

SARS-CoV2 – A Multifaceted Whitepaper

Introduction and Scope

SARS-CoV2, otherwise known as “Covid-19” and which will be used through this paper, is a respiratory virus that allegedly showed up in Wuhan China at the turn of the year of 2020 and rapidly spread around the world. It is a coronavirus that shares genetic similarities with SARS and MERS along with a coronavirus discovered in bats some 600 miles from Wuhan China, but has both distinct RNA and also distinct disease expression and progression from all three.

This paper is my working attempt to categorize what is known about the virus itself along with the statements that have been made and appear as of the date of publication and revision to be true, those made by various organizations and individuals but were falsified and not withdrawn, along with my personal “best guess” in multiple areas, including steps persons can take individually in an attempt to protect themselves and mitigate the effects.

In none of that which is presented as being “evidence” do I, or should you, accept an *argument from authority*. Having a degree or even working in a field for decades does not make you right simply by virtue of speech. In addition all arguments must be sourced *and referenced*. The scientific method demands that *confidence intervals or uncertainty statements* accompany *any* declaration. This is literal high-school chemistry and physics; you cannot state that a measurement is “12” *standing alone* as a scientist, as that tells me nothing about the markings on your measuring device or how well-calibrated it is. A *scientific* statement is, at *minimum*, “12” +/- 1/8” in order to be acceptable. A technically-correct statement has both an uncertainty *and a confidence* in that uncertainty, usually expressed as the 95% confidence.

Note that I am not a physician and thus I cannot give, and nothing herein is, medical advice – never mind that medical advice cannot be legitimately given to an individual without personal knowledge. However, I am a data scientist and a wealth of information on this disease is available where the public can access it. There is nothing magical about data sourced out of a medical study .vs. any other field of study; data analysis is a mathematical function. As such if you are qualified to analyze economic data, such as the employment report or the Fed Z1, and I have done so for 30+ years back to when I was running one of the first ISPs in Chicago, you’re certainly qualified to perform the same analysis of a medical paper predicated on what is presented. Not only do you not have to have an MD or degree in epidemiology to analyze such data having one may predispose you to believe that which is not true and emphasize that for which there is little or no evidence that can be statistically shown.

Data scientists do not, as a rule, use the word “impossible” so you will not see that word here. What you will see is qualification on the strength of the evidence as I have analyzed it. Those items that I can identify with *strong* statistical evidence will be highlighted in green. Those with

weak statistical evidence will be highlighted in orange. Those with *very weak* statistical evidence *where material incursion into the realm of harm is in the confidence intervals*, or which have been disproved, will be in red.

Note that *disproved* is an extremely strong statement; it is a statement that *the entire confidence interval rests on the wrong side*. In other words there is *no* reasonable probability that what was claimed is true.

This paper is divided into sections; first on *Treatment and Prophylaxis*, second on *Public Health Measures*, third on *Public Health History* and finally on *Vaccination and Risk Assessment*. All statements will be *sourced* in footnotes at the bottom of each page, which can be link-followed off the PDF copy.

Studies and scientific papers are in four broad categories:

Meta-analysis of multiple reviewed Random Controlled Trials (RCTs) -- the *strongest* evidence in both directions. A random controlled trial that has been peer-reviewed is trumped *only* by a meta-analysis of many random controlled trials.

Random Controlled Trial (RCT) – these produce *strong to moderate* evidence in both directions. A random controlled trial distributes two or more groups of people or events controlled for various expected confounding factors and gives one or more of the groups different test agents or events, while keeping the other free from same. Assuming the trial is large enough and control of outside events good enough, these provide excellent scientific evidence.

Observational and Retrospective or “natural” Studies – these produce *weak confirmatory* evidence but *strong* exclusionary evidence. These by definition cannot control for outside events but they attempt to provide a control group, that is, a “second set” where whatever is being tested is not present. The general rule in any scientific field is that *observational studies can never prove anything, but they can disprove your hypothesis*. If you run such a study and get a *contrary* result to that expected then the hypothesis is, with a *very* high degree of certainty, false. However, if you get the expected (confirmatory) outcome *you’ve proved nothing* because some other non-controlled factor may be responsible and you have taken no steps to control for and eliminate that possibility.

Case Reports – *these are anecdotes as there is no control group and are statistically worthless. Citing them as evidentiary or basing policy decisions on them, irrespective of their number, is scientific misconduct*. These are *extremely common* but have exactly *zero* statistical value. An example is the CDC-cited nonsense about a single hair salon in which they claim “masks” prevented transmission of Covid-19.¹ This is flat-out trash that has no place in science *as there*

¹ <https://www.cdc.gov/coronavirus/2019-ncov/more/masking-science-sars-cov2.html>

is no control whatsoever. Now if two *other* symptomatic hair stylists had *not* worn masks in the *same* salon then you'd get to an **Observational Study** and could cite it was *weak evidence*, assuming it confirmed. But without a control *it's flat-out garbage and shows nothing in either direction.*

Readers are strongly urged to not take a single word of this paper on faith. An argument from authority is invalid in all scientific and policy matters no matter the person making the argument including the author. If you cannot reasonably reach the same conclusions through citations to actual measurements taken within the scientific principle then the specific argument in question should be discarded.

Caution -- discarding an argument does not mean the converse of whatever that argument is can be substituted. Your personal finding that an argument is without merit leaves you with the null hypothesis; that is, nothing. To reach the opposite conclusion you need a sourced argument that is of stronger evidence than the one you discarded. If you cannot get there then honest inquiry and scientific process demands you stop at the null hypothesis rather than make something up.

In the interest of transparency when this paper is updated, and I expect it will be, “revisions” will be enabled on Word so you can see what has been changed. The exception will be to correct typographical errors, since the intent is to provide transparency on Covid-19, not on my typing prowess or lack thereof.

That is the process I have endeavored to undertake here, and I urge readers to do so as well. After all when it comes to health *it is always personal*; it is your ass that is on the line when it comes to the decisions you make, not someone else's.

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Section 1: Treatment and Prophylaxis

Covid-19 is a multi-phasic viral disease². This is not an atypical situation for viruses in general; polio is a notorious example that in most people polio produces only a mild, flu-like illness. But in some percentage of persons, the percentage of which rises rapidly with age, polio gets into the central nervous system and damages or destroys it, producing paralysis and in some cases, death.

Viral replication is quite-well understood and in this regard Covid-19 is not novel at all.³ Unlike bacteria which double in each iteration viruses produce an enormous number of copies for each infected cell, in some cases as many as 50,000. While I am not aware of specific analysis on Covid-19 in this regard at this time a reasonable expectation is in the 1,000-10,000 range as that is what is typically seen with influenza, another respiratory virus of similar size.⁴

This in turn means that the level of infectious virus expands extremely rapidly after infection occurs. Were it to do so on an unbounded basis you would certainly die, as in most cases when a virus is finished replicating it destroys the host cell. With 1,000 copies per infected cell it would not be long at all before *all* of your cells were infected, destroyed, and you would be dead in every case. Therefore this is obviously not what happens.

Indeed we know that viral *replication*, that is, the expansion of virus in your body, occurs quite rapidly but then your immune system detects the invasion and kills the virus off. What's left is *viral debris*, trash if you will. In virtually every case where viruses kill people *it is the body's reaction to this trash that kills you*, not the virus itself.

In addition the body's reaction to this debris can make it much easier for other pathogens, especially bacteria that are typically present in the body on a routine basis, to get out of control and cause death. For example we now know that the Spanish Flu in 1918 and 1919 killed the majority of its victims not by viral infection but by bacterial pneumonia and, as antibiotics had not been invented and

² https://www.evms.edu/media/evms_public/departments/internal_medicine/EVMS_Critical_Care_COVID-19_Protocol.pdf

³ *ibid*

⁴ <http://book.bionumbers.org/how-many-virions-result-from-a-single-viral-infection/>

recognized as useful at that time there was nothing we could do for treatment.⁵ Today this is most-assuredly not the case; we understand both the life-cycle of a virus and also how to handle many of the secondary effects.

This implies that there are three basic phases in which one can combat a viral infection – prior to exposure, post-exposure and during mild symptoms, before one seeks medical attention, and the acute phase where one is obviously and seriously ill. When it comes to Covid-19 *we have evidence of varying quality* on the steps we can take in each case to mitigate and/or attempt to interrupt the process of disease.

Remember that since viruses produce an extraordinary number of copies for each infected cell and that serious viral disease is typically produced not by the virus itself but rather via the debris after replication is complete *if you wish to try to interrupt that process you must act early, certainly within a day or two of the onset of symptoms, or replication will be complete and any therapy intended for that purpose will do little or nothing at all.*

Pre-Exposure Prophylaxis

Vitamin D levels: There is *moderate evidence* that Vitamin D is a powerful inhibitor of Covid-19 infection. Among the evidence is a new observational study on Vitamin D levels and serious or fatal outcomes in Covid-19 patients.⁶ This is supported by *moderate evidence* reported out by David Grimes which spoke of a *specific* intervention that was recommended after noting an alarming difference between white and non-white doctor mortality from Covid-19.⁷ When that result and recommendation was published the excess deaths *suddenly stopped*. This of course is not proof that said physicians adopted that protocol but it should be enough to raise your eyebrows – in other words, *moderate evidence through observational results tied to a specific, targeted intervention.*

⁵ <https://www.nih.gov/news-events/news-releases/bacterial-pneumonia-caused-most-deaths-1918-influenza-pandemic>

⁶ <https://www.mdpi.com/2072-6643/12/12/3642/htm>

⁷ <http://www.drdauidgrimes.com/2020/11/covid-19-vitamin-d-deaths-of-doctors.html>

Vitamin C, Zinc and Quercetin/Bromelain: There is *strong evidence* that Hydroxychloroquine is effective *if used early in combination with zinc*.⁸ But hydroxychloroquine is a prescription medication. Quercetin w/bromelain and Zinc, *when used in moderation*, have a plausible mechanism of action *similar* to HCQ in terms of ionic transport within living cells. Note that while there is no specific known risk to excess use of Vitamin C *this is not true for many if not most other supplements, including Vitamin D, Zinc and Quercetin*. Just as with aspirin or Tylenol *more is not better*.

NAC – There is *no current evidence* for its use. There is a plausible mechanism of action and several trials underway⁹ but none have reported results as of this writing and some are confounded with other agents, making separating out the potential impact of NAC problematic. There are other reasons to use NAC as a supplement and to date none of the data shows *harm*, but there is also nothing other than a plausible mechanism of action that qualifies as *evidence* to show effectiveness at the present time.

A reasonable supplement level of the agents with *evidence* behind their use thus would be expected to be backed by *moderate evidence* that it may inhibit or lessen the severity of a Covid-19 infection *and nearly zero risk* as all of them are dietary supplements with common and well-published safe use limits. *As with any supplement you should ask your doctor before beginning use, especially if you are taking any sort of prescription medication as there are always potential issues with drug interactions with anything, whether a drug or supplement*. The EVMS protocol recommends these supplements and as they are generally regarded as safe when sold and used as nutritional supplements there is little to argue against their use in an attempt to reduce susceptibility to infection and progress to more-serious symptoms should one become infected anyway.¹⁰

⁸ <https://c19study.com/>

⁹ <https://www.dovepress.com/n-acetylcysteine-to-combat-covid-19-an-evidence-review-peer-reviewed-fulltext-article-TCRM>

¹⁰ https://www.evms.edu/media/evms_public/departments/internal_medicine/EVMS_Critical_Care_COVID-19_Protocol.pdf

Post-Exposure Prophylaxis, High Risk Persons and Mild Symptoms

Ivermectin – There is *strong evidence* for Ivermectin as both a prophylaxis *and* treatment for Covid-19.¹¹ At present there are 21 published studies with *zero* showing failure, which is wildly different than Hydroxychloroquine which has several failed trials even though methodology in those is under dispute. In addition Ivermectin appears to be active in *both* phases of the virus as even with late use it has not failed in a random controlled trial. Ivermectin has been used in both animals and humans for decades and has an extraordinary safety profile. *One trial in particular out of Egypt, while small in size, showed 80% effectiveness in preventing infection in both health care workers and co-habitants of known infected persons in their household.*¹² The EVMS protocol strongly encourages its use as well as, under the FLCCC banner, *prophylaxis* for high-risk persons.¹³

Hydroxychloroquine – There is *moderate evidence* for HCQ as a treatment *if used early.*¹⁴ The problem is that when used *late* there are several failed studies that came down on the wrong (more danger) side of the scale, and some of them materially so. It has a known side effect profile and is very safe – but not universally so. This is a drug that sadly got caught up in the politicization surrounding Covid-19 and thus there is the very real possibility that some of the work on it has been biased in either direction. *On the strength of the evidence it appears Ivermectin is a superior choice. There is **no evidence** on potential benefits or harms when used in combination with Ivermectin; all drugs have interaction risks and thus on the science there is no reasonable conclusion one can draw one way or another. There was an early paper published on the possible synergistic use of both in April but a search of the literature has failed to turn up evidence that this path was pursued.*

Famotidine – There is *weak evidence to possible harm* shown this with this drug. This is available OTC as “Pepcid” and had some early evidence of effectiveness. *However, a somewhat recent study had the risk balance come down on the wrong*

¹¹ <https://ivmmeta.com/>

¹² <https://assets.researchsquare.com/files/rs-100956/v1/682247ca-ef49-4d68-aa3f-493a8fc9a056.pdf>

¹³ https://www.evms.edu/media/evms_public/departments/internal_medicine/EVMS_Critical_Care_COVID-19_Protocol.pdf

¹⁴ <https://c19study.com/>

side.¹⁵ This was a cheap and available drug that looked promising but has not played out very well over time.

Inpatient Protocols

EVMS – There is *moderate to strong evidence* behind the entire EVMS protocol.¹⁶ Note that this protocol *does get revised*; the folks doing this at EVMS are not hacks but rather actual doctors treating actual patients with Covid-19, and they also aren't married to specific protocols and treatments. They are having *good but not perfect success* as with every other entity that is actually doing something as opposed to shoving people on vents and pretending severe cases are ARDS, *which they most-certainly are not*. That this disease at the point of hospitalization, is likely clotting-disorder related as a result of immune dysfunction *was known to be a reasonable hypothesis in April* and yet there appears to be *exactly zero* coordinated view of this in terms of “Standard of Care” focused on keeping people *out of the Hospital*.

This, in the author's view, is criminally negligent at best, bordering on mass-manslaughter. Clotting disorders are no joke, and trying to treat them *only after they happen* instead of preventing them in the first place whenever possible and detecting them early on appears to be flat-out insane.

It is obvious from how viral diseases progress that *once you get to the hospital* you have lost the battle in terms of attempting to slow or stop viral replication and thus there is no opportunity remaining to limit the amount of viral debris that is in your system. For this reason with a disease that, when it kills, does so due to these secondary effects *preventing that from happening* should always be the priority of action. Acts beyond that point are just an attempt at rescuing a failed mission, and by definition have much lower probability of success. Waiting to intervene until a person is choking to death and is admitted to the hospital is like trying to save your house by extinguishing a fire *instead of preventing the fire by not overloading*

¹⁵ <https://www.healio.com/news/gastroenterology/20201021/famotidine-does-not-decrease-risk-for-mortality-in-covid19#>

¹⁶ https://www.evms.edu/media/evms_public/departments/internal_medicine/EVMS_Critical_Care_COVID-19_Protocol.pdf

extension cords and circuits in the first place.

Public Health

There are a host of public-health responses that have occurred since February of 2020, including recurring lockdowns, mask orders and similar. However there are also material components of this disease from a public-health perspective that are clearly being ignored.

The most-glaring and outrageous is the complete refusal to deal with *nosocomial infections*. Nowhere is this a larger problem than in nursing homes, where visitors have been cut off since March *and yet more than 63,000 residents have died from Covid-19 infections*.¹⁷ That these deaths continue to occur is an outrage; exactly zero of these persons acquired that infection by hanging out with friends or going to a bar, grocery store or restaurant. By definition *every infection in a nursing home is a nosocomial one*; the infection can only get into the nursing home *by a staff member or through admission of an infected person*. Exactly zero of that is excusable beyond the point where we identified it, which occurred at Kirkland – in February and March.¹⁸

We know how to stop this with absolute certainty: **Nobody who works in or visits a nursing home with residents who have not had Covid-19 can do so unless they (1) shelter indefinitely on-site or (2) are IgG positive for Covid-19 antibodies and thus are presumptively safe.** If we need to pay people enough and rent RVs to stick in the parking lot to make this work, along with having groceries delivered and sat at the door of those RVs, so be it. We *can* over time, and certainly by now, segregate nursing home residents into different buildings with *completely separate infrastructure and staff* so those who are IgG positive and thus presumptively immune can have visitors and any staff member is perfectly fine to provide services. We could have trivially stopped most of the death in these homes, and can stop the continuing death, as soon as we are willing to stop acting like there are no answers specific to these residences. There are. Our refusal to do so with people who are effectively involuntarily confined as a result of being unable to live on their own is outrageous – and quite-arguably criminal. There are zero states or counties who have taken a *single step* toward

¹⁷ <https://www.healthline.com/health-news/covid-19-racing-through-nursing-homes-what-families-can-do>

¹⁸ <https://www.seattletimes.com/seattle-news/times-watchdog/coronavirus-spread-in-a-kirkland-nursing-home-for-weeks-while-response-stalled/>

stopping this. Every one of those executives should be held accountable to fullest extent of the law, never mind CMS which funds many of these facilities via Medicaid.

The same is true for *hospitals*. A recent case of which I'm aware makes this clear; said person was elderly, suffered a fracture, went to the hospital and had it repaired. They were then discharged to a rehabilitation facility. *Now they're Covid+ two months later, deteriorating and at risk of death.* That was *clearly* a nosocomial infection because that person has not had outside contact with the world in the last two months!

We could have, and still can, segregate hospitals so that all but immediate, critical needs for elderly people go to one regional center where every single person working there is IgG positive. Rather than do that we kill people *daily* with health care workers who *give them* the disease. While there are certainly exceptions that make the risk reasonable such as having a heart attack someone who has suffered a routine fraction and is elderly will not die if it takes two hours to get them to a regional center where everyone in the building is presumptively safe.

Such a center can be the only place where anyone who is at special risk – such as cancer patients, severely co-morbid or the elderly – go with non-life-threatening injuries or conditions. There are certainly circumstances where that doesn't work – if you get shot, are having a heart attack or in a serious car accident then the *Golden Hour* rule absolutely applies and the risk is what it is. But *most* of the people with severe morbid conditions who seek admission at a hospital are not in such dire condition, and providing them with one regional center per region of a state where they can be presumptively safe from Covid-19 would immediately stop transmission of the virus to them – an event that has a high probability of ending their life.

In addition there is **strong evidence** that this virus is spread in infectious form through feces¹⁹ including an early study that was unable to detect virus in patient rooms in a hospital ward but did detect it in the patient bathrooms.²⁰ This evidence has been entirely *ignored since the outbreak began* by public health authorities in

¹⁹ <https://www.medrxiv.org/content/10.1101/2020.08.04.20167932v4.full.pdf>

²⁰ <https://www.cebm.net/covid-19/sars-cov-2-orofecal-transmission/>

favor of claims that the virus is almost-exclusively spread through respiratory expulsion. Further claims that droplets, rather than fine-particle aerosols, have been made yet there is **moderate evidence**²¹ that in fact fine-particle aerosols are implicated in at least some spread in that actual RNA sequencing proving the index case and subsequent cases was done after an outbreak in a meat-packing plant.²²

Again, Governors and County Governments can fix this. They can do so by legislative mandate and licensing requirements. Indeed, business licenses are in the general sense under control of individual counties – and while they’d certainly be sued by medical providers the State Legislatures and Executives can solve that problem with enabling legislation. This should have been done months ago and preventing nosocomial transmission in hospitals and nursing homes would have cut off more than half, and likely as many as three quarters, of Covid-19 deaths. This refusal to act is obscene and must not stand.

In place of known actual interventions such as the above States and Counties have place mask orders against the general public and either closed or restricted schools and businesses. I shall deal with each of these in turn.

Masks – There is *no evidence of help to evidence of harm* that masks are effective. The seminal study on “source control” for masks is Neil Orr’s from 1981; it stands uncontroverted despite 40 years of attempts.²³ This was a *random controlled trial* in Operating Rooms where everyone involved was a trained professional. There is no better evidence available than the removal of confounding factors such as compliance with wearing and procedural factors. In addition Cochrane Review, arguably the best medical minds in the world when it comes to *meta-reviews*, the *highest* form of evidence available, found *weak to no evidence of efficiency* for masks.²⁴ What’s worse is that they found *weak to no evidence* even when the mask in question was an N95 and the wearer was a medical worker. The CDC has a web page up claiming otherwise which contains a bunch of anecdotes, observational studies and even computer models; the latter does not qualify as scientific evidence

²¹ <https://www.medrxiv.org/content/10.1101/2020.07.13.20041632v1.full.pdf>

²² https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3654517

²³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2493952/pdf/annrcse01509-0009.pdf>

²⁴ <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD006207.pub5/full>

of anything.²⁵ In addition *on the CDC's own page* from May, prior to this being politicized, a meta-review showed *no material effect*.²⁶ That document is still present.

The argument for masks, specifically *cloth and paper masks* is that the virus is spread almost-exclusively in large respiratory “droplets.” This, however, is contrary to **moderate evidence** that *culturable virus* was inversely correlated with particle size (footnote 21) and the meatpacking plant super-spread event which had every person in the building wearing masks – which were ineffective (footnote 22.) Masking as a source-control strategy obviously is of no value to attenuate fecal/oral spread which we have every reason to believe is part of the picture as a matter of **strong evidence** (footnotes 19 and 20.)

Then there's the Danish mask study specific to Covid-19 which multiple medical journals tried to suppress. *Annals* finally published it, trying to gloss over the results.²⁷ The results were damning; *there was no statistically significant improvement in outcomes*. Even worse, when the researchers applied retrospective analysis to limit the examination to only those who were allegedly “highly compliant” with protocol the relative risk ratio got worse rather than better, strongly implying that mask use might be harmful rather than protective.

If that's not enough there is the direct testimony of Robert Redfield, CDC Director before US Congress. On July 14th the director said that *with four, six or eight weeks of mask-wearing we could bring this epidemic under control*.²⁸ Many states, cities and counties have mandated masks and multiple people crowed about their “success.” Those claims were premature; none have stood up over time and in fact huge spikes in infection rates are now being seen all over the nation, including in my county.

In addition in September that same CDC Director said in sworn testimony before Congress *that masks are superior to a vaccine*.²⁹ Given the spikes in cases we

²⁵ <https://www.cdc.gov/coronavirus/2019-ncov/more/masking-science-sars-cov2.html>

²⁶ https://wwwnc.cdc.gov/eid/article/26/5/19-0994_article?fbclid=IwAR2V1hPqNOWKb2kXVExP_1UE9ARvru6mtPZvZN0w1jx0S3l3fXLhxMP_bXs

²⁷ <https://www.acpjournals.org/doi/10.7326/M20-6817>

²⁸ <https://www.statnews.com/2020/07/14/if-everyone-wore-mask-covid19-could-be-controlled-cdc-director-urges/>

²⁹ <https://www.cbsnews.com/news/covid-face-mask-protection-vaccine-cdc-director/>

have seen nationally if this is true then exactly nobody should take the vaccine under any circumstance as it is clear that mask mandates have not stopped the spread.

What is worse than worthless? When it comes to a vaccine you don't want to know since unlike a mask that can be removed you can't un-take a shot.

Finally, if masks work why can't you put one on – even an N95 – and go into your mother's nursing home or your spouse's hospital room? They either work or they don't. If the highest-quality masks available are deemed insufficient to protect a nursing home resident from you then they are also insufficient to protect the resident from a worker who is wearing one and in addition they are insufficient to protect others in the general public, especially when the mask in question is of lower quality.

The obvious logical disconnect has no explanation other than that the people making these pronouncements know the 40+ years of prior science proves masks are worthless. In short they're lying.

School closures – Closing schools not only has no benefit the harms are *clear*. This is not just a zero-evidence situation it is one of **intentional** harm to those with no representation as children cannot vote. There is *zero* evidence that children under the age of 19 are at any material risk from Covid-19. The CDC's own planning documents³⁰ show a “best guess” risk of 0.00003 for death in persons under 19 years old. There are approximately 74 million said children; if *every one of them* was to be infected only 2,200 would die simply as a function of basic arithmetic. In short school closures and “online learning” is being forced upon children because the teachers and staff are scared -- and refusing to work. The harms from these policies are outrageous and without merit; there have been more *suicides* since the start of this pandemic among school-age children than avoided deaths! The number of educational years lost in achievement number in the tens of millions, and the future economic losses are in the hundreds of billions of dollars *each and every year forward for the next two decades*. These are criminal intentional harms placed on children by adults and should be treated as such.

³⁰ <https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html>

Business Closures and Limits – There is *no evidence* that businesses of any sort that have been deemed “non-essential” are in any material way contributing to Covid-19 spread, morbidity and mortality. Nashville “leaked” that less than *one percent* of all Covid-19 cases could be traced to restaurants and bars.³¹ Construction sites and nursing homes, on the other hand, were traced to roughly 10% between them. The overwhelming evidence (*observational and thus of moderate quality*) is that the two most-common means of transmission are *nosocomial* and in households.³² The former the government has refused to address and the latter cannot be addressed without forcibly quarantining infected persons by removing them from their home, an act that has no justification under any reasonable set of policy goals giving the low fatality rate generally for this disease. There is *no* documented evidence of any quality (that is, beyond “anecdote”) that restaurants and even bars operating at full capacity are in any meaningful way responsible for spread. There is zero published information I’m aware of showing that other so-called “non-essential” businesses register as a statistically-significant means of spread; this should not surprise as the average person shopping in a store of some sort spends far less time on average than a patron in a restaurant or bar. The so-called “mitigations”, such as plastic dividers, social distancing squares and mask orders have no scientific evidence that can be found in the literature for their effectiveness; computer models are not evidence. Anecdotes of specific incidents are just as common in the so-called “essential” businesses (e.g. our local WalMart) as they are in “non-essential” ones (e.g. hairstylists.)

Testing – Sadly the current testing regime has *no evidence* for accuracy. The original (and still standing) predictions for asymptomatic, non-tested infections were in the neighborhood of 10:1 for each tested person. In addition there are studies showing anywhere from 30-50% pre-existing resistance, likely due to infections with other coronaviruses.³³ The exact character and duration of this resistance are not known, but it has repeatedly showed up in immunology studies

³¹ <https://fox17.com/news/local/nashville-restaurant-bar-virus-cases-account-for-less-than-1-of-traced-cases-officials>

³² <https://www.cdc.gov/mmwr/volumes/69/wr/mm6944e1.htm>

³³ <https://www.sciencetimes.com/articles/26038/20200612/common-cold-give-covid-19-immunity-lasting-up-17-years.htm>

where T-cell reactivity was shown even when no antibodies were present.³⁴ Since the R0 for this disease is thought to be between 2.5 and 3.0 this means that suppression in the population occurs at approximately 60%. You get there only from three ways; cross-reaction, infection and vaccination. With 30% pre-existing resistance and 10:1 infections to reported “cases” the tests are mathematically proved to be frauds. For example my county (Sevier TN) has 100,000 persons in it, more or less. We have an alleged 5,121 “cases”, or 50,000 true infections as of December 1st. With 30,000 pre-existing resistant our population immunity is 80%, well beyond the threshold. Yet we continue to post up record numbers of late, which is not congruent with the above assumptions and facts.³⁵ Indeed at the present pace we will shortly exceed 100% of our county’s population which will conclusively disprove any claim that the current testing regime produces accurate results.

Since cross-reactive resistance has been shown in every instance where it has been tested for discarding that as a component of the population is extraordinarily improbable.

Since among young people *almost none* are actually harmed believing that the infection-to-tested ratio is wildly out of the CDC’s own expectations is also extraordinarily improbable.

This leaves only one possibility: The alleged “positive” tests are, in a huge number of cases, false.

This can be trivially proved but no government entity has done so; in fact both federal and state governments have explicitly avoided all serological testing since the summer despite its extremely low cost and ease of assessment. A person with a true infection will have IgG antibodies in about 2 weeks after infection. Therefore, if you test positive, you should be given a \$2 antibody “finger stick” test 2 weeks later. If the positive was a true positive you will have IgG antibodies. This means you have no need for a vaccine, since you already have antibodies. It also means you have no need to wear a mask to protect anyone, nor distance in any way, since you cannot contract or transmit the virus.

³⁴ <https://www.bmj.com/content/370/bmj.m3563>

³⁵ <https://experience.arcgis.com/experience/885e479b688b4750837ba1d291b85aed>

But it also means that if the government forced you to stay home for 2 weeks they lied; they committed an act of false imprisonment which is a serious felony, and they did so by deliberately concealing from you that you in fact were never infected since they never followed up on their original claim. And such a revelation also means you'd have no willingness to put up with any government mandate or request, since you cannot get the virus again so long as that resistance is present.

RT-PCR testing is incapable of differentiating between viral debris and live virus; it operates by detecting fragments of viral RNA that are “tagged” and then amplified; for each “cycle” the amount of tagged material doubles. For this reason any cross-contamination whether from the environment or in the lab itself between samples under test will result in a false positive if a sufficient number of cycles are performed. The greater the prevalence of the virus in the community the greater the probability of said cross-contamination and thus more false positives will be reported. Dr. Fauci has noted, as have others, that with Cycle Threshold settings beyond 35 *effectively no* viral cultures from said samples are successful, meaning that the person in question is *not* infectious and even at Ct30 the percentage of tests where virus can be successfully cultured is only 20% -- that is, 80% of said persons *are not* infectious.³⁶ Testing currently done in the United States is typically run to Ct40 or even beyond and in no case are the thresholds where detection occurs being reported in public data, nor are positives confirmed to be infectious samples via culture before reporting results.

There are a handful of claims in the literature of “re-infection”; I note that in the scientific literature I have gone through I cannot find any material substantiated claims of reinfection where the person allegedly re-infected was clearly ill (e.g. atypically symptomatic such as losing taste or smell) and then *again* became atypically ill, with each infection backed up with viral culture and sequencing.³⁷ Without *culture* of virus it is not possible to conclusively identify that a person with mild or moderate symptoms, and no clinical proof (e.g. a CT was not performed showing atypical pneumonia “ground glass” infiltrates) in fact had Covid-19; there are many respiratory viruses that produce *similar* symptoms to a

³⁶ <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa1491/5912603>

³⁷ <https://www.sciencemag.org/news/2020/11/more-people-are-getting-covid-19-twice-suggesting-immunity-wanes-quickly-some>

mild Covid-19 infection. It is probable, given the extremely high false positive level in PCR tests, that nearly all alleged “reinfections” in fact were two distinct events where one or even both of the infections were not actually Covid-19. In addition it is extremely likely that re-infection, if and when it actually occurs, will be *much* less-severe. While re-infection following some months or years with a given respiratory virus does occur it is extremely rare, except in severely-immune compromised individuals, for that second event to result in other than mild symptoms that quickly resolve.

In short the evidence is *very weak to non-existent* that in fact over ten million Americans have actually *had* Covid-19. It is not possible to assess the quality of allegedly positive results without knowing the Cycle Threshold at which each sample tests positive and all commercial labs in the United States are using Cycle Threshold counts that are well beyond the statistical point where true positives have dropped an effective zero. The premise that these reported infections were true, if not backed up by actual atypical symptoms of infection in each instance, which appeared to be a reasonable assumption based on good faith at the outset of the pandemic has been conclusively falsified in multiple counties and states across America.

On the manifest weight of the evidence an enormous percentage of alleged “positive” tests, perhaps half or even more, are in fact false positives due to environmental and cross-contamination in combination with an utterly ridiculous cycle threshold. The quarantine and other policies associated with same have an enormous financial and social cost imposed on every person given a false positive result and impresses unwarranted fear on the public.

Public Health History

Many people believe that “public health” entities, such as the CDC, John Hopkins, Vanderbilt and the NIH are primarily and always non-political and accountable organizations.

Nothing could be further from the truth.

As just one outrageous example in 1976 the CDC, goaded on by F. David Matthews, US Secretary of Health, Education and Welfare, took a single soldier who died of the flu in February of that year and predicted that H1N1, the Swine Flu pandemic strain in 1918, was back and in the following fall and winter would kill one million Americans. The CDC concurred and said that 80% of the US population would need to be immediately immunized to prevent a disaster.³⁸

The machinery of government swung into action and by October there was a vaccine. Emergency legislation was passed including liability barriers. But by October there was no H1N1 flu. *Legionnaires' Disease* had shown up, but no pandemic flu. Nonetheless millions of Americans got the flu shot “as demanded” – and about 450 of them developed Guillain-Barre syndrome, a rare *and very serious, sometimes fatal*, neurological condition that has long been known to be a risk of flu and other viral vaccinations. Those victims received nothing as liability had been precluded by the enabling legislation passed through Congress.

The CDC, *without evidence*, jumped on a *single case* and once the machinery of government was hell-bent on that course of action it continued onward even though it was known by October that the alarm was false. Millions of Americans were jabbed and took risk *for no reason whatsoever*.

Nobody was held accountable for this.

At the very beginning of the AIDS outbreak in the early 1980s it was known with reasonable specificity that the gay bathhouses in San Francisco were a major locus of spread of the virus, and exactly which sexual act was responsible.³⁹ That sorry

³⁸ <https://www.smithsonianmag.com/smart-news/long-shadow-1976-swine-flu-vaccine-fiasco-180961994/>

³⁹ <https://pubmed.ncbi.nlm.nih.gov/12962179/#:~:text=In%20the%20mid%2D1980s%2C%20controversy,for%20bath%20houses%20and%20sex%20clubs.>

set of circumstances, and the over year-long delay between tying that with quite-conclusive scientific evidence to the spread of this disease and the closure of those bathhouses should put the final nail in the coffin of anyone who believes public health is or ever has been divorced from politics.

Also from the early days of AIDS the FDA and NIH, including Dr. Fauci personally, strongly recommended *against* using Bactrim as a prophylaxis for PCP, a deadly pneumonia that almost-never occurs in anyone other than severely-immune compromised individuals.⁴⁰ This policy pronouncement was finally reversed in 1989.

There was no effective treatment for AIDS in those days but we had discovered in the late 1970s that Bactrim, a cheap off-patent pair of antibiotics, was effective in preventing PCP from occurring in leukemia patients undergoing chemotherapy and in transplant patients on immunosuppressive drugs, which of course also result in a trashed immune system.

Dr. Fauci's stated reason for refusing to issue a recommendation was that he had "no data." Well, we had data – at the time, 16,000 dead people worth of data – from an infection that we knew was preventable.

30,000 people were to die of this infection before the CDC and FDA reversal in 1989. Now to be fair, such prophylaxis would not have prevented any of those people from eventually dying, as at the time we had no drug combination that stopped the ultimate escalation of AIDS leading to death. But all of those 30,000 died earlier than they should have, and medical science knew how to prevent it – but intentionally did not at the direct recommendation of our so-called "public health" officials.

There is plenty of reason to believe that Dr. Fauci put that stake in the ground because he believed AZT, a failed cancer drug, was the answer to HIV and AIDS. It proved not to be the case and worse the alleged "trials" were marred by wildly inappropriate activity that many have characterized as outright fraud.⁴¹ The FDA approved AZT for use in 1987 *and it subsequently proved to not prevent death in AIDS patients. Not one person was ever prosecuted or imprisoned for the wildly-*

⁴⁰ <https://www.poz.com/blog/the-long-road-to-pcp>

⁴¹ <https://time.com/4705809/first-aids-drug-azt/>

improper “trials” that were conducted or the intentional burying and disregarding of evidence of misconduct in those trials, despite it being well-documented in the fullness of time. In addition those who profited from that approval kept all the money they made.

There is also the decades-long outrageous garbage known as the “food pyramid.” It was replaced in 2011 by “My Plate” but the latest incantation simply continues the same nonsense with a different coat of paint on it. The fact of the matter is that this set of recommendations over decades of time has resulted in a wildly destructive cycle of obesity, heart disease and Type II diabetes, all of which are extremely serious conditions that kill and maim hundreds of thousands of Americans every year.

It has been known for decades that *eliminating all fast carbohydrates from the diet*, including grains and “white” foods such as pasta, rice, potatoes and breads, confining carbohydrate consumption to green vegetables that are very nutrient-rich such as broccoli, replacing that caloric intake with a high animal fat, moderate protein diet, will result in a gross reduction in a Type II diabetic’s blood sugar level and, in some cases, allows the cessation of the use of drugs *entirely*, including in a large percentage of those who are insulin-dependent. Indeed prior to the advent of these drugs and insulin that was the *only* option available. A recent study showed not only this benefit but large reductions in weight and statistically-significant reductions in blood pressure and triglycerides, an increase in “good” cholesterol and a marked decrease in C-rp, an important marker for systemic inflammation.⁴²

Type II diabetic or not, reduction in blood pressure, body mass, C-rp and triglycerides *are all very positive objective health outcomes that materially reduce the risk of serious disease* and yet we continue to hear from the so-called “public health authorities” that we should keep eating what they have prescribed for more than five decades despite explosive increases in obesity, diabetes, high blood pressure and cardiac damage. Exactly what credibility does a so-called “public health authority” have remaining when an estimated 15% of the adult US

⁴² <https://www.ajmc.com/view/after-a-year-low-carb-diet-helps-many-patients-reverse-type-2-diabetes-lose-weight-and-stop-insulin>

population is diabetic⁴³, the CDC itself says that between heart disease, strokes and diabetes *nine hundred thousand* Americans die every year, all of these deaths are directly related to obesity and we have known for decades how to materially attenuate or even reverse these conditions through nothing more than what you put in your mouth. Yet all the way to the present day the CDC has said *exactly nothing* about making changes in what you eat other than to continue to *reduce* dietary fat intake, the exact opposite of what is known to work.

It does not take a rocket scientist to realize what would happen to the packaged-foods industry if the NIH and CDC were to point all of this out and people modified what they ate. Never mind all the doctor visits, hospital stays and drugs that would become unnecessary.

In the context of Covid-19 according to New York City coroner's data exactly *four* people of age greater than 75 have passed from Covid-19 without one or more of the listed "co-morbid conditions."⁴⁴ **Four!** In addition from age 45 and up the odds of you dying if you have *none* of those conditions, by the data in New York City, is **1/170th** as high as if you do have one or more of those maladies. That's right – if you take the CDC's "age 50+ total odds" (from 50-70) of 0.005⁴⁵ and *are not* obese, diabetic, have cardiac disease, high blood pressure and similar your actual risk isn't 0.005 it's 0.00003 *which is statistically identical to that of someone under the age of 19.*

In other words on the plain data from the New York City coroner's office predicated on their analysis of the actual death certificates from people who died "of Covid-19" and the CDC's own published risk of death for different age groups **what we find through nothing more than simple arithmetic is that there is no statistical risk from Covid-19 at all associated with age. That is, by the data published from the coroner's offices and our own CDC, the risk of death from Covid-19 is entirely a result of co-morbid conditions produced in large part by following these agencies recommendations on what to eat – not age itself.**

But for those conditions and what so-called "public health" has done over the last 50 years in advising people to participate in outrageously unhealthy patterns of

⁴³ <https://www.cdc.gov/nchs/fastats/diabetes.htm>

⁴⁴ <https://github.com/nychealth/coronavirus-data/blob/master/totals/deaths-by-underlying-conditions.csv>

⁴⁵ <https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html>

eating Covid-19 would be of no statistical consequence to anyone at all, except those who were already in their last days anyway. You could infect the entirety of 330 million Americans and doing so, absent those conditions nearly all of which are a product of personal choice and public policy “urging” by US Government, would produce a grand total of 9,700 deaths across the entire nation or approximately one sixth that of the seasonal flu’s annual toll.

Then there is the current record of the FDA and CDC when it comes to treatments and prophylaxis against Covid-19. The FDA has approved exactly one drug for Covid-19, *remdesivir*.⁴⁶ But reading the study materials for that drug should give anyone *great* pause; there were a number of extremely-severe side effects recorded including serious cardiac injury.⁴⁷ In addition the trial did *not* demonstrate any improvement in mortality; only a shortening of hospital stays for those who did not die was demonstrated.

Fortunately there are multiple medical teams that have gone “off script” with the FDA and CDC, which recommend *nothing* for treatment of Covid-19 until you are literally choking to death. Chief among them, and one group based in the US that has repeatedly updated their advised protocol in light of new evidence, is EVMS.⁴⁸ It is of particular note that the EVMS protocol is entirely-centered around inexpensive and off-patent medications and yet their months-long record of success in treating these infections has not filtered back up to the FDA, CDC and NIH in terms of *their* recommendations. This leads to very serious questions as to exactly how an expensive and on-patent drug that recorded very severe side effects and no decrease in death has managed to obtain FDA approval while at the same time other drugs with decades of use all over the world and in one case *billions* of doses in humans demonstrating an extraordinary safety record, plus many studies that have reported out with 100% of them showing efficacy and “p” values low enough to exclude random chance as being statistically reasonable have been ignored.⁴⁹

⁴⁶ <https://www.fda.gov/news-events/press-announcements/fda-approves-first-treatment-covid-19>

⁴⁷ <https://www.nejm.org/doi/full/10.1056/NEJMoa2007764>

⁴⁸ https://www.evms.edu/media/evms_public/departments/internal_medicine/EVMS_Critical_Care_COVID-19_Protocol.pdf

⁴⁹ <https://ivmmeta.com/>

In short exactly why, once again, should anyone believe *anything* the CDC, NIH or anyone else produces when in point of fact the “public health” organs of the State and Federal Governments have produced through their own malfeasance and misfeasance a surfeit of morbid diseases leading to gross susceptibility increases in mortality with regard to Covid-19, and further appear to be willfully and intentionally ignoring medical protocols that feature inexpensive, widely-available pharmaceuticals that have a strong showing against Covid-19, while at the same time promoting and approving a drug that has no demonstrated evidence of preventing death yet is both on-patent and expensive.

Vaccinations and Risk Assessment

There is no doubt that vaccination in the general sense has led to a great decrease in infectious disease and mortality world-wide. This is not to say that vaccines are without risk; there is no such thing as a drug that does not carry risk and a vaccine is no exception to that rule. The US Government, along with many others, have passed legislation shielding vaccine makers from liability under the premise that vaccines generally are not profitable enterprises and without said shields the occasional very bad outcome, including death, would result in manufacturers refusing to produce vaccines entirely. The truth of this claim cannot be ascertained; a threat is not necessarily true, people lie before Congress all the time, and in any event the Government itself could produce vaccines if it so decided to.

Vaccines in general take 10 or more years to license for a number of reasons. The original Phase 1 and 2 trials, done after animal trials show that the vaccine in question does not cause gross injury or immediate death to those injected are typically of reasonable duration and return results fairly quickly – they are intended to assess immediate safety concerns and whether the shot produces the desired antibody response in the human body. Phase 3 trials, however, are a different story. These cover both efficacy, that is, the prevention of infection and also the assessment of longer-term injuries and negative effects.

Further, in a disease that rarely causes serious injury or death, such as Covid-19, the prevention of *infection* is only part of the question. Since serious disease and death are rare in healthy individuals, much as is the case for varicella (Chicken Pox) it takes many years to know whether you actually are preventing the very bad outcomes – that is, serious hospitalizations and deaths – or only symptomatic disease. A vaccine that does not prevent the most-serious cases is in fact effectively worthless; nobody cares if you feel like crap for a few days as a result of getting a respiratory infection; that is not worth the cost or risk of a shot. Only prevention of serious disease and death matter, but without trials and follow-up of many years duration that endpoint cannot be reached in small populations numbering in the thousands or even tens of thousands since statistical significance simply takes that long to demonstrate. In the case of varicella (Chicken Pox) from discovery to licensure in the United States more than 20 years passed for this very reason.

Note that it is well-understood and published that the endpoints for the existing Covid-19 vaccine trials generate *hypothesis* rather than *conclusions*⁵⁰ yet this has *never* been mentioned by either the media or public-health organizations such as the CDC, NIH, Vanderbilt and Harvard. Instead we are told that if and when the FDA approves the vaccines that are now under review by “EUA” they will be shown to be both “safe and effective.” *This is factually false.*

The reason for divergence between fact and media-driven public perception is simply that the study groups and endpoints are underpowered to detect whether or not severe (or fatal) disease is actually interdicted. In addition there are multiple reasons to be concerned with *any* vaccine with regard to potential *enhancement* of disease, either with the agent allegedly protected against (in this case Covid-19) or other viral agents. This, known as “ADE” or *antibody-dependent enhancement*, is a known risk with all vaccines but detection of it in a given vaccine candidate takes time because you do not know which infectious agent might respond in this fashion in the body nor can you ethically do “challenge studies” in humans in nearly all cases to try to find out. Thus you must wait for the natural process of contact with infectious agents in the study group to occur in order to make a statistically-valid determination.

This process has been short-cut in the past with very bad results. In fact criminal charges were laid in the Philippines over a vaccine for dengue fever in which the vaccine *potentiated* infection in children not previously exposed. Severe injury and over 100 deaths resulted before its use in not-previously-exposed children was halted.⁵¹

While it is probably reasonable to expect that given the much-greater scrutiny on a global basis that Covid-19 has generated the sort of “errors and omissions” involved in that fiasco did not occur with any of these candidates the fact remains that only time answers many of these questions irrespective of how much money is spent. The premise that one can short-circuit that process with money without materially increasing risk has no support in science. And given the record as documented above for the CDC, FDA and other health agencies if one reasonably

⁵⁰ <https://www.acpjournals.org/doi/10.7326/M20-6169>

⁵¹ <https://www.sciencemag.org/news/2019/04/dengue-vaccine-fiasco-leads-criminal-charges-researcher-philippines>

expects both honesty *and criminal repercussions if intentional oversight or negligence occurs* that could quite easily be an error with fatal personal consequences.

This is not to indict these candidate vaccines for absence of evidence that requires time to develop cannot do that. But it is to point out that the record when one takes short-cuts has a number of very bad historical events in the record, all of which should give anyone pause and all of which were preventable had normal scientific scrutiny and the processes involved not been rushed.

There is also reason to be concerned about the duration of protection. If in fact antibodies wane quickly as a result of natural infection there is no scientific reason to believe the same will not be true for a vaccine-induced antibody response. If indeed a person can be re-infected with Covid-19 after three or six months then it is entirely reasonable to expect that a vaccine is presumptively worthless since it too will lose its protective value in a statistically-comparable amount of time. That someone produces antibodies when the vaccine is given tells you nothing about the durability of that response and what protection is left, if any, when the antibodies wane. Only time and natural exposure answers that question and yet we intend to vaccinate tens of millions of people and presume we have solved the Covid-19 problem without first answering that critical and in fact *threshold* question.

In addition there is *moderate evidence* that repeated flu vaccination may *increase* risk down the road for influenza.⁵² This is of particular concern with Covid-19 as with influenza in that similar to flu in healthy persons Covid-19 poses little risk of mortality or serious injury. However, in seriously-morbid individuals the risk of hospitalization and death from both rises precipitously. As Covid-19 antibodies are expected to wane in a year or two as do antibodies to other coronaviruses, and it is not known how much residual infection resistance T-cell immunity actually confers although the evidence from SARS is that said resistance is durable, it is reasonable to expect that health authorities will recommend *or even attempt to require* annual Covid-19 shots as they do for influenza. *The risk of taking such a shot on an annual basis when healthy is that you may raise the risk of a serious or fatal infection later on when you are older and frail – and most need that protection.*

⁵² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4387051/>

The fact of the matter is that one cannot honestly conflate childhood vaccinations or occasional boosters, as are often given for Tetanus especially after a serious puncture injury when one's last vaccination was a decade or more ago and annual prophylactic vaccinations against a disease that *in the individual in question* has a 3 in 100,000 risk or less of being fatal. The paradoxical outcome of *increasing* risk later in life when one is not well and thus is at 1,000x or more risk of death from the same disease is unwise to ignore, and should prompt a serious discussion with one's personal physician to assess their own personal degree of risk both now and in the future.

This is particularly true when there is *moderate evidence* that both lifestyle changes and dietary supplements can materially blunt the risk of a serious or fatal infection, and *strong evidence* that inexpensive and widely-available drugs will materially interdict the risk of serious and fatal infections if used early – and that *is* the case with Covid-19.

The personal assessment of such risk must thus balance both harms and benefits from choosing to attempt interdicting this virus with *near-zero* risk supplements, intermediate-term benefits from lifestyle changes and, if infected, immediate use of drugs with *strong evidence* of effectiveness and excellent, decades-long safety records against a vaccine that at present carries *moderate evidence* of interdiction of infection in the short term, *weak to no current evidence* that it will prevent serious and fatal infections, *no evidence of the duration of protection* and *no evidence* that repeated vaccinations will not lead to resistance over time which, decades later, may increase the odds of a serious or fatal outcome. I remind you that proving that last of those points cannot be done in less than decades; there is simply no way to know until time passes whether ten annual Covid-19 shots will in fact result in a greater, equal *or substantially reduced* level of protection.

As time goes on the evidence basis for Covid-19 vaccines will shift but with original “Emergency Use Authorization” the limit of what the FDA is required to find, and with the studies currently underway and their published endpoints *moderate evidence of interdiction of infection in the immediate future* – and *nothing more* – *is all they can and will demonstrate.*