with their relationship with the general public. Sweden's approach – a combination of trust and strategic controls – could provide a key model for other countries."

Although these comments were hailed by alternative media, like [Patrick Henningson of UK's 21Wire](#):

"As Europe and North America continue suffering their steady economic and social decline as a direct result of imposing 'lockdown' on their populations, other countries have taken a different approach to dealing with the coronavirus threat. You wouldn't know it by listening to western politicians or mainstream media stenographers, there are also *non-lockdown* countries. They are led by Sweden... Surprisingly to some, their results have been as good or better than the lockdown countries, but without having to endure the socio-economic chaos we are now witnessing across the world. For this reason alone, Sweden and others like them, have already won the policy debate, as well as the scientific one."

Alas, it was not to last. On May 11, Dr. Ryan appeared at another WHO press conference to eat his own words. All the msm ran these comments. The [Independent](#) in the UK has an article with a 2-minute video clip of his comments. We quote briefly here:

"Humans are not herds, and, as such, the concept of herd immunity is generally reserved for calculating how many people will need to be vaccinated and the population in order to generate that effect. So, I do think this idea that 'maybe countries who had lax measures and haven't done anything will all of a sudden magically reach some herd immunity, and so what if we lose a few old people along the way?' This is a really dangerous, dangerous calculation."

These comments are bizarre. As an epidemiologist Dr. Ryan knows full well that the phrase "herd immunity" is an established epidemiological term based on the work of Dr. A.W. Hedrich in a paper published in 1932 in the [The American Journal of Epidemiology](#). He observed between 1900 and 1930 that when **68%** of the children in Boston had contracted the measles virus, transmission was suppressed to susceptible people who had not yet experienced the infection. The immunity to measles acquired naturally by experiencing the illness was lifelong and created herd immunity in the population.

He also knows that the concept has been co-opted by the pharmaceutical industry for vaccine-making. And that vaccine-induced immunity is not comparable to natural herd immunity, because vaccines have numerous inefficiencies. For example, for measles vaccine specifically, we are told by vaccine-makers that 95% of children must be vaccinated to establish "herd immunity", not 68% as Dr. Hedrich established occurred naturally; and vaccine immunity wanes after a few years requiring a second dose for children. Adults are also being told they need a booster measles shot. Further, up to 10% of people are non-responders to the vaccine and never develop immunity at all.

As to the flippant, "so what if we lose a few old people along the way" comment, Dr. Ryan also knows as an epidemiologist that the frail **always die first** in any epidemic, and that the lockdowns have not protected the elderly in any country. In fact, in many countries, Canada included, **the elderly were ignored and became the victims of the policies to clear the hospitals for covid patients**. (See articles on elderly deaths linked below.) It is beyond audacious to pretend that mitigation policies target the elderly.

The elderly and lockdowns are specifically addressed in a May 5 *Lancet* article written by [Johan Giesecke](#) titled, [The Invisible Pandemic](#). Dr. Giesecke is a physician and epidemiologist, the former State Epidemiologist for Sweden, the former Chief Scientist for the European CDC and a member of the WHO Committee for Infectious Hazards (and thus a colleague of Dr. Ryan). In the article, Dr. Giesecke makes these points in the opening of the short article: {Emphasis added}

“Many countries (and members of their press media) have marvelled at Sweden's relaxed strategy in the face of the coronavirus disease 2019 (COVID-19) pandemic: schools and most workplaces have remained open, and police officers were not checking one's errands in the street. Severe critics have described it as Sweden sacrificing its (elderly) citizens to quickly reach herd immunity.

It has become clear that a hard lockdown does not protect old and frail people living in care homes—a population the lockdown was designed to protect. Neither does it decrease mortality from COVID-19, which is evident when comparing the UK's experience with that of other European countries.

PCR testing and some straightforward assumptions indicate that, as of April 29, 2020, more than half a million people in Stockholm county, Sweden, which is about 20–25% of that population, have been infected...98–99% of these people are probably unaware or uncertain of having had the infection; they either had symptoms that were severe, but not severe enough for them to go to a hospital and get tested, or no symptoms at all. Serology [antibody] testing is now supporting these assumptions.

These facts have led me to the following conclusions. Everyone will be exposed to severe acute respiratory syndrome coronavirus, and most people will become infected. COVID-19 is spreading like wildfire in all countries, but we do not see it—it almost always spreads from younger people with no or weak symptoms to other people who will also have mild symptoms. This is the real pandemic, but it goes on beneath the surface, and is probably at its peak now in many European countries. **There is very little we can do to prevent this spread:** a lockdown might delay severe cases for a while, but once restrictions are eased, cases will reappear. **I expect that when we count the number of deaths from COVID-19 in each country in 1 year from now, the figures will be similar, regardless of measures taken.”**

### Canadian Modeling: Justifying the Suppression Strategy

On May 5, 2020 Public Health Agency of Canada (PHAC) published their second Modelling document ([on-line format](#))([pdf](#)) based on data from April 28. (The April 9, 2020 modelling document based is [here](#).)

The new document states on page 2: [Emphasis ours] “*The data **continue to reinforce the critical message that the measures we are taking now remain essential to controlling Canada's COVID-19 epidemic...***” Yet the data in the reports, do not seem to show control of the epidemic. Of course, the response to this criticism will be: If controls hadn’t been implemented there would be even higher numbers. But a negative cannot be proven. And also, we know there is **no empirical evidence that controls are particularly effective**.

**CASE DATA** from page 6 of each Modelling Report shows **large increases**. Note that Hospitalizations and ICU admissions are based on the number of case reports that include such information—April 8 based on 5,823 case reports, April 28 based on 16,348 case reports.

	Total Cases	Deaths		Hospitalizations		ICU	
April 8	18,447	401	2.2%	1,118	19%	328	6%
April 28	47,327	2,617	5.5%	2,795	17.1%	692	4.2%
Comparison	2.6 times more cases	6.5 times more deaths		2.5 times more hospitalizations		2 times more ICU admissions	



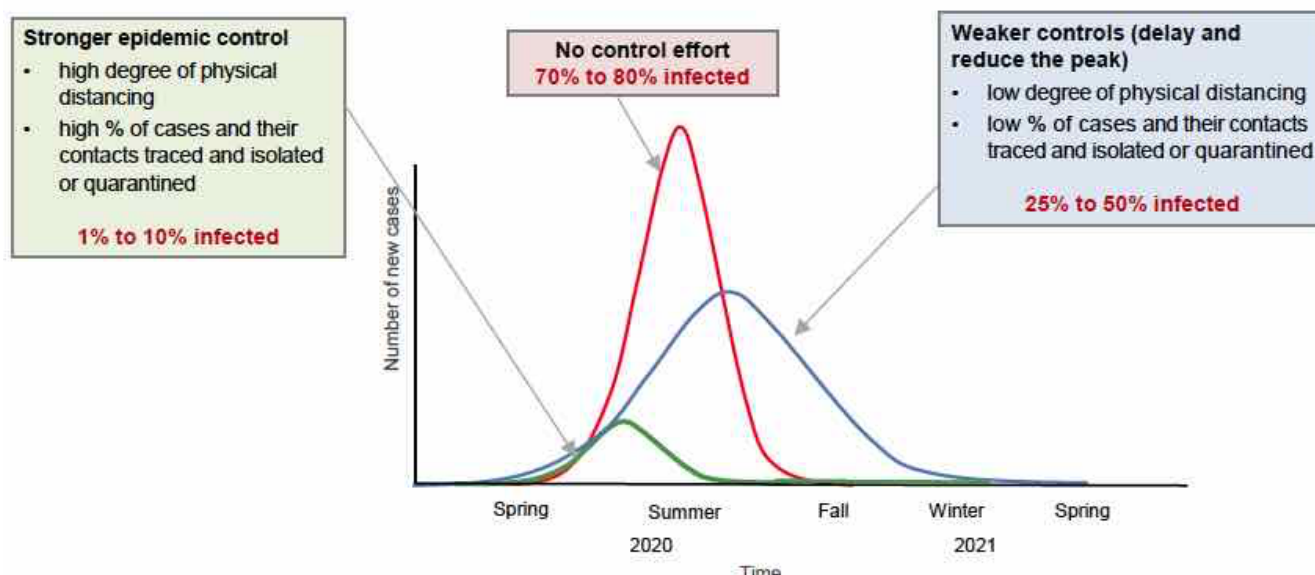
**Death numbers above are also only based on deaths in hospital.** We know this because on April 8, **435 total deaths** were reported (34 more than above) and on April 28 there were **2859 total deaths** reported (242 more than above) according to total deaths column in the Excel file data, which can be downloaded from PHAC's [current situation](#) website page. Also the [May 15 PHAC Daily Report \(pdf\)](#) shows **5,337** deaths on page 2 and **2075** total deaths on page 6 with hospitalization data. **A difference of 3262 deaths.** We do not know if these deaths are from care homes only and/or other institutional deaths besides hospitals and/or if they also include at home deaths. **No clarity is offered from PHAC.** (Tip: Sourcing data is easier with the [Covid-19 in Canada](#) tracker that has cumulative, interactive charts available in the *Canada in Charts* section for national data and separate provincial data pages also.)

Both Modeling Reports gives us a cartoon of **transmission rates, normally referred to as an R0 number.** Only the original R0 number of 2.19 is given however. This would likely be the basic assumption used for the first report model. The second report says only “more than 1” for the transmission rate “today”. Likely this is actually an R0 of 1.1, as this is a 50% reduction of R0 usually seen after social controls over time. (See Wittkowski Report detailed below and his full report pdf [here](#).) R0 of 1.1 would likely be the assumed R0 for the second report model.

Below is the laughable **dynamic model** depiction. The red epidemic curve with *no controls* is shown extending for 8 or more months, Spring to Fall (not the normally predictable 1-3 months high infection rate period). The green, *strong epidemic control* curve begins very early and flattens **impossibly quickly** to zero cases. When the curve is flattened the base of that curve always broadens in proportion to its height. (30 sec [animation](#) of flattening the curve.) So, the green curve should extend **beyond** the blue curve. Further, with no cases why does the green curve extend inexplicably for months? The blue *weaker control* curve extends for 1 full year, from before noticeable epidemic cases to 3 months beyond zero cases. Although the model may show PHAC's true intentions, it is not a functional model at all.

## Modelled scenarios show the impact of public health measures

Models help us identify which combinations of public health measures, applied with what intensity, are most likely to reinforce epidemic control



Page 18 mentions some assumptions for the dynamic model above. Most importantly, the cartoon below shows only infected or susceptible people. Nowhere in the entire report is immunity mentioned, as if natural immunity to infections doesn't occur. Did PHAC take the immune (resistant) population into account in their modelling exercises? **We do not believe they did.** See Modelling Scenarios below.

## Dynamic models of scenarios

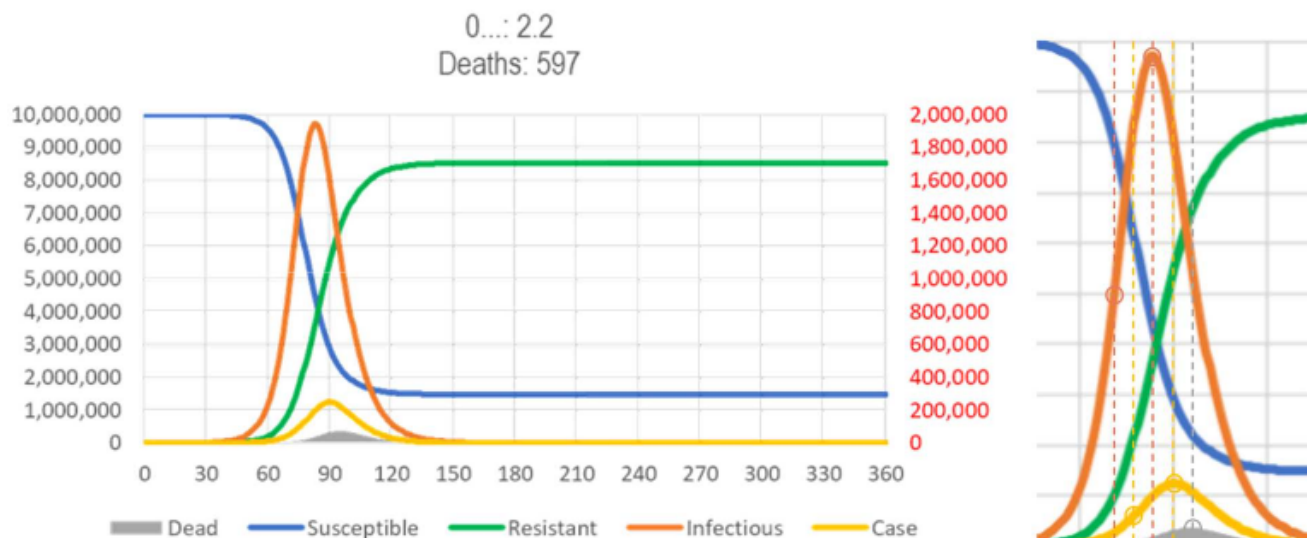
Model moves people through different states of infection. All start out as susceptible.



Individuals are then exposed. They either become infected, or remain susceptible.



Compare PHAC's cartoon model to a **real** epidemic model as shown by Dr. [Wittkowski](#), a **real** epidemiologist and modeller. His model notes assumptions and is fully referenced. It also shows the **Susceptible** population (100% at the beginning of an epidemic), the **Resistant** (immune) population (0% at the beginning of the epidemic) and the **Infected** population as these groups move through the epidemic cycle.



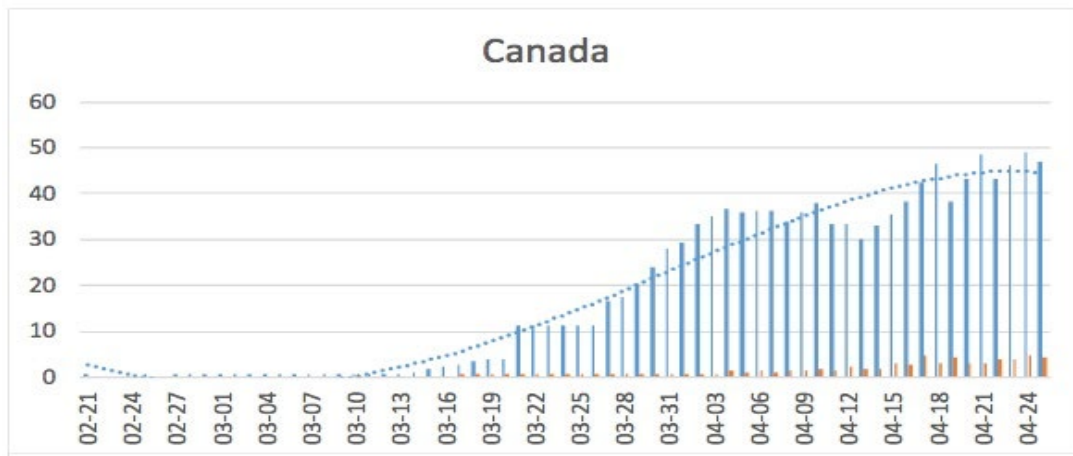
**Fig 3: SIR Model of SARS.** Number of susceptible (blue), infectious (red), resistant (green), case (orange) and dead (gray) people after a population of 10,000,000 susceptible people is exposed to 20 subjects infected carrying a novel virus. Assumptions:  $R_0 = 2.2$ , infectious period = 7 days, (available from <https://app.box.com/s/pa446z1csxcvfksgl13oohjm3bjg86ql>)

Edited text (references and formulas removed) from the report that accompanies this model:

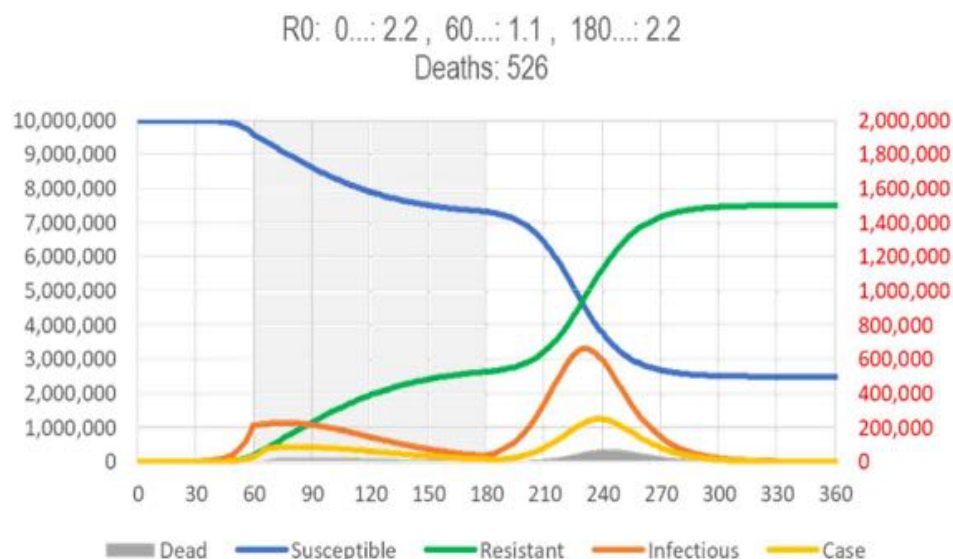
### Epidemiological Models

If a disease causes immunity after an infectious period of a few days only, like respiratory diseases, an epidemic extinguishes itself as the proportion of immune people increases. Under the SIR model for a reproduction number (secondary infections by direct contact in a susceptible population) of  $R_0 = 1.5-2.5$  over 7 days, the noticeable part of the epidemic lasts about 90–45 days in a homogeneous population of 10M. The period is shorter for smaller more homogenous and longer for larger, more heterogenous populations. For a given infectious period (here, 7 days), SARS and COVID-19 incubation period plus 2 days.  $R_0$  also determines how long it will take for early cases to become visible after a single import (150–60 days), the peak prevalence of infections (5–22%), and how many people will become immune (55–90%). To allow for comparisons between models, an arbitrary proportion of symptomatic cases among those becoming infected (.05%) is used and 2% of cases are assumed to die.

Wittkowski's model is based on actual case data. He links to the global data file he used. The model above is for the epidemic **without suppression** via social controls. The time at which these interventions are introduced is of maximal importance to the progression of an epidemic since they flatten the epidemic curve in different ways depending on timing. As Wittkowski says in the report: [Emphasis ours] "An important finding is that the interventions in several countries started **too early (prolonging the time the virus stayed in the population and, potentially, increasing the number of deaths)** or too late (being ineffective). Hence, the timepoint when a public health intervention starts during the course of the epidemic (especially the "turning point" where the increase in new cases begins to decline) is crucial for the impact of the intervention." Below is his chart for Canada's case data. (Left axis shows thousands of cases). It is used to assess the peak of the spread and at what time in relation to that peak our interventions were implemented:



First cases were reported in late February, but cases did not really begin increasing until mid-March. This is when public health interventions began! Below is Wittkowski's chart showing what happens to the epidemic curve representing infected cases **when interventions begin long before the peak**.



**Fig 15: SIR Model of SARS, Effect of Early Lockdown.** (see Fig 3 for legend). It is assumed that a highly effective intervention reduces  $R_0$  by 50% for 4 months, beginning after the appearance of a novel type of cases is noticed. The proportion of symptomatic cases (0.05%/d, i.e., .35% of infected people will become cases and the proportion of cases to die (2%) may change, but the issues discussed here are broadly independent of these assumptions.<sup>(spreadsheet for model calculations available from <https://app.box.com/s/pa446z1csxcvfksg13oohjm3bjg86ql>)</sup>

This is quite a different picture from what Canada's cartoon model depicts. The red epidemic curve is flattened for 4 months and case numbers (yellow) and deaths (grey) are lowered as R0 lowers to 1.1. When controls are lifted a second peak occurs with more cases and deaths as R0 returns to 2.2. Here is Wittkowski's text that accompanies the figure: [Emphasis ours]

"Fig 15 shows the detrimental effect of an intervention that starts even earlier [than Fig 13 at] about two weeks before the turning point. Even if the intervention is extended from one to four months, **no herd immunity is created** and, thus, the epidemic rebounds and will run eight months, instead of three (Fig 3) or less (Fig 12). **To avoid or even reduce the rebound, one would have to end the restrictions in the lowest risk populations (school children, young adults) first to increase the immune/susceptible ratio** (the effects of targeting subpopulations differently are not accounted for in simple SIR models)."

Currently (mid-May), Canada is moving into its fourth month of interventions, with some interventions now being lifted. However, the chance that schools will open across Canada to **reduce the rebound** (as Wittkowski suggests above) is small. Quebec opened its primary schools on May 12, but has [delayed this opening](#) in the epicentre of the epidemic in Montreal. [Opening K-12 schools in BC is being cautiously approached](#) for June 1<sup>st</sup> with the possibility of [higher education opening classrooms](#) in September.

Therefore, we know a large peak will come later in the summer. And PHAC knows this as well. Page 15 shows a number of peaks throughout the summer and is accompanied by this line of text:

**"With early epidemic control, responses to outbreaks will likely continue to be required over time."**

**Modelling Scenarios** from the last page of PHAC's May 5 Modelling Report.

### Scenarios show a range of impact for Canada over the course of the pandemic

	Overall % of the population infected							
	1%	2.5%	5%	10%	25%	50%	70%	80%
<b>All cases</b>	376,000	940,000	1,879,000	3,759,000	9,397,000	18,795,000	26,312,000	30,071,000
<b>Hospitalized</b>	29,000	73,000	146,000	292,000	730,000	1,461,000	2,045,000	2,337,000
<b>ICU</b>	9,000	23,000	46,000	92,000	229,000	459,000	642,000	734,000
<b>Deaths</b>	4,000	11,000	22,000	44,000	111,000	222,000	311,000	355,000
	Stronger epidemic controls				Weaker controls		No controls	

- Estimates are based on different attack rates obtained in model simulations with different levels of public health measures
- Assumptions: 7.8% of all cases are hospitalised; 2.4% of cases require ICU care; and 1.2% of all cases die (based on Imperial College London estimates of age-related variations in severity)
- Deaths for 25% to 80% scenarios are underestimates because the case fatality rate (proportion of cases who will die) is likely to rise as health care capacity is exceeded

The [population](#) of Canada is currently 37.9 million. It was 37.6 in the third quarter of 2019, so that must be the population figure they used on this chart (1% of 37.6M is 376,000). We had assumed they were using current population numbers, but apparently not. Also, it doesn't appear they are subtracting the immune population in the "first wave" from the total population numbers. Anywhere from 25% to 50% may already have been exposed without knowing it and be immune. Then there are the 36,000



recovered patients who would also have immunity. All unaccounted for. It appears all they did was take percentages of the Q3 2019 population and slap them in a chart.

Considering the above, making sense of numbers in the chart is difficult, especially since we also do not know the time frame they are assuming for the “course of the pandemic”. We will simply compare a couple of the figures in the 1% and 25% column numbers to current May 15 PHAC reported numbers to get a sense of the increases these two scenarios purport as “probable”.

Current PHAC #	1% column #	Increase	25% column #	Increase
Total cases 74,613	376,000	400% or 5 times	9,397,000	12,500% or 26 times
Hospitalized 4,043	29,000	617% or 7 times	730,000	18,000% or 181 times

No wonder Dr. Tam is so worried, if she really believes these orders of magnitude increases in the numbers are possible.

The final red column of *No Controls* is completely spurious. No immune population involved apparently, and, more to the point, the current number of total cases represents only 0.2% of the Canadian population. It stretches all credulity to believe that the social controls suppressed over 26,237,387 cases of Covid-19 that would have occurred without those controls.

Final comment on this sad attempt at communicating with Canadians is to note the “Assumptions” below the tables of *Modelling Scenerios*. Why would PHAC use the **Imperial College** assumptions on percent of hospitalizations, ICU care and death rates? They have enough Canadian data to insert their own assumptions into the models. We can only pray they aren’t using the Imperial College software as well.

### The Costs of Suppression

The financial costs of suppression are so vast they cannot yet be calculated, as this May 15, *Financial Post* [article](#) explains:

“In Canada, for example, a low-ball early cost estimate might be something like \$600 billion for this year alone. The IMF estimates a 6.5 per cent decline in GDP this year (\$160 billion), with possibly more losses into next year. Then there’s about \$300 billion in federal and provincial government borrowing to fund massive new spending. Another \$150 billion in lost future growth would raise the total cost even higher. The value of Bank of Canada monetary activities, which could show up in future inflation, could push the total even higher. The final number could easily top \$700 billion in Canada — roughly a third of GDP.

In the United States, estimates of the cost of fighting the pandemic run to more than \$9 trillion, including \$2.5 trillion in Trump-and-Pelosi-driven government spending, with more expected any day. Globally, the total cost of the international lockdowns will soar into tens of trillions of dollars.

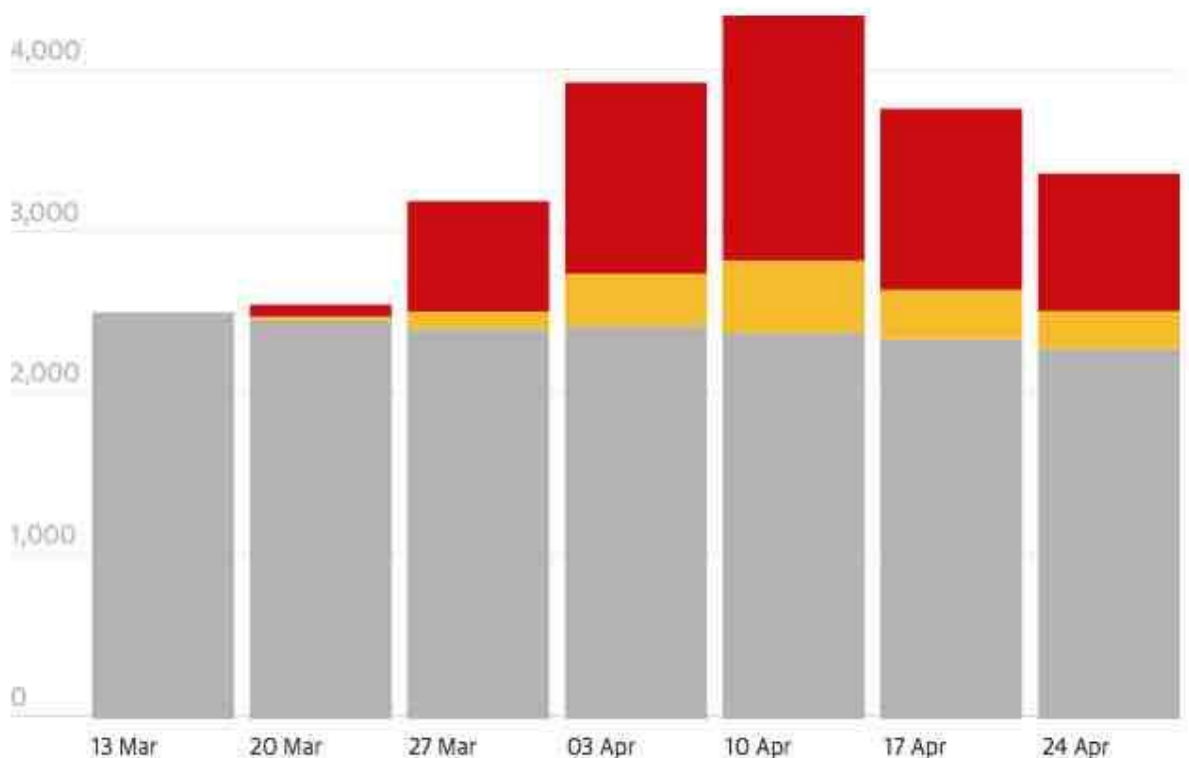
Remember *Austerity* ([word of the year in 2010](#)) when wholesale privatizations and budget cuts were instituted to reduce public sector debt? Both health care and elder care were hard hit. Privatizations of long-term care homes with reductions of full-time staff (i.e. minimum-wage hiring of part-time staff with no benefits) and poor regulatory oversight combined to cast a long shadow during this pandemic. Whatever the ‘savings to public debt’ were in the 2010s are wiped out now in the 2020s. In response to the ridiculous model projections of numbers of infections, hospitals shut down services and moved the elderly into long-term care. Canada was no exception with many [caveating the moves](#) of the elderly with refusal to move them back to hospitals for treatment if they should become infected. Housing the most fragile ill with covid-infected patients, in many cases where isolation was impossible and staff were limited in both number, skills and proper protection led to the lonely deaths of thousands. This May 5 article from *The Star* reports that [82% of Canada’s COVID-19 deaths have been in long-term care](#). This

was both predictable and lamentable. Of course, we have no idea how many of those deaths were for clinically or epidemiologically incorrectly diagnosed cases, how many were false positive test cases, how many were 'presumed' Covid deaths and how many were actually due to comorbidities.

As to **hidden costs**, this [graphic from the UK Guardian](#) (May 8) shows one of the hidden costs now being noticed—80% of excess home deaths were not covid related. The article cites a fall in A&E [ER] visits of up to 50% and a drop by half of patients attending hospitals with heart attacks. And also says, “*Prof Andrew Goddard, president of the Royal College of Physicians, said excess community deaths from non-Covid causes had been seen across Europe. A report this week found that there had been about 11,600 such fatalities in Italy during its pandemic, including deaths from heart attacks and strokes, he added.*”

### **There were 5,355 excess home deaths in England and Wales in the seven weeks to 24 April, compared with 1,434 from Covid-19**

■ Five-year-average for equivalent weeks, 2015-19 ■ Covid-19 deaths ■ Excess (non-Covid-19) deaths

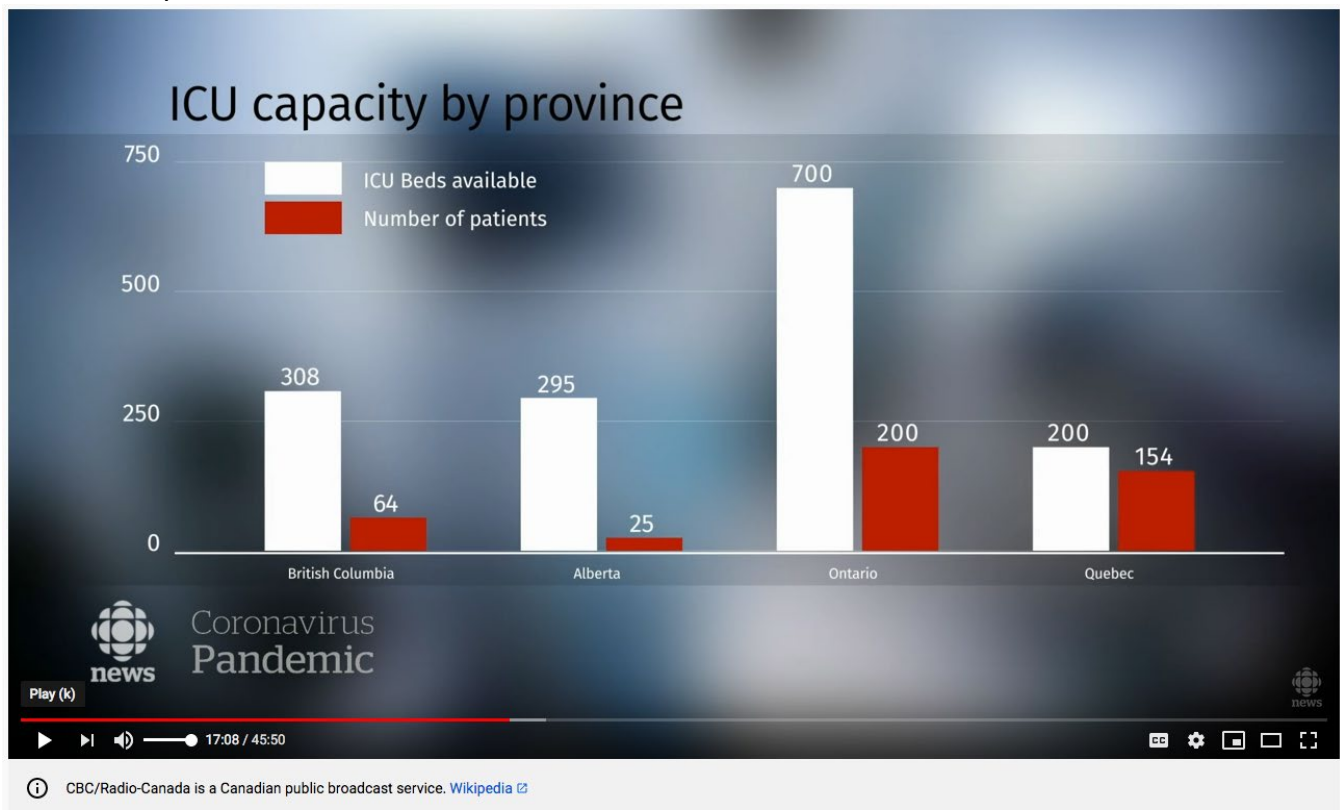


Guardian graphic | Source: ONS, Deaths in week ending on date shown

Despite these high costs of human life as a result of preparing hospitals for the floods of covid patients, **hospitals were never overwhelmed** except very selectively. For example, Ontario has a [hospital surge monitor](#) site. On May 12 of 157 hospitals, 149 were at less than 50% surge maximum, 6 were between 50-70%, one between 70-90% and **one hospital was above the 90% surge maximum**.



On April 5, CBC's *The National* reported on the number of ICU beds in Canada's four provinces experiencing the most covid cases. None of them were "overwhelmed". In fact, with the exception of Quebec, they were "underwhelmed". Total on this chart is 1503 ICU beds.



The National for Sunday, April 5 – Physical distancing enforcement; pros and cons of masks

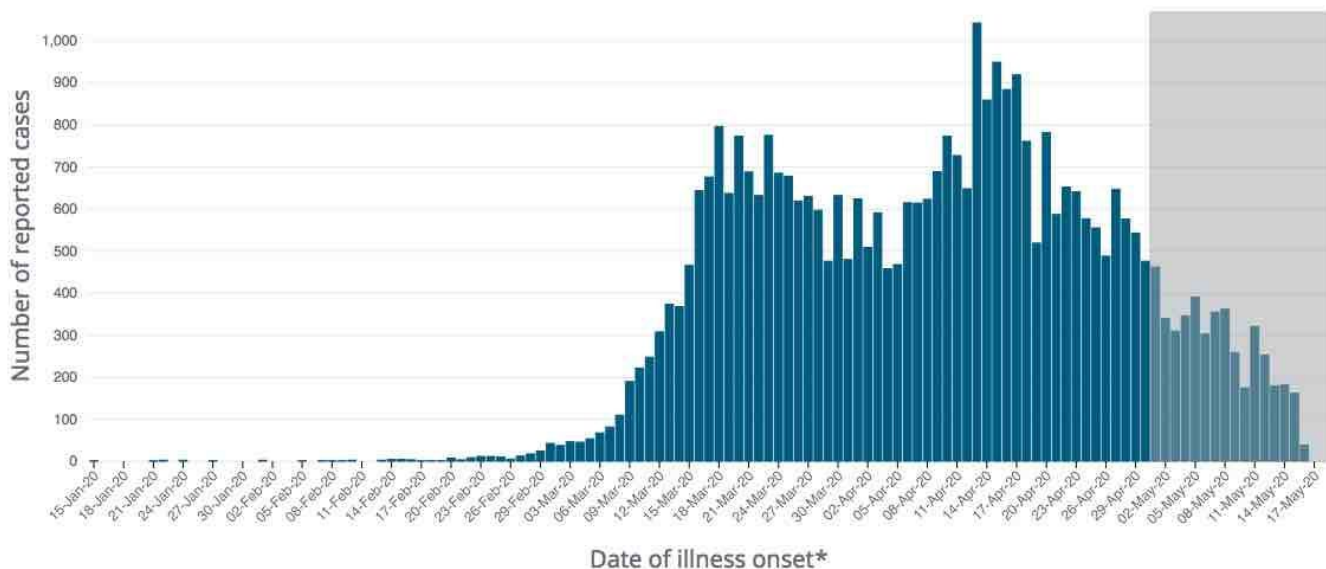
A very rough estimate of hospital space in Canada can be gleaned from this [article](#). It shows approximately 74,000 Acute Care beds and 3000 ICU beds. If every single covid case so far reported had been hospitalized and was still in hospital and no one had died our health care system would be overwhelmed. But that is not the case.

The latest May 18 PHAC daily update ([pdf](#)) reports **38,828 Recovered** cases and therefore **38,478 Active cases**. About **90% of those cases are recovering at home** and approximately **10% are in hospital care**. The actual numbers given in PHAC (May 18) update are **4105** (10.6%) hospitalized: **3223** (8.2%) in Acute Care beds and **931** (8.2%) in ICU beds.

These are cumulative numbers to date: Total cases reported minus Resolved cases (recovered or died) equals Active Cases. (See *Data section* for details on counting cases.) Active cumulative case numbers are still climbing as are cumulative Total cases. But the real progress of the epidemic is shown by the daily case reports in the **Epidemic Curve** in the May 19 on-line [Epidemiological Summary](#).

The PHAC text accompanying the EPI curve says, "*New cases continue to be reported across the country, however **with a decreasing trend in daily reported cases observed.***" It is clearly the case that a peak was reached in Mid-April as shown by the EPI curve below. This is just as Wittkowski showed in his report's graph for Canada as seen on page 16 above.

Figure 1. COVID-19 cases (n=37,380 <sup>1</sup>) in Canada by date of illness onset as of May 19, 2020, 11 am EDT



The grey area (16 days on the chart) is the reporting lag-time. These numbers will increase but the trend downward is evident nonetheless.

## Summary

Statistics are math, not science. Statistics do not prove anything, though they can point the way for scientific investigation and proof.

PCR testing is the basis for all Covid-19 infection data. It inflates case numbers. PRC testing is not Fit for Purpose. It does not test for the actual SARS CoV-2 virus. It has a high false discovery rate and a specificity rate of only 80–85%. The testing threshold (Ct number) is arbitrary. Antibody testing should be used now to estimate actual total case numbers.

WHO definitions also inflate case numbers as they allow “virus not present” cases to be counted as covid cases. The definitions also inflate death numbers as cause of death standards are changed.

Transmissibility of Sars-CoV-2 virus is determined by the basic reproduction ( $R_0$ ) number in the beginning of an epidemic and the effective reproduction ( $R$  or  $R_t$ ) number thereafter. These statistical constructs are based on assumptions fed into equations. They are then feed into statistical modeling exercises.....

Severity of Sars-CoV-2 virus is estimated by Case Fatality rates (CFR) and infection fatality rates (IFR). CFRs are inflated by inflated number of deaths (numerator) and by inflated number of cases (denominator). IFRs cannot be established until the total number of cases, both symptomatic and asymptomatic, in the entire population (not just the tested symptomatic population) can be estimated. Antibody testing can be used to estimate the size of the immune population which reflects the previously infected population. Only then can an IFR be established.

Prevalence of Covid-19 in the entire Canadian population is very low—much less than 1% at 0.2%. Extreme social controls should never be used in low prevalence epidemics.

As presented by PHAC, the modelling techniques used to establish probabilities of the epidemic trends and thus “inform” policy decisions have no basis in evidence, are completely inflated, and essentially amount to statistical chicanery.

Canada’s choice to institute early social controls will prolong the epidemic (possibly increase deaths) and guarantee successive waves of infection as social controls are lifted and susceptible individuals, previously cocooned from infection by social controls, are exposed. Opening schools offers some mitigation to waves of infection as this increases the immune population. The most fragile susceptible population must be protected, not discarded/sacrificed as has been seen to happen.

Case numbers, death numbers, transmissibility and severity of the SARS CoV-2 virus should be re-examined based on current data.

Mitigation would have been a far better strategy than suppression to protect the public’s health at the same time as not destroying their lives and livelihoods and increasing the national debt levels.

The public health and politicized meme of lockdown until a vaccine can be developed to protect the public from a contrived epidemic is not palatable to the many, only to the few who stand to gain.

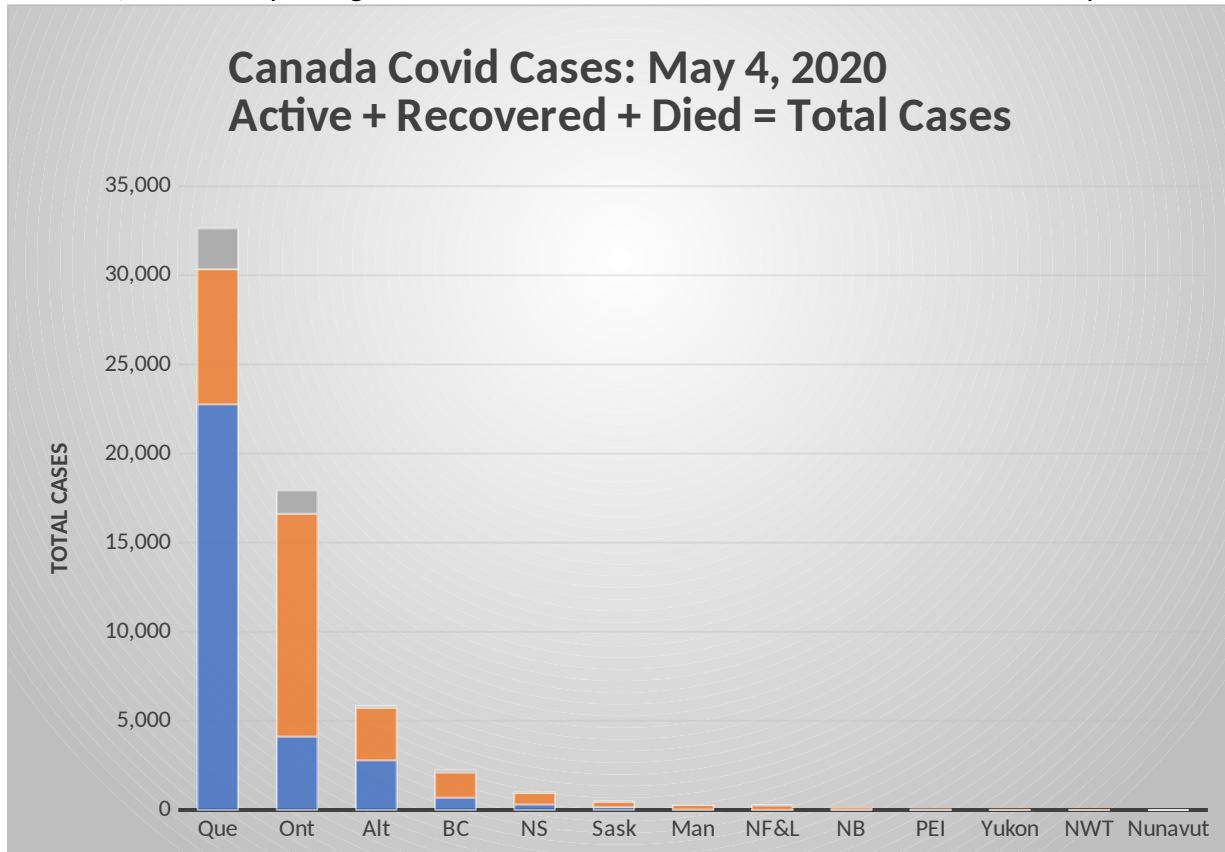
*“Of all tyrannies, a tyranny sincerely exercised for the good of its victims may be the most oppressive...This very kindness stings with intolerable insult. To be “cured” against one’s will and cured of states which we may not regard as disease is to be put on a level of those who have not yet reached the age of reason or those who never will; to be classed with infants, imbeciles, and domestic animals.”*

– C.S. Lewis, *God in the Dock: Essays on Theology*  
Published Posthumously, 1974

## Part II. DATA

### Data Presentation Matters

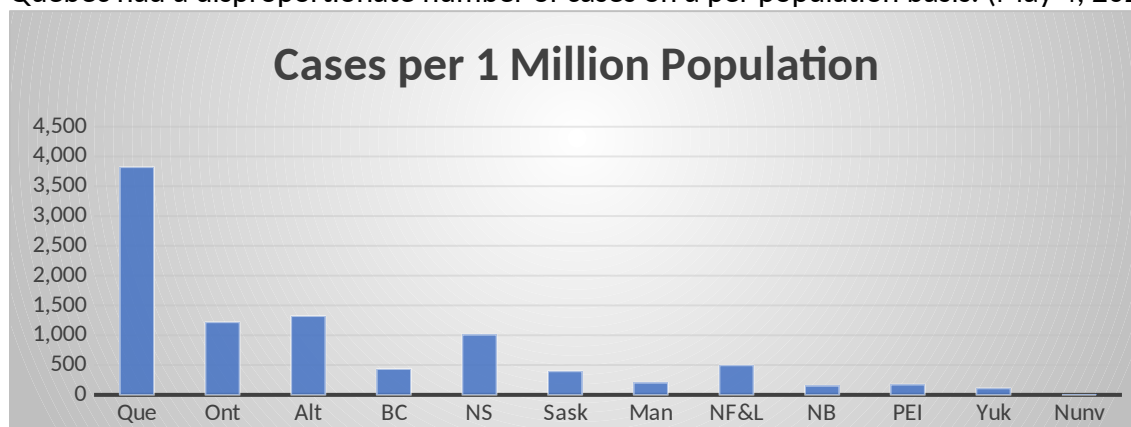
When creating charts, the columns represent totals and the divisions within the columns represent what makes up those totals. If data were presented properly, as set up in this chart, rather than the current practice of highlighting total case numbers (the majority of which have resolved) and not reporting ACTIVE case numbers, citizens would be less alarmed by the data.



<b>Quebec:</b>	Of 32,623 cases	70% active	23% recovered	7% died
<b>Ontario:</b>	Of 17,923 total cases	23% active	70% recovered	7% died
<b>Alberta:</b>	Of 5,836 total cases	48% active	50% recovered	2% died
<b>BC:</b>	Of 2,224 total cases	31% active	64% recovered	5% died
<b>Nova Scotia:</b>	Of 985 total cases	31% active	65% recovered	4% died
<b>Sask:</b>	Of 467 total cases	33% active	66% recovered	1% died
<b>Manitoba:</b>	Of 281 total cases	13% active	85% recovered	2% died
<b>NF&amp;L:</b>	Of 259 total cases	9% active	90% recovered	1 % died
<b>New Brunswick:</b>	Of 118 cases	-	100% recovered	-
<b>PEI:</b>	Of 27 total cases	7% active	93% recovered	-
<b>Yukon:</b>	Of 11 total cases	-	100% recovered	-
<b>NWT:</b>	Of 5 total cases	-	100% recovered	-

Quebec had the highest rate of active cases and the lowest recovery rate. All other jurisdictions (except Alberta at 50%) had far more recovered than active cases (range 64% to 100%).

Quebec had a disproportionate number of cases on a per population basis. (May 4, 2020 data)



**Prevalence** expresses how many covid cases are in any total population. We do not regularly see this data anywhere (or perhaps realize its significance). The chart above shows prevalence as a rate based on cases per 1 million population. Usually prevalence is expressed as a percent of total population as shown below. All Canadian jurisdictions show **much less than 1%** of the population infected with Covid-19.

- **Quebec 0.38%** Risk: 4 out of every 1000 people are infected (similar to Europe as below)
- **Alberta 0.13%** **Ontario 0.12%** **Nova Scotia 0.10%** Risk: 1 out of every 1000 infected
- **NF&L 0.05%** Risk: 5 out of every 10,000 • **BC & Sask 0.04%** Risk: 4 out of every 10,000
- **Man, NB & PEI 0.02%** Risk: 2 out of every 10,000 • **Yukon 0.01%** 1 out of every 10,000

### International Cases and Death Prevalence

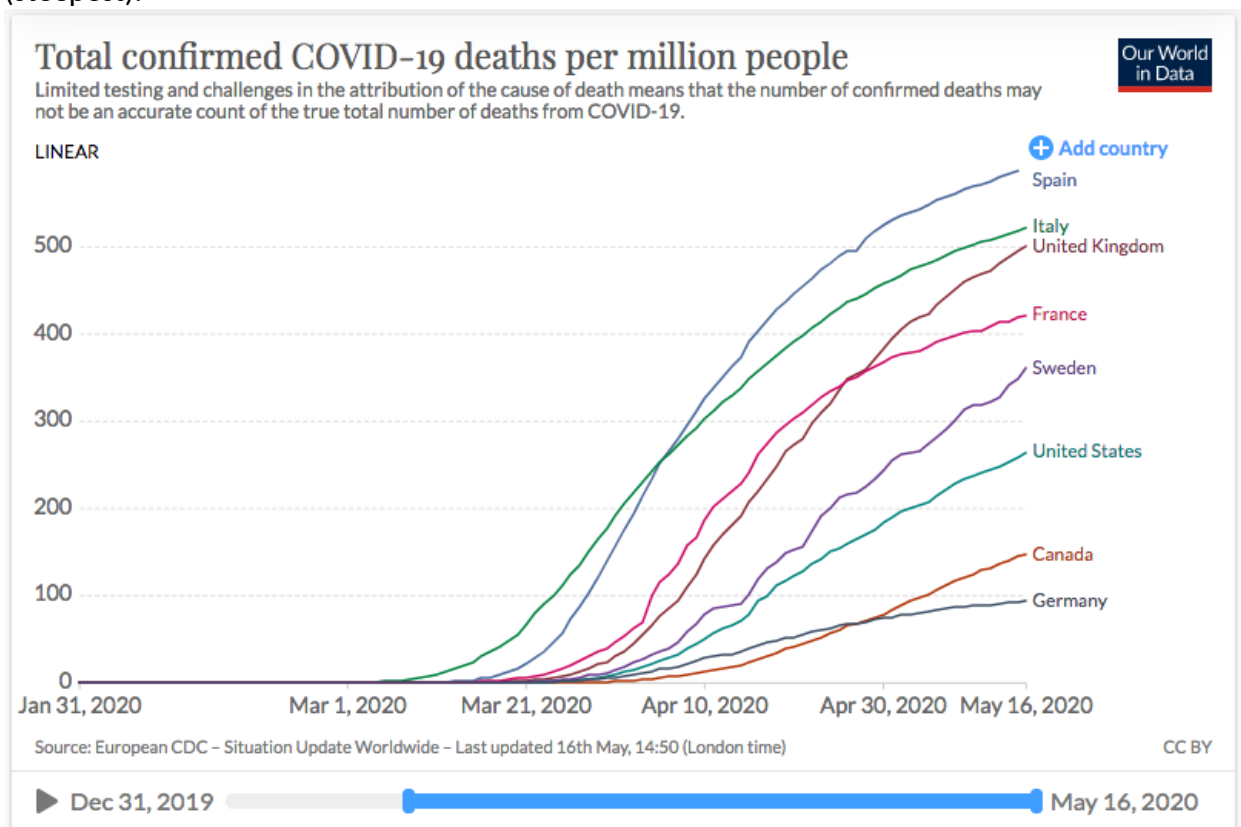
Below are various current prevalence rates based on [worldOmeter](https://www.worldometers.info/coronavirus/) data on May 16, 2020.

Country		Case Rate 1M/Pop.	% Total Pop.	Risk	Global Rank # cases or deaths
Spain	Cases	5285	0.53	5 people in 1000 infected	2 <sup>nd</sup> highest
	Deaths	590	0.06	6 in 10,000 died	
USA	Cases	4526	0.45	5 people in 1000 infected	1 <sup>st</sup>
	Deaths	269	0.03	3 in 10,000 died	
Italy	Cases	3717	0.37	4 in 1000	5 <sup>th</sup>
	Deaths	525	0.05	5 in 10,000	
UK	Cases	3540	0.36	4 in 1000	4 <sup>th</sup>
	Deaths	508	0.05	5 in 10,000	
Sweden	Cases	2941	0.29	3 in 1000	24 <sup>th</sup>
	Deaths	364	0.04	4 in 10,000	
France	Cases	2751	0.28	3 in 1000	7 <sup>th</sup>
	Deaths	423	0.04	4 in 10,000	
Germany	Cases	2100	0.21	2 people in 1000 infected	8 <sup>th</sup> lowest
	Deaths	96	0.01	1 in 10,000 died	
Canada	Cases	2010	0.20	2 people in 1000	14 <sup>th</sup>
	Deaths	151	0.02	2 in 10,000	

This table contains the countries with large numbers of cases (rank column), except for Sweden and Canada that were added as countries of interest.

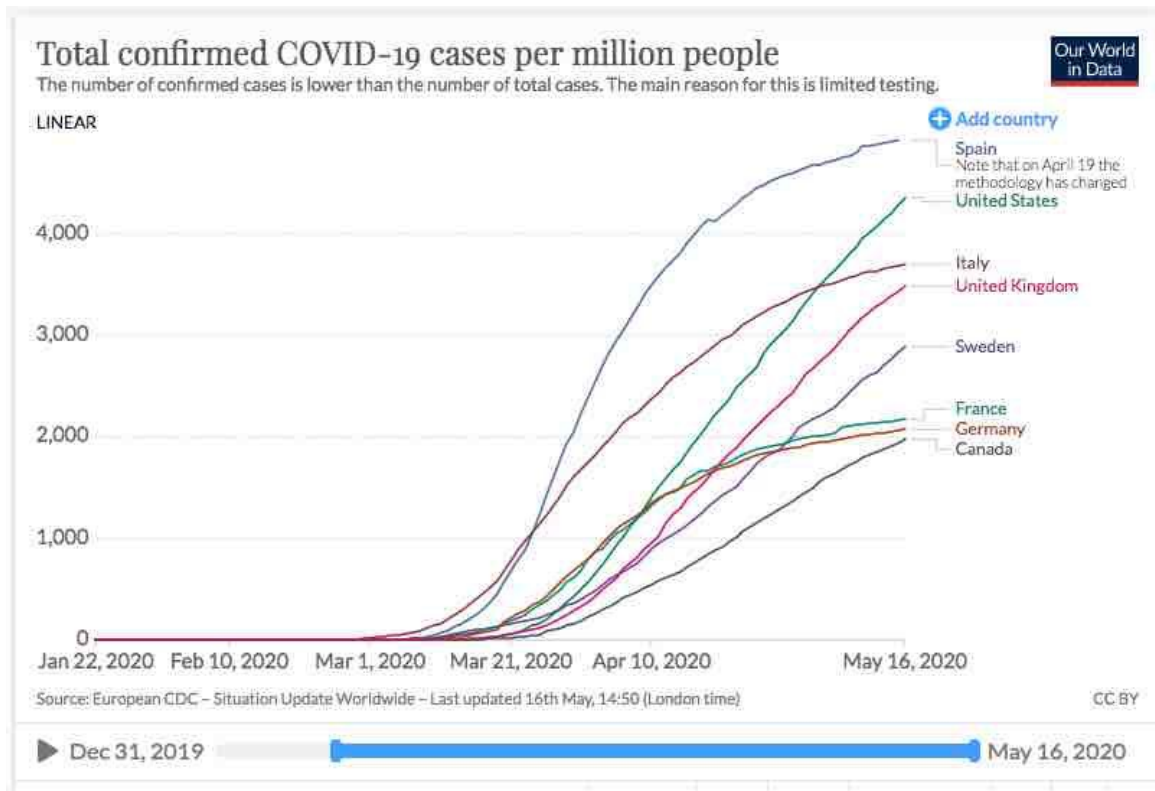
Looking at Covid-19 data in terms of **prevalence** removes much of the concern individuals might have about the **risk** of becoming infected. Stepping back like this also makes it possible to see how similar many jurisdictions are in terms of risk. The prevalences above are an average per population. Risk is also affected by location. For example, if you live in an urban area your risk will be higher than rural residents who are more spread out and have fewer contacts. If you are in a hospital, long term care home, correctional facility or other institution the risk increases due to close living conditions and proximity to other infected individuals.

The following [OurWorldinData](#) charts show the same countries as above put plotted to show the trajectory curves or **rate of growth**. The first chart shows per population **death** data. Germany has the slowest growth rate of reports as it flattens to horizontal. UK the fastest (steepest).

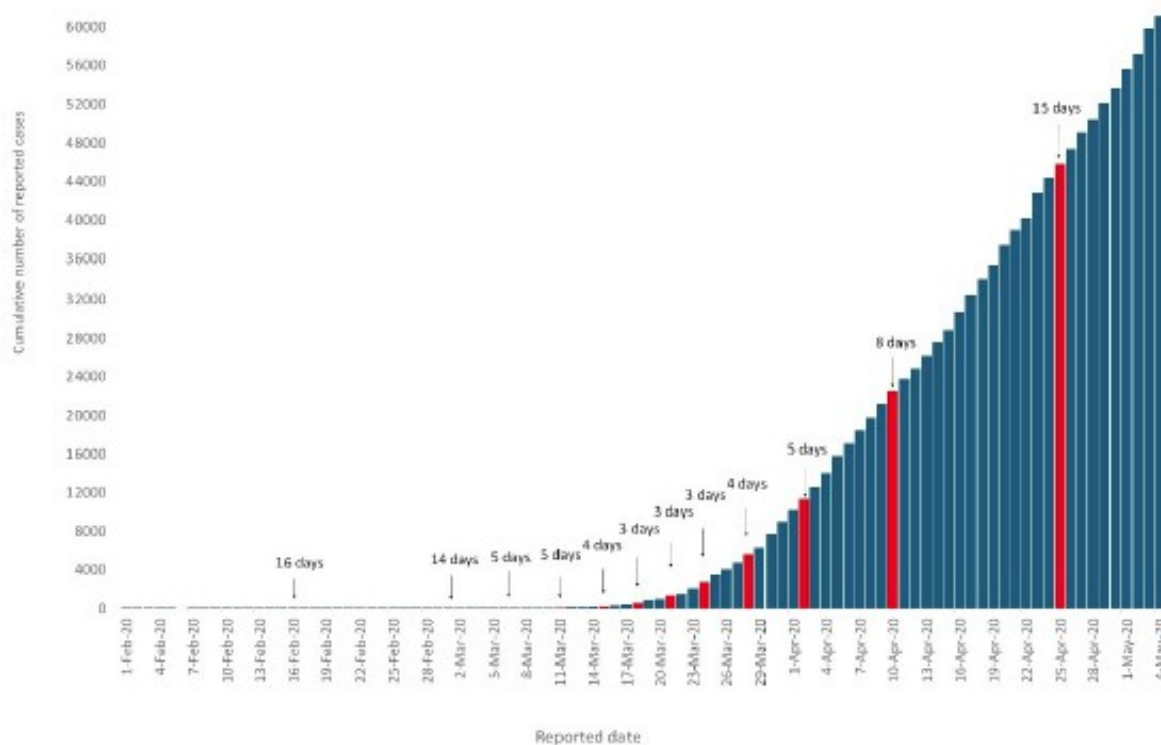


The second chart below, shows **total cases** per population trajectories. Four countries are approaching peak as they turn horizontal: Spain, Italy, France and Germany. The United States, UK, Sweden and Canada continue steep upward trajectories. Note linear scale.

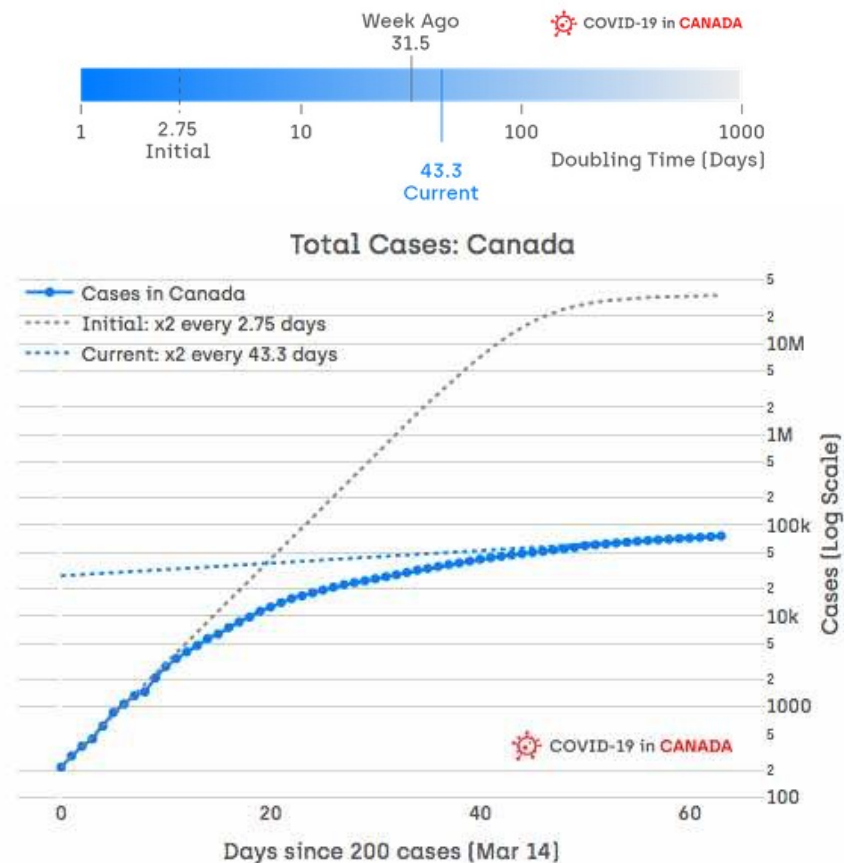




Rate of growth as **epidemic doubling time** is an important metric that public health officials will watch as they ease lockdowns. Health Canada's [daily updates](#) removed the **doubling time chart for cases** in early May. The last chart we captured (on May 5) shows a doubling time of 15 days.



But doubling time can be monitored on the excellent data-tracker site [Covid-19 in Canada](#) that publishes a doubling time scale and chart on the main Canada page under the “Are We Flattening the Curve?” tab. (Captured May 17, 2020.)



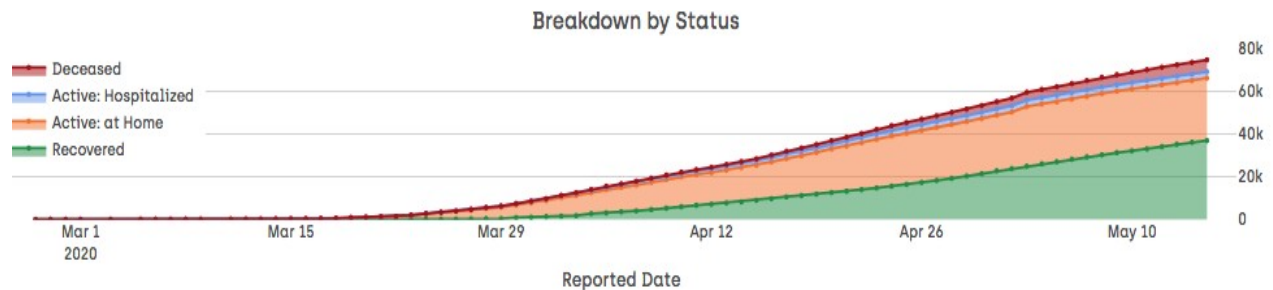
Note the **log scale** on this chart. This visually flattens the curve as numbers are so much more compressed than the linear scale used in the two previous charts. The blue line is the actual data. The grey “Initial” line in the chart is the modelled line. Here is the note for that line:

“The “Initial” curve for total cases in Canada represents cases predicted using a SIR model with  $R_0$  of 2.5 and duration patient is infectious of 5 days. The [SIR model](#) is one of the most basic and simplified models used to model epidemics and assumes, among other things, that recovery confers permanent immunity. **The curve is only meant as a very rough approximation** of the scenario that would have unfolded without any preventive measures and same  $R_0$ .”

The simple SIR model predicted approximately 14 Million cases in Canada. Today there are less than 80,000 cases. Currently the model prediction is off by 175% or 2 orders of magnitude. This shows the extremely pessimistic values models can present. And does not prove that social controls reduced cases.

Also, on the Covid-19 in Canada site is the only example we have found of Canadian data presented in the proper format: **Total cases = Active + Recovered + Deceased**. This is a different style of chart than the bar chart at the beginning of this section. However, it gives the same information but with a further refinement of breaking the Active cases into *Hospitalized* or *At Home*. With 91% of active cases recovering at home as shown, we are reminded that

one's age and state of health plays a large role when considering personal risks of infection with Covid-19.



Source: [Covid-19 in Canada](#) This graph is updated daily and interactive on-line. Compressed here for readability.

Here is our breakdown of the data available from the **May 15** on-line chart above.

- Total Cases 100% = **43% Active + 50% Recovered + 7% died**
- Total cases 74,613 = Active 32,156 + Recovered 36,895 + Deceased 5,562
- Active cases 32,156 = **29,211 (91%) Recovering At Home** + Hospitalized 2,945 (9%)
  - Hospitalized Breakdown: 2,945 of which 401 are in ICU

When considering risk, we leave it to the reader to question whether total case numbers are relevant at all, as it is only active case that would pose infective risk to the public. Here is the map of **Active Cases** on May 17, 2020 from the Covid-19 in Canada site. It presents a very different picture than the map with total cases or deaths that is all we normally see.



The disproportionate number of Active cases in Quebec is evident. Of the total 32,670 cases shown, Quebec has 85% of all Active cases in Canada. Quebec is actually driving all of the Canadian data we see. **We encourage the public to consider the number of Active Cases in**

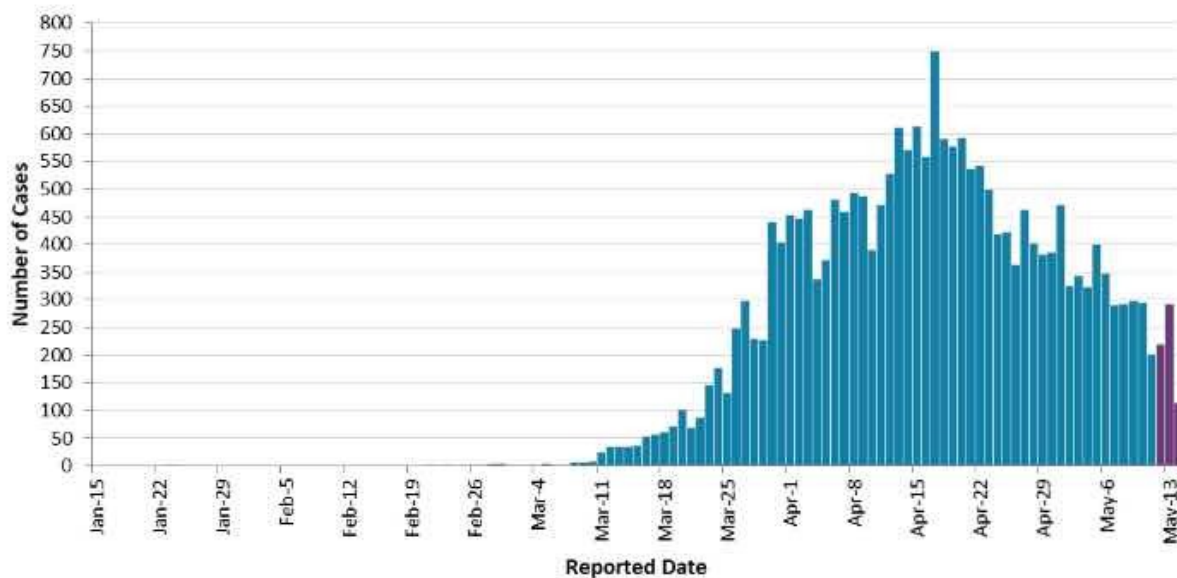
their own jurisdiction to assess risk of exposure to Covid-19. Also important within each jurisdiction is the location of cases and personal proximity to those locations.

As an example, Public Health Ontario provides good daily data on cases and outbreaks [here](#). (Although active cases must be calculated as with all public health sites). In the [pdf](#) of the daily report they also provide maps and a list of all Public Health Units (PHU) with cumulative numbers of total cases and rates per 100,000 population. A few selected locations from the May 17 report of cumulative case data for is shown here with Prevalence and Risk added:

Location PHU	# Cases	Rate per 100,000 population	% per 1M pop	RISK
All Ontario	22,957	154	0.15	less than 2 people per 1000 infected
Toronto	7780	249	0.25	less than 3 people per 1000 infected
Peel	3,405	212	0.21	2 people per 1000 infected
Durham	1,250	176	0.18	2 people per 1000 infected
Ottawa	1,798	171	0.17	less than 2 people per 1000 infected
Porcupine	65	77.9	0.08	8 people per 10,000 infected
Thunder Bay	79	52.7	0.05	5 people per 10,000 infected

An epidemic curve (**EPI Curve**) of daily case reports is also in the pdf. There is little question daily case numbers peaked in Ontario in mid-April. The April 18 spike would be a data dump—either a reporting definition change or a backlog of cases recorded.

**Figure 1. Confirmed cases (n=21,922) of COVID-19 by reported date: Ontario, January 15, 2020 to May 14, 2020<sup>1</sup>**



<sup>1</sup> Interpret case counts for the most recent days (approximately 3 days, as shown in purple) with caution due to reporting lags.

Ontario also reports cumulative numbers of hospitalized patients, ICU patients and number of ICU patients who were on a ventilator in these reports:

**Ontario Hospitalizations**

Total number of patients hospitalized with Covid-19	1033
Total number of patients in ICU with Covid-19	220
Total number of patients in ICU on a ventilator with Covid-19	155

**Testing in Ontario**

Ontario Ministry of Health [Covid-19 Testing Guidance Update](#) (May 14) has a rather startling revelation that only one symptom (plus contact per case definition) is now required for testing.

• **Any Ontarian presenting with at least ONE symptom or sign from the list below should be considered for testing** based on clinical judgement considering local epidemiology and exposure risks.

**“Symptoms List**

- Fever (temperature of 37.8°C or greater)
- Shortness of breath (dyspnea)
- New olfactory or taste disorder(s)
- Runny nose, or nasal congestion – in absence of underlying reason for these symptoms such as seasonal allergies, post nasal drip, etc.
- New or worsening cough
- Sore throat
- Difficulty swallowing
- Nausea/vomiting, diarrhea, abdominal pain

**Atypical symptoms/clinical pictures of COVID-19 should be considered, particularly in children, older persons, and people living with a developmental disability.**

**Atypical symptoms can include:**

- Unexplained fatigue/malaise/myalgias
- Unexplained or increased number of falls
- Delirium (acutely altered mental status and inattention)
- Acute functional decline
- Exacerbation of chronic conditions
- Chills
- Headaches
- Croup
- Conjunctivitis
- Multisystem inflammatory vasculitis in children

**Other signs of COVID-19 can include:** •Clinical or radiological evidence of pneumonia

**Atypical signs can include:**

- Decrease in blood pressure
  - Unexplained hypoxia (even if mild i.e. O2 sat <90%)
  - Unexplained tachycardia, including age specific tachycardia for children
  - Lethargy, difficulty feeding in infants (if no other diagnosis)”

**“Testing of asymptomatic persons is generally not recommended** unless part of outbreak management, or a formal surveillance initiative of asymptomatic persons. In asymptomatic persons, a negative result does not rule out disease.”

Guidance for “higher risk groups” is then discussed including hospital inpatients, residents of long-term care and retirement homes, other congregate living residents, health care workers and their family contacts, and so forth—all with minor variations in recommendations for asymptomatic testing or when to test.

It is apparent the WHO Guidelines are being enacted in Ontario. Inflated case numbers will follow with the increased testing under these protocols. This is especially true since **none of the above symptoms are specific to Covid-19.**

**No Cure?**

The “no cure” agenda devolves directly from the pharmaceutical industry, which is receiving billions of dollars from governments to develop expensive and so far unproven as safe and effective “cures”. Yet safe, effective and inexpensive remedies that help recovery from Covid-19 already exist. The studies below address Vitamin C and Vitamin D. There are other studies and much information on the general protective nature of Vitamin C and D supplementation available on the internet.

A large [New York hospital system reported success with IV vitamin C](#) in late March 2020. Quotes from the article include the following:

“Dr. Andrew G. Weber, a pulmonologist and critical-care specialist affiliated with two Northwell Health facilities on Long Island, said his intensive-care patients with the coronavirus immediately receive 1,500 milligrams of intravenous vitamin C.

“Weber, 34, said vitamin C levels in coronavirus patients drop dramatically when they suffer sepsis, an inflammatory response that occurs when their bodies overreact to the infection.

“It makes all the sense in the world to try and maintain this level of vitamin C,” he said.

This April 7, 2020, [article](#) published in the Springer Journal *Biomed Central: Critical Care* reports on a new clinical trial to test **IV vitamin C** in Covid-19 patients. It contains links to 3 other studies supporting the use of IV vitamin C in critical care patients. Quotes from this article include the following:

“During infection, vitamin C levels can become depleted and a person’s requirement for vitamin C increases with the severity of the infection [1]. In severe cases, this may require intravenous administration of gram doses in order to achieve high enough levels in the body to compensate for the enhanced turnover of the vitamin.

As of February 2020, the clinical characteristics of patients hospitalized with COVID-19-related pneumonia indicated that 26% were transferred to the ICU because of complications such as ARDS and shock [2]. A recently published RCT carried out in the USA in 167 patients with sepsis-related ARDS indicated that administration of ~ 15 g/day of IV vitamin C for 4 days may decrease mortality in these patients [3].”

This May 7, 2020, Science Daily [article](#) discusses a pre-print study from Northwestern University on **Vitamin D** levels and Covid-19 mortality rates in 10 countries:

"It is hard to say which dose is most beneficial for COVID-19," Backman said. "However, it is clear that vitamin D deficiency is harmful, and it can be easily addressed with appropriate supplementation. This might be another key to helping protect vulnerable populations, such as African-American and elderly patients, who have a prevalence of vitamin D deficiency."

"Not only does vitamin D enhance our innate immune systems, it also prevents our immune systems from becoming dangerously overactive. This means that having healthy levels of vitamin D could protect patients against severe complications, including death, from COVID-19.

"Our analysis shows that it might be as high as cutting the mortality rate in half," Backman said. "It will not prevent a patient from contracting the virus, but it may reduce complications and prevent death in those who are infected."

"Backman said this correlation might help explain the many mysteries surrounding COVID-19, such as why children are less likely to die. Children do not yet have a fully developed acquired immune system, which is the immune system's second line of defense and more likely to overreact.



"Children primarily rely on their innate immune system," Backman said. "This may explain why their mortality rate is lower."

These are just two of the readily available and inexpensive supplements and medicines that the public may find of beneficial use in the "new covid normal".

### **Summary**

Using total cases numbers as though they represented the risk of being infected with Covid-19 is perception management. While these cumulative numbers may be of interest for epidemiological study at an academic or public health level, they have little bearing on the true situation facing citizens.

Active case numbers plus recovered case numbers and associated deaths should be the presentation style chosen for public consumption. Prevalence and Risk should be discussed instead of inflaming public fear.

Rather than chanting "there is no cure", public health officials should offer positive, mitigation of risk advice, including the importance of good nutrition and daily Vitamin C and D supplementation during epidemics.

Many scientists and doctors have expressed confidence in high dose IV vitamin C, vitamin D supplementation and other generic, inexpensive and readily available medications to assist recovery. It is simply not true there is no cure.