## Appendix A: Covid-19 Testing

This section gathers the information that supports the declarative statements in the main body of the report regarding PCR testing as not being "fit for purpose". This is extremely important as the PCR testing is the basis for almost all the covid statistical data the public sees.

Confirmation that the complicated PCR test is **not an antigen test** and that **antibody tests are simple and inexpensive** are found in these expert comment on different types of testing for COVID-19. Comments are from the UK's Science Media Centre in response to journalists' questions about current testing. We excerpt portions of comments below.

> **Prof Eleanor Riley, Professor of Immunology and Infectious Disease, University of Edinburgh, said:**
> "Traditionally there are two types of diagnostic test for infectious organisms – tests for the presence of the virus itself (current infection) and tests for antibodies to the virus (prior infection)."
>
> "Tests for the organism (current infection) are often called "antigen" tests – where antigen refers to some component of the virus, typically the external (coat) protein of the virus. However, the test being used for COVID-19 is actually looking for viral RNA (which is technically not a viral antigen)."
>
> **Prof Ashley Woodcock, Associate Dean for Clinical Affairs and Professor of Respiratory Medicine, University of Manchester, and Clinical Director for Respiratory Medicine, University Hospital of South Manchester** said:
> "These [immunity] tests are cheap, about £5 per test. They are a stick test like a pregnancy test. It is easy to use with two spots of blood from a thumb prick, and takes 10 minutes for a positive answer. There is no infection risk to sampling over and above that of a finger prick."
>
> **Dr Colin Butter, Associate Professor and Programme Leader in Bioveterinary Science, University of Lincoln, said:**
> "These notes below relate to testing for the virus. The point of care tests for antibody responses are apparently on the way and will be very welcome. The technique presently being used to test for the presence of virus is quantitative Reverse Transcription Polymerase Chain Reaction, or qRT-PCR. Strictly speaking it does not detect [the] antigen but viral RNA."
>
> **Dr James Gill, Locum GP & Honorary Clinical Lecturer, Warwick Medical School, said:**
> "PCR testing – as used by the CDC and WHO initially – is very labour intensive, and has several points along the path of doing a single test where errors may occur – which may lead to headline issues of a false positive, the test showing evidence of the virus when it's not actually there, or a false negative, suggesting someone doesn't have the virus when in fact they do."
>
> "During the course of the outbreak, the PCR testing has been refined from the initial testing procedures and with the addition of greater automation to reduce errors. As such, we now have an 80-85% specificity – i.e. the chance the test is detecting the virus. Remember as we are looking at swabs taken from people, who have lots of other organisms floating around, we are essentially dealing with the question of how "right" the result we are looking at is."

While these carefully worded comments for the press allude to the very real problems of the PCR test, they explain little. The problems and concerns with the PCR test are discussed below with comments from scientists who actually understand the proper use of this technological tool and the ramifications of its disuse. The list of concerns is long, but boil down to its misuse as a diagnostic tool due to its unreliability for this purpose and its inability to discern pathology.

**PCR Test is NOT a Diagnostic Tool**

This is a matter of historical record. In 1983, the PCR process was developed by Kary Mullis and Michael Smith to replicate small amounts of DNA by amplifying them (making identical copies) for research work. They received a Nobel Prize for this work in 1993. However, Kary Mullis is often quoted as explicitly saying PCR is not a diagnostic tool. For example, microbiologist Dr. Judy Mikovits explained in a recent interview: "*Epidemiology is not done with PCR. In fact, Kary Mullis who invented PCR, Nobel Laureate, and others, said PCR was never intended for diagnostic testing.*"

**PCR Testing is Unreliable**

Medical journalist David Crowe has also referenced Mullis' comment that PCR is not intended for diagnostic testing. However, his great contribution to our understanding of the reasons why qRT-PCR testing is unreliable stem from his research and interviews with the recognized expert on PCR testing Dr. Stephen Buskin, MD. Dr. Busking is the author of the Guidelines for PCR testing. David Crowe provides an excellent synopsis of the issues with using the RT-PCR test for Corona Virus here. Some of his points are presented below and constitute a massive indictment of the testing process and its use as a diagnostic tool. [Emphasis ours in red text]

- **The PCR Cycle Number**

  The PCR algorithm is cyclical. At each cycle it generates approximately double the amount of DNA (which, in RT-PCR, corresponding to the RNA that the process started with). When used as a test you don't know the amount of starting material, but the amount of DNA at the end of each cycle will be shown indirectly by fluorescent molecules that are attached to the probes. The amount of light produced after every step will then approximately double, and when it reaches a certain intensity the process is halted and the sample is declared positive (implying infected). If, after a certain number of cycles, there is still not sufficient DNA, then the sample is declared negative (implying not infected). **This cycle number (Ct) used to separate positive from negative is arbitrary, and is not the same for every organization doing testing.**

- **Meaning of the Ct**

  **Implicit in using a Ct number is the assumption that approximately the same amount of original RNA (within a multiple of two) will produce the same Ct number.** However, there are many possibilities for error in RT-PCR. There are inefficiencies in extracting the RNA, even larger inefficiencies in converting the RNA to complementary DNA (Buskin noted that efficiency is rarely over 50% and can easily vary by a factor of 10), and inefficiencies in the PCR process itself. In the podcast, **Buskin described reliance on an arbitrary Ct number as "absolute nonsense, it makes no sense whatsoever". It certainly cannot be assumed that the same Ct number on tests done at different laboratories indicates the same original quantity of RNA.**

- **Limits on Cycle**

  Professor Buskin stated that **cycling more than 35 times was unwise**, but it appears that nobody is limiting cycles to 35 or less…**Cycling too much could result in false positives as background fluorescence builds up in the PCR reaction.**

- **Ct and Number of Positive Tests**

  **The Ct cycle number will significantly influence the number of positive tests**. **If the Ct was changed from 37 to 35 there would be fewer positive tests, and if changed to 39 there would more positive tests.**

- **Is the Amount Meaningful?**

  If the process is efficient, a large number of cycles could detect as little as three molecules of RNA. **If there are people who had such a small amount of virus in their body, causing no health problems, they would still test positive.**
- **Is the Virus Functional?**

  If there are only parts of viruses present, or defective virus particles, that are not infectious, they would still produce positive tests. **The tests do not prove that pathogenic, replicable virus is present.**
- **Can RT-PCR Distinguish Infected from Uninfected?**

  **No.**
- **Conclusion**

  **RT-PCR testing for the Coronavirus seems to be designed to produce as many positive tests as possible.** The fear of missing a true positive is so great that those designing the specific testing methodology based on RT-PCR completely ignore the risk of false positives. False positives make the epidemic appear larger…

The following is from Swiss Policy Research: [Emphasis in red text ours]

> "Numerous media reported about alleged **"re-infections"** of already recovered persons in South Korea. However, researchers have now come to the conclusion that all of the 290 suspected cases were ***false-positive test results*** **caused by "non-infectious virus fragments".** The result again highlights the well-known unreliability of PCR virus tests."

The Foundation for Innovative New Diagnostics (FIND) is an international, non-profit company that is evaluating new Covid-19 tests (both antigen and antibody) for FDA approvals so the tests can be marketed. (See donors-partners here.) This link is to a list of the first approved new PCR tests. Data in the farthest right column—*Supplier recommended Ct cutoff*—will confirm Crowe's and Buskin's concerns above that "**nobody is limiting cycles to 35 or less**…." **None of the manufacturer recommended cut-offs for positive tests are 35 or below on the list.** One is at 38. All the rest are at 40 or above, or simply unspecified. This guarantees more positive tests and concomitantly more false positive tests.

**False Positives Inflate Case Numbers**

A pre-print paper, *False positives in reverse transcription PCR testing for SARS-CoV-2* (Cohen & Kessel, 2020), was posted on medRxiv, May 1,2020. Note particularly their comments regarding PCR testing in populations with **low prevalence** like Canada. Here is the Abstract:

> **Background**
>
> Large-scale testing for SARS-CoV-2 by RT-PCR is a key element of the response to COVID-19, but **little attention has been paid to the potential frequency and impacts of false positives.** [All emphasis ours]
>
> **Methods**
>
> From a meta-analysis of external quality assessments of RT-PCR assays of RNA viruses, we **derived a conservative estimate of the range of false positive rates** that can reasonably be expected in SARS-CoV-2 testing, and **analyzed the effect of such rates on analyses of regional test data and estimates of population prevalence and asymptomatic ratio**.
>
> **Findings**

Review of external quality assessments revealed false positive rates of 0-16.7%, with an interquartile range of 0.8-4.0%. **Such rates would have large impacts on test data when prevalence is low**. Inclusion of such rates significantly alters four published analyses of population prevalence and asymptomatic ratio.

**Interpretation:**

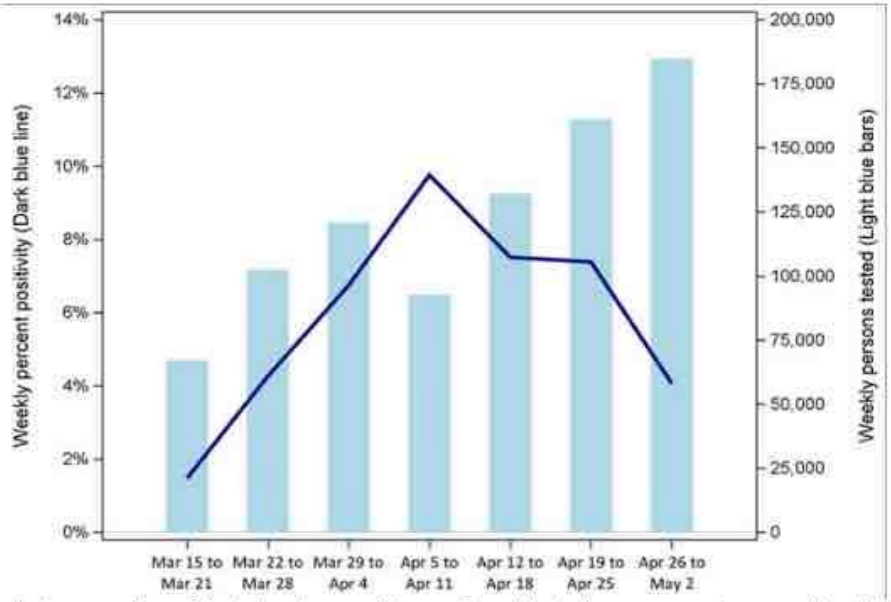
The **high false discovery rate that results, when prevalence is low, from false positive rates** typical of RT-PCR assays of RNA viruses **raises questions about the usefulness of mass testing**; and indicates that across a broad range of likely prevalences, **positive test results are more likely to be wrong than are negative results, contrary to public health advice about SARS-CoV-2 testing.** There are myriad clinical and case management implications. Failure to appreciate the potential frequency of false positives and the consequent unreliability of positive test results across a range of scenarios could unnecessarily remove critical workers from service, expose uninfected individuals to greater risk of infection, delay or impede appropriate medical treatment, lead to inappropriate treatment, degrade patient care, waste personal protective equipment, waste human resources in unnecessary contact tracing, hinder the development of clinical improvements, and weaken clinical trials. **Measures to raise awareness of false positives, reduce their frequency, and mitigate their effects should be considered.**

**FDR is the False Discovery Rate**. It includes both false negative and false positive tests. Here is a fuller quote from this paper about testing programs like Canada's that use PCR tests:

"Thus FDR rises as test programs sample populations with fewer infected individuals. This can result from programs continuing to implement broad-scale testing even as the prevalence of the virus in the general population declines, as appears to be the case in South Korea. Or it can result from expanding the scale of testing to include individuals who are less likely to be infected. **Calls for mass testing for SARS-CoV-2 should be evaluated in light of the potential for the positive test results from broad-scale testing to be substantially comprised of false positives.** Though broadening the scale of testing does generate more data, **the quality of the generated data declines as it becomes increasing contaminated by false positives.**" [All emphasis ours]

Canada's mass testing results are shown in the chart below (from the Public Health Agency of Canada's Daily Epidemiological Update on Covid-19 dated May 9, 2020).

**Figure 3:** Number of COVID-19 tests conducted and percent positivity by week




Data source: NML. Change in the reporting of the laboratory positive confirmed tests by some provinces and territories has resulted in a decrease and more accurate national percent average positivity.

It is clear that the scale of testing in Canada is expanding to include more individuals who are less likely to be infected. The percent of positive tests (dark line) has fallen from a peak of 10% at the beginning of April to 4% in the last week of April as the number of test (pale blue bars) increased. According to the paper above, this means **increasing contamination by false positives and declining data quality**. It also means the "myriad clinical and case management implications" delineated in the Abstract above (and more fully in the paper itself) will cause increasing waste of resources, jeopardize patient and workers health and safety and could even have serious legal implications.

**Why PCR testing now and what is the cost?**

PHAC reports more than 1.4 million people have had PCR tests. For the latest week of May 10–18 the total number of tests was 191,338 of which only 4.1% tested positive. Is this a good use of our resources (both dollars and testing staff), when a much quicker and less expensive, more accurate and more easily verified antibody test would do the trick at this stage of the epidemic?

This February 2020 paper had similar concerns about PCR false positives and substantiates the contamination of data with false positives. It was published in the *Chinese Journal of Epidemiology* and titled ***Potential false-positive rate among the 'asymptomatic infected individuals' in close contacts of COVID-19 patients***. (Original here with the Abstract in English and David Crowe's posted full translation.) Results and Conclusions as follows: [Emphasis ours]

> **Results:** When the infection rate of the close contacts and the sensitivity and specificity of reported results were taken as the point estimates, the positive predictive value of the active screening was only 19.67%. In contrast, the false-positive rate of positive results was 80.33%. The multivariate-probabilistic sensitivity analysis results supported the base-case findings, **with a 75% probability for the false-positive rate of positive results over 47%.**

> **Conclusions:** In the close contacts of COVID-19 patients, **nearly half or even more of the 'asymptomatic infected individuals' reported in the active nucleic acid test screening might be false positives.**

**Antibody Testing: What's the Hold Up**

The findings in the Chinese paper above further suggest that PCR testing is certainly not the best choice for determining infection in **contact tracing** as it is being implemented in Canada and in many other countries.

Microbiologist Dr. Judy Mikovitz in this video interview with Dr. Mercola states that PCR testing is the wrong choice for testing during epidemics in any case. Dr. Mercola's transcription (also available at the video link above) of the interview explains:

> **Judy Mikovits**: What should have been done is test for antibodies. But now I see, politically, how the government and those with conflicted interests are actually skewing the results of those tests. And I know you know enough immunology, it's immunology 101…what should have been done in the beginning…is use an antibody test for SARS-CoV-2, and that will give you IgG, meaning it's a past infection, and you've developed a strong immune response, an immunological memory, that if you see that infection again, you will have a response that will keep you from developing severe COVID-19…
>
> **Judy Mikovits**: And so the IgM is a recent infection, not necessarily a memory response, but gives you more information on how long those viruses have been in our country, in our world, and have spread through…
>
> **Judy Mikovits:** Epidemiology is not done with PCR. And in fact, Kary Mullis who invented PCR, Nobel Laureate, and others said PCR was never intended for diagnostic testing. So that finishes, puts that to bed…It takes nothing to develop a really good serology test.
>
> **Dr. Mercola**: Mechanically, this will take a few weeks? It doesn't take a long lead time to develop that test?
>
> **Judy Mikovits:** Yeah, few weeks. It's pretty easy because all you do is, the people who have recovered have antibodies. And so, you isolate those antibodies, you take their plasma, you purify the antibodies, and then you can grow them up, and then you develop the tests, which shows you… It's usually ELISA or Western Blot. And so it's the protein there and the antibody binds, and you form an immune complex, and you detect it with a dye.
>
> **Dr. Mercola**: So that is the test that should be implemented, if you want to get real data that's the truth?
>
> **Judy Mikovits**: And it takes 15 minutes to get the answer, almost like a pregnancy test. Well, we had that test available at the end of 2019, and it could have been purchased where, they call it point of care, you can go to the drug store and buy it to see if you're infected. But the FDA then said, "No, you can't do that." And they put it behind the-
>
> **Dr. Mercola**: They want to use…PCR test, which is worthless for this.
>
> **Judy Mikovits**: Correct. And more than worthless, it's set for this panic and the fear we discussed earlier.
>
> **Dr. Mercola**: My guess and many others' is that this was not accidental, this was intentional.

Canadian and American public health officials posit on TV and in the press that "we don't know enough" about how long Covid-19 antibodies may last and that the antibody tests may have false readings (while completely ignoring the false readings in RT-PCR testing). This is the "politics" that Dr. Mikovitz alludes to above. It can be seen in its full glory here on CBC in Canada. There is no reason to believe that the human immune system does not develop

antibodies to SARS CoV-2 as it does to all other viral infections including both SARS-1 and MERS, which were also corona viruses. There is now even *in vitro* suggestion that SARS-1 antibodies may protect against Sars CoV-2. Other countries have developed antibody (serum) tests and used them for antibody testing.

This early release paper, *SARS-CoV-2 specific antibody responses in COVID-19 patients*, from a group of academic and government public health researchers in the Netherlands, Germany and France attests to the fact that antibodies are developed in Covid-19 patients and found with validated serum (antibody) tests as Mikovitz described above. From the Abstract: [Emphasis ours]

> "Whereas molecular diagnostic tests [PCR] were rapidly developed, **serologic assays are still lacking, yet urgently needed**. **Validated serologic assays are important for contact tracing, identifying the viral reservoir and epidemiological studies.** Here, we developed serological assays for the detection of SARS-CoV-2 neutralizing, spike- and nucleocapsid-specific antibodies. Using serum samples from patients with PCR-confirmed infections of SARS-CoV-2, other coronaviruses, or other respiratory pathogenic infections, we validated and tested various antigens in different in-house and commercial ELISAs. **We demonstrate that most PCR-confirmed SARS-CoV-2 infected individuals seroconverted,** as revealed by sensitive and specific in-house ELISAs…Overall, **the validated assays described here can be instrumental for the detection of SARS-CoV-2-specific antibodies for diagnostic, seroepidemiological and vaccine evaluation studies**."

Notwithstanding protestations like those from CBC above, it seems that **the only mystery that really remains is why we are not broadly testing the Canadian population for immunity to Covid-19 with antibody tests**.

A number of antibody (blood serum) testing **surveys** in specific populations have been done recently in the USA. Of course, the percent of the immune population varies in different localities or among different groups. But these figures are nevertheless used to broadly estimate the extent of the immune population. These estimates are included when available in the articles linked below.

Ranges of immunity include almost 25 percent in New York City, almost 15 percent in New York State: "…New York [state] released new data Monday showing that nearly 15 percent of those tested had antibodies to the virus — suggesting as many as 2.9 million New Yorkers may have been infected at some point, fully 10 times what the state has reported officially. The numbers are even higher in New York City — antibody testing found a positivity rate of 24.7 percent in city samples, suggesting almost 2.1 million city residents could have been infected at some point."

In California findings were between 2.8 and 5.6 percent in Los Angeles County: "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." Another California county report had similar findings of 2.8 percent in Santa Clara County, California: "After weighting for population demographics of Santa Clara County, the prevalence was 2.8%…These prevalence point estimates imply that 54,000 [weighted prevalence]; 23,000 [unweighted prevalence]

people were infected in Santa Clara County by early April, many more than the approximately 1,000 confirmed cases at the time of the survey."

These results support what epidemiologists already knew: COVID-19 is much more widespread than testing data would suggest. All along medical experts and epidemiologists have said the actual number of cases would, conservatively, be anywhere from 10 to 50 times the number of reported cases. This range is reflected in the above surveys.

Antibody testing would indicate the portion of the population who have been exposed, recovered and are no longer susceptible to infection (or severe infection). In other words, it would establish the level of natural herd immunity in the population. Knowing a reasonable estimate of the number of the immune population in Canada will assist in better understanding the **true** number of cases that have transpired. And once again the **covid data pyramid** would be activated, but this time as the **true** number of total cases is used in the calculations for the true virulence and true transmissibility of the virus. The true transmissibility could also be used in a **more accurate epidemiological model** that projects probabilities for policymakers.

**What antibody studies can tell us**

Below are three items from Swiss Policy Research. The first two show results of Antibody testing studies from various locations. The third shows why data presentation matters.First is a chart with findings that the **lethality of Covid-19 is similar to Influenza**.

**Covid-19 infection fatality rates (IFR) based on antibody studies**

Population-based antibody seroprevalence studies show that overall Covid-19 lethality is comparable to influenza. IFR values are influenced by age and risk profiles of populations.

| Country | Published | Population | IFR (%) | Source |
|---|---|---|---|---|
| Global | May 19 | Most countries<br>Three hotspots | <0.20<br><0.40 | Study |
| Germany | May 4 | Heinsberg Cluster | <0.36[1] | Study |
| Iran | May 1 | Guilan province | <0.12 | Study |
| USA | April 30 | Santa Clara County | 0.17 | Study |
| Denmark | April 28 | Blood donors (<70y) | 0.08 | Study |
| USA | April 24 | Miami-Dade County | 0.18[2] | Report |
| USA | April 21 | Los Angeles County | <0.20 | Study |

1) The adjusted IFR is 0.278% (see page 9 of study); 2) Based on 300 deaths.

The second item shows that hospitalization rates are much lower than the WHO estimate of 20% when based on **all cases** established from antibody testing:

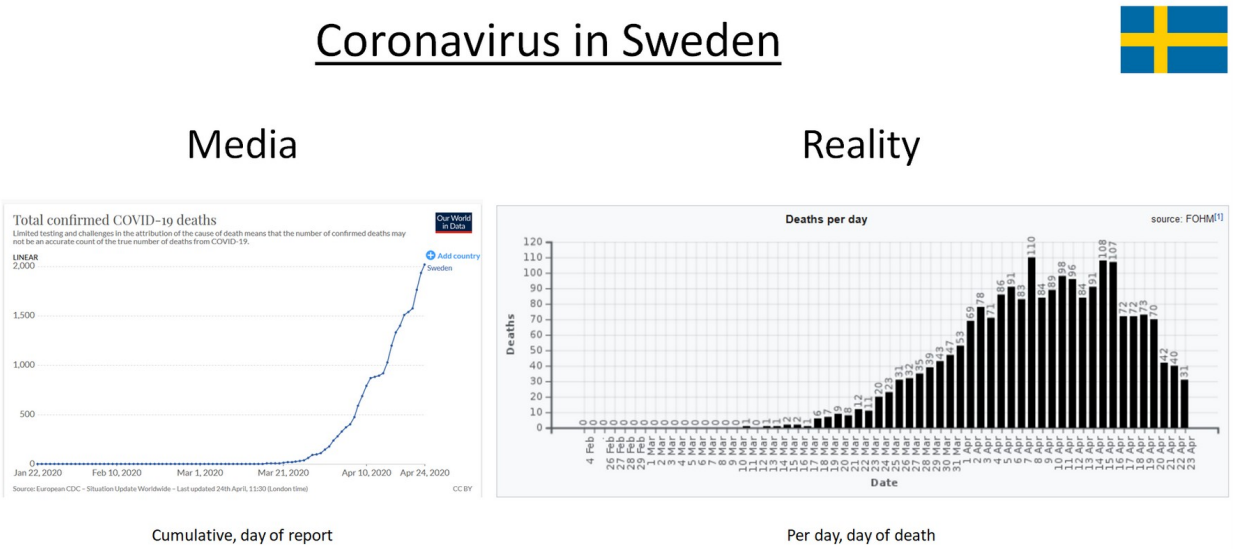
> **"Hospitalization rate**
>
> Initial estimates based on Chinese data assumed a very high 20% hospitalization rate, which led to the strategy of 'flattening the curve' to avoid overburdening hospitals. However, population-based antibody studies…have since shown that actual hospitalization rates are close to 1%, which is within the range of hospitalization rates for influenza (1 to 2%).
>
> The US CDC found that Covid-19 hospitalization rates for people aged 65 and over are "within ranges of influenza hospitalization rates", with rates slightly higher for people aged 18 to 64 and "much lower" (compared to influenza) for people under 18.

> In local hotspots like New York City, the overall hospitalization rate based on antibody studies is about 2.5% (19.9% or 1.7 million people with antibodies and 43,000 hospitalizations by May 2), which is somewhat above a strong wave of influenza.
>
> The much lower than expected hospitalization rate may explain why most Covid-19 'field hospitals' even in hard-hit countries like the US, the UK and China remained largely empty."

In Canada the hospitalization rate is approximately 10% based only on the PCR-tested, mostly serious case numbers. If Canada ever does do antibody testing, then those hospitalization rates will drop giving us a much more accurate idea of the effect of the virus on the Canadian population. There is no reason to suppose the rates will be different from those discussed above—that is, closer to 1–2%, which is a similar rate to Influenza hospitalizations.

The final item is a graphic that shows why **daily report charts** are so much more realistic than **cumulative (total) report charts**. In this case, the subject is deaths in Sweden. The text accompanying the graphic says:

> **Development of the epidemic**
> Even in countries *without* a lockdown, the epidemic reached its peak within a few weeks of the outbreak. However, many media showed *cumulative* deaths per *day of report* (left) instead of *daily* deaths per *day of death* (right), falsely implying an ever-escalating situation.




Source: Swiss Policy Research

**Natural Herd Immunity or Vaccines?**

In epidemics there are three groups in any population: susceptible, infected and immune (recovered). Social measures to flatten the curve (e.g., lockdown, social distancing) maintain a higher level of unexposed, susceptible people and thus **extend the duration of the epidemic** and **guarantee a new wave of infection** when lockdowns are lifted and the susceptible re-enter society.

Some susceptible people need to be protected, namely the fragile—the elderly, disabled and immune compromised. Although the social measures imposed have failed to do so. But most of the cases in the rest of the population will be mild. Currently global data show only 2% of active Covid cases are serious enough to require hospitalization. The graphics from the UK and Canada (Part I, page 3 & 4) make clear that the risk and age profile basically reflects normal mortality.

As respected epidemiologist Knut Wittkowski (paper) (video) explains, it is natural herd immunity (fewer susceptibles in the population) that stops the virus, not social measures, which simply prolong the viruses presence in the population.

Finally, it cannot be denied that the extension of susceptible population isolation and thus epidemic duration allows more time for the pharmaceutical industry to generate medications and vaccines. It is claimed these will stop the epidemic, rather than natural herd immunity. Why are we to wait in lockdown for this? We have no assurance a safe and effective retrovirus vaccine can even be made? The industry certainly did not succeed over the last 40 years for HIV virus vaccine, nor over 18 years for a SARS or MERS corona virus vaccine despite millions in American taxpayer dollars thrown at these programs.

In a second video, Dr.Wittkowski shows a slide from the CDC with hospitalizations for respiratory illnesses including Covid-19. Hospitalizations are commonly used as a barometer of the "burden of disease" as the data is readily available. The point Mr. Wittkowski was making was that the pandemic was essentially over as of early March as hospitalization rate had peaked a week later. The lockdown was not imposed until March 18 and had little effect, except to cause great hardship for 99.9% of the populations affected.

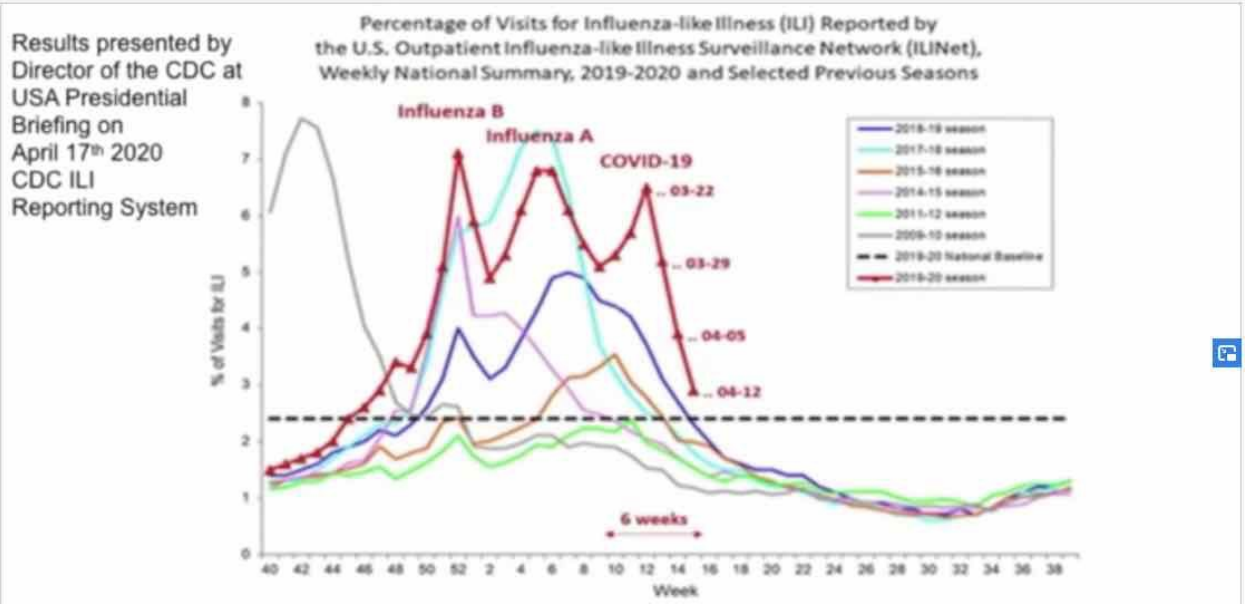



**Fig 18: Percentage of US Hospital Visits of Influenza-like Illness (ILI).** Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet). Weekly national Summary, 2019-2020 and Selected Previous Seasons. The 3rd peak of the 2019-20 season (03-16..22) reflects hospital utilization by COVID-19 patients. https://www.cdc.gov/flu/weekly/index.htm, https://www.cdc.gov/flu/weekly/weeklyarchives2019-2020/images/ILI15_small.gif , accessed 2020-04-17f

Another important point Wittkowski makes is this: *"Isolating the nursing homes would be the thing that would have prevented death and would have prevented hospitals from becoming*

*overloaded. Not letting children and young adults become infected and develop immunity does not reduce the risk or the load on hospitals."*

Many experts around the world have similar opinions to Dr. Wittkowski as seen in this article presenting 12 expert views. They all worry about the consequences of the lockdown and the overstated data on the SARS-CoV-2 virus. Below is the list of notable experts in the March 24 article on *Off-Guardian*. Click on the article link to read, see or hear what they each have to say.

**Dr Sucharit Bhakdi** is a specialist in microbiology. He was a professor at the Johannes Gutenberg University in Mainz and head of the Institute for Medical Microbiology and Hygiene and one of the most cited research scientists in German history.

**Dr Wolfgang Wodarg** is a German physician specialising in Pulmonology, politician and former chairman of the Parliamentary Assembly of the Council of Europe. In 2009 he called for an inquiry into alleged conflicts of interest surrounding the EU response to the Swine Flu pandemic.

**Dr Joel Kettner** is a **Canadian** professor of Community Health Sciences and Surgery at Manitoba University, former **Chief Public Health Officer for Manitoba** province and Medical Director of the International Centre for Infectious Diseases.

**Dr John Ioannidis** American Professor of Medicine, of Health Research and Policy and of Biomedical Data Science, at Stanford University School of Medicine and a Professor of Statistics at Stanford University School of Humanities and Sciences. He is director of the Stanford Prevention Research Center, and co-director of the Meta-Research Innovation Center at Stanford (METRICS). He is also the editor-in-chief of the European Journal of Clinical Investigation. As a physician, scientist and author he has made contributions to evidence-based medicine, epidemiology, data science and clinical research. In addition, he pioneered the field of meta-research. He has shown that much of the published research does not meet good scientific standards of evidence.

**Dr Yoram Lass** is an Israeli physician, politician and former Director General of the Health Ministry. He also worked as Associate Dean of the Tel Aviv University Medical School.

**Frank Ulrich Montgomery** is a German radiologist, former President of the German Medical Association and Deputy Chairman of the World Medical Association.

**Dr Yanis Roussel et. al.** – A French team of researchers from the Institut Hospitalo-universitaire Méditerranée Infection, Marseille and the Institut de Recherche pour le Développement, Assistance Publique-Hôpitaux de Marseille, conducting a peer-reviewed study on Coronavirus mortality for the government of France.

**Dr. David Katz** is an American physician and founding director of the Yale University Prevention Research Center

**Michael T. Osterholm** is an American regents professor and director of the Center for Infectious Disease Research and Policy at the University of Minnesota.

**Dr Peter Goetzsche** is Professor of Clinical Research Design and Analysis at the University of Copenhagen and founder of the Cochrane Medical Collaboration. He has written several books on corruption in the field of medicine and the power of big pharmaceutical companies.

There are two follow-up articles: March 28, ten more here and April 17, eight more here.

There are many other experts on the internet expressing similar opinions. We chose this article and the two follow-up articles as they contain over 30 experts in one place with links for follow-up.

All in all there is a great deal of evidence that the Covid-19 pandemic data are overstated and therefore the danger of this infection is overstated as well. Human immune systems and natural human herd immunity actually work and have protected the human population from respiratory infections and other viral and bacterial illnesses for eons. There is no reason yet to suppose that this time is any different.

**Who established covid definitions? WHO of course.**

As discussed in the body of the report, the coding system adopted by most nations is based on WHO international case definitions coded for surveillance purposes. The direct links and wording for Covid-19 are provided below. Interspersed are our comments and comments from others. There is much critique on the internet about various country's public health agencies definitions of Covid-19 and pressure on the medical community regarding case and death coding without apparently realizing the larger WHO system in play. **The point being made here is these codes all came down from WHO and were adopted by national public health agencies worldwide.**

**WHO link for DISEASE CODING: *Emergency use ICD codes for Covid-19 disease outbreak***

"The COVID-19 disease outbreak has been declared a public health emergency of international concern.

- An emergency ICD-10 code of 'U07.1 COVID-19, virus identified' is assigned to a disease diagnosis of COVID-19 **confirmed by laboratory testing**.
- An emergency ICD-10 code of 'U07.2 COVID-19, virus not identified' is assigned to a clinical or epidemiological diagnosis of COVID-19 where **laboratory confirmation is inconclusive or not available**.
- Both U07.1 and U07.2 may be used for mortality coding as cause of death. See the International guidelines for certification and classification (coding) of COVID-19 as cause of death following the link below."

Note the U07.2 code at the link actually says *"Use this code when COVID-19 is diagnosed clinically or epidemiologically but laboratory testing is inconclusive or not available."*

This April 29th article has this to say about **inconclusive tests**:

"A leading German laboratory reported in early April that, according to WHO recommendations, Covid19 virus tests are now considered positive, even if the specific target sequence of the Covid19 virus is negative and only the more general corona virus target sequence is positive. **This can lead to other corona viruses such as cold viruses also triggering a false positive test result. That means you can have a simple cold and you are deemed coronavirus positive.** Little wonder that the tally of coronavirus "infected" is exploding over the past weeks. But what does that number really mean? We simply don't know."

**WHO link for DEATH CODING: *International Guidelines for Coding Deaths Due to Covid-19***

**"DEFINITION FOR DEATHS DUE TO COVID-19**

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). There should be no period of complete recovery from COVID-19 between illness and death. 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."

**GUIDELINES FOR CERTIFYING COVID-19 AS A CAUSE OF DEATH**

…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.

**WHO and Clinical /Epidemiological Diagnosis**

As explained in the body of the report, according to WHO, a confirmed case of Covid-19 does not have to be confirmed by testing, it can be *clinically diagnosed* by symptoms or *epidemiologically diagnosed* by location.

**This is a very scientifically and medically unsound policy**. Covid-19 symptoms are **NOT specific**. Many infections from other respiratory viruses (e.g., influenza) have **the exact same list of symptoms** and **serious complications** (e.g., shortness of breath, pneumonia, sepsis) and fatal outcomes. Pneumonias whether bacterial or viral would have similar lung x-rays or scans as well. Covid-19 cannot be diagnosed with those tools. Therefore, clinical diagnoses is difficult, if not impossible. As for epidemiological diagnosis, this means that if someone is within an institutional cluster or an outbreak area, then it is assumed their symptoms **imply** infection with SARS-CoV-2. Any respiratory illness could thus be "diagnosed" as Covid-19.

And all deaths that relate to these cases are to be listed as Covid deaths regardless of pre-existing conditions or the number of those conditions. It is largely the responsibility of physicians (or nurse practitioners) to complete death certificates. See the Canadian Medical Protective Association (CMPA) article for details.

The USA CDC has a manual for filling out death certificates. It specifically states that the USA follows the WHO Guidelines. It also says that the cause of death is the best medical opinion of the physician signing the certificate. Bolded in manual:

> "**The cause-of-death information should be the physician's best medical OPINION.** Report each disease, abnormality, injury, or poisoning that the physician believes adversely affected the decedent. A condition can be listed as ''probable'' if it has not been definitively diagnosed."

This medical standard is now overridden in the covid emergency, which is why some doctors have concerns.

***With* Rather than *Of* the Disease**

This 2015 paper, Principles and Pitfalls: a Guide to Death Certification, discusses the importance of cause of death medical standards. In a section titled, ***Best medical opinion***, we read:

> "In some cases, the causal chain of events leading to death is not clear…In general, the degree of certainty required of a natural death certifier is 'more likely than not' (ie, with a reasonable degree of medical probability the decedent expired of the causes listed on the death certificate).[2,14] **Particularly with elderly decedents, it can be challenging to prioritize the conditions leading to death, as there are often multiple medical comorbidities, and they can appear to die with (rather than of) their disease.**"

In a section titled ***The bottom line*****,** we read:

> "The condition listed on the bottom line of Part I (ie, the underlying cause of death) is arguably the most important in that this is generally what will be coded as the cause of death. Mortality data worldwide are coded according to the current International Statistical Classification of Disease and Related Health Problems (ICD-10) system that is published by the World Health Organization (WHO).[16] The system facilitates interpretation and comparison of mortality data by translating the cause of death into an alphanumeric code that corresponds to a particular disease or injury. **From a public health perspective, the most effective strategy is to prevent the initiating disease or injury that precipitated the chain of events leading to death.[16] For this reason, it is important to carefully consider underlying causes.** In the current example (figure 6), end-stage renal disease has many possible etiologies. It is important that type II diabetes mellitus be specified as the underlying cause of death in order to ensure accurate tracking of disease mortality."

Obviously, re-defining covid as cause of death will affect global disease mortality statistics for all comorbidities in covid-defined cases (e.g. hypertension, various cancers, cardiac and other respiratory diseases). Is pumping the death stats for covid more important to WHO than maintaining these other databases that include the leading causes of death in the world?

**Medical Community Concerns**

Concerns about coding Covid-19 as "cause of death" are widely expressed in the medical community as the following two articles discuss. The concerns range from clinical diagnoses based on symptoms to disregard of **the established standard of best medical opinion** with this state agency control of physicians.

From this May 7 article published in the UK, ***COVID-19 is a Statistical Nonsense***, we read:

> "The mortality statistics for COVID 19 have been incessantly hammered into our heads by the mainstream media (MSM). Every day they report these hardest of *facts* to justify the lockdown (house arrest) and to prove to us that living in abject fear of the COVID 19 syndrome is the only sensible reaction.
>
> …But how reliable are these statistics? What do they really tell us about what is happening outside the confines of our incarceration? Do they reveal the harsh reality of an *unprecedented* deadly virus sweeping the nation or does the story of how they have been manipulated, inflated, fudged and exploited tell us something else?
>
> …In their guidance the ONS [Office of National Statistics] advised doctors on what constitutes an acceptable *underlying* cause of death. When mortality statistics are used for research it is usually the most relevant factor. The vast majority of COVID19 deaths reported by the State and the MSM also reflect its identification as the underlying cause.
>
> …For COVID19, this determination can be based upon the clinical judgement of a doctor who has never met the deceased. Quite possibly following nothing more than a video link consultation or a case note review of symptoms.
>
> The problem is the symptoms of COVID19 are largely indistinguishable from a range of other respiratory illnesses. A study from the University of Toronto found:
>
> > *"The symptoms can vary, with some patients remaining asymptomatic, while others present with fever, cough, fatigue, and a host of other symptoms. The symptoms may be similar to patients with influenza or the common cold."*
>
> The Oxford Centre for Evidence Based Medicine found that anything between 5% – 80% of people who tested positive for SC2 [SARS-CoV-2] did not have any symptoms of COVID19. Asymptomatic people do not have a disease which impacts their health in the short term. Even for those who did test positive for SC2, claims that this was the underlying cause of death are dubious in an unknown number of cases."
>
> Obviously concerned about the implications, the Royal College of Pathologists (RCPath) have called for a systemic post outbreak review. The Health Service Journal reports that the RCPath expects a detailed investigation into causes of death due to the degree of uncertainty."

Published in Canada by Global Research on April 29, this excellent article ***The Dubious COVID Models, The Tests and Now the Consequences*** discusses a wide range of topics including this description of an American physician's response to state pressure to find Covid-19 as the cause of death:

> "Californian physician **Dr. Dan Erickson** described his observations regarding Covid19 in a press briefing. He stated that hospitals and intensive care units in California and other states have

remained largely empty so far. Dr. Erickson reports that doctors from several US states have been "pressured" to issue death certificates mentioning Covid19, even though they themselves did not agree. In Pennsylvania the state was forced to remove some 200 "coronavirus" deaths after doctor autopsy revealed death from pre-existing causes such as heart or lung diseases." [This video link in the original article has now been removed by YouTube, but is safely available here on Bitchute.]

The article also includes this quote from the Robert Koch institute in Germany about the overstated statistics:

> "In Germany the Robert Koch Institute (RKI), the government agency leading the COVID19 response, has deliberately refused to list the actual daily number of persons tested despite requests. **Prof. Christopher Kuhbander**, author of a detailed study states,
>
> > "The reported figures on new infections very dramatically overestimate the true spread of the corona virus. The observed rapid increase in new infections is almost exclusively due to the fact that the number of tests has increased rapidly over time. So, at least according to the reported figures, there was in reality never an exponential spread of the coronavirus. The reported figures on new infections hide the fact that the number of new infections has been decreasing since about early or mid-March."

**Is Covid-19 like other Respiratory infections?**

This March 17, 2020, WHO document, *Q&A: Similarities and differences-Covid-19 and influenza* lists the following **Similarities between Influenza & Civid-19**:

- similar respiratory disease presentation
- present as a wide range of illness from asymptomatic or mild to severe disease or death
- both viruses transmitted by contact, droplets and fomites [non-living object capable of carrying infectious agents, i.e. a doorknob]
- use same public health hygiene measures (hand washing, cough & sneeze etiquette)

And the following **Differences:**

- Speed of transmission—**Influenza can spread faster than COVID-19**
- Transmission of virus before the appearance of symptoms:
  - major driver of transmission for Influenza.
  - **does not appear to be a major driver of transmission for Covid-19**
- The reproductive number–number of secondary infections generated from one infected individual: understood to be between 2 and 2.5 for COVID-19 virus, higher than for influenza. However, estimates are very context and time-specific. Difficult to compare
- Range of symptoms for the two viruses is similar, but the **fraction with severe disease** appears to be different. For COVID-19, data to date suggest that 80% of infections are mild or asymptomatic, 15% are severe infection, requiring oxygen and 5% are critical infections, requiring ventilation. These fractions of severe and critical infection would be higher than what is observed for influenza infection.
- Children largely unaffected by Covid-19
- Mortality for COVID-19 appears higher than for influenza, especially seasonal influenza.

This quote from the document carefully alludes to the difference between CFR and IFR. However it manages to obscure the large differences between these two metrics.

> "While the true mortality of COVID-19 will take some time to fully understand, the data we have so far indicate that the crude mortality ratio (the number of reported deaths divided by the reported cases) is between 3-4%, the infection mortality rate (the number of reported deaths divided by the number of infections) will be lower. For seasonal influenza, mortality is usually well below 0.1%."

This WHO article was written in mid-March and has not been updated. Most of the differences claimed between influenza and Covid-19 diminish to almost non-existent as the Covid-19 data comes in. Even though we now know the data for Covid-19 are inflated by both faulty testing and WHO definitions of cases and causes of death the comparisons are of interest. For example, 'fraction of severe disease" is over-estimated for Canada as we saw in the data from the main report where approximately 10% of active cases are hospitalized. Of course, this data varies by country, but one presumes the World Health Organization was considering world data when it made the estimates in mid-March. Globally, the current data at worldOmeters shows 98% of Active cases in mild condition and only 2% serious or critical, not 20% as cited above.

We also note during vaccine campaigns public health officials craft documents that use influenza deaths combined with other pneumonia deaths to show inflated numbers of death to urge the public to get their flu shots. In the WHO definitions (ICD-10 coding), influenza is grouped with pneumonia in *Chapter X Diseases of the respiratory system* in *J09-J18 Influenza and pneumonia*. The Statistics Canada mortality tables use this coding so the public has no access to mortality data for influenza alone. We know influenza deaths are only a small part of the influenza/pneumonia deaths that are shown on the Stats Can tables. This is just another example of how data is used to alter public perception of disease risk.

The USA sometimes separates the deaths as in this 2018 chart. One can see influenza deaths are less than 20% of all flu/pneumonia deaths. The text below the chart explains which WHO ICD-10 codes are used for influenza deaths and pneumonia deaths.

| Location | Influenza and Pneumonia Deaths | Influenza Deaths | Pneumonia Deaths |
|---|---|---|---|
| United States | 59,120 | 11,164 | 47,956 |

Yet this USA CDC webpage on Influenza Disease Burden for 2019-2020 estimates 410,000 to 740,000 flu hospitalizations and 24,000 to 62,000 "flu deaths".

Yet, in the WHO "similarity and difference" document above they only compare the small number of influenza deaths to covid cases, not all pneumonia deaths from other viral respiratory diseases. This is where it would be appropriate to do so. At the very least covid deaths should be compared to pandemic influenza, not seasonal influenza, since that would be the logical comparison.

In the similarities and differences article above, the calculation used to arrive at a crude mortality rate of 3–4% for covid is based only on the total reported cases, most of which were severe in order to qualify for the questionably accurate PCR testing. As discussed with anti-body testing, only when a true estimate of the unknown cases is arrived at can a reasonable Covid-19 IFR (effective mortality rate) be determined and compared to a pandemic Influenza IFR.

It will likely also be revealed through antibody testing that children did experience mild or asymptomatic infections ballooning actual case numbers. And finally, it is obvious that influenza "targets" the elderly, just as Covid-19 does. This should be noted as a similarity between these two respiratory infections in the WHO article above.

**Conclusion:**
Public health officials and the WHO attempt to dissemble the true nature of this epidemic as it interferes with their meme of a terrible virus about which nothing is known rampaging around the world. The true similarities between Covid-19 and other respiratory illness, especially influenza, is something public health should approach honestly.

Most of the mainstream press and hence the public does not seem aware that **everything about Covid-19 was defined by WHO from the very beginning:** From the Imperial College WHO-supported model that stated we must lockdown until a vaccine is developed to the definitions of cases and deaths that, we will say it once more, significantly overstate the numbers.