Chapter 5

RISK QUANTIFICATION

10/16/2022

“Absence of evidence is not evidence of absence.”
"Seeing through our eyes is the burden of our lives."
“An ostrich with its head in the sand still gets eaten by lions. They just do not see it coming.”
“Facts and truth are treason in an empire of lies.”
“Never attribute to malice when stupidity will suffice.”
“I am not upset that you lied to me, I am upset that from now on I cannot believe you.”
“Pray for the best, prepare for the worst.”
“An ounce of prevention is better than a pound of cure.”
“Every part of liberty sacrificed in the name of security or health, is never recovered.”
“It is all good, right up until it is not.”
“You can cure ignorance with education, but stupid is forever.”
"No war plan ever survives first contact with the enemy."
“A broken clock is right two times in a day.”
“Truth is always dangerous to those that rule by deception.”
“There are three types of lies -- lies, damn lies, and statistics.”
“Fear of the virus is worse than the virus itself.”
“We are all in this together.”
“All is fair in love and war.”
"Those whom the *gods* wish to destroy they first make mad."
“Lie down with dogs, you are gonna get fleas.”
“It is better to remain silent and let them think you are a fool,
rather than open your mouth and remove all doubt.”
“Out of the frying pan and into the fire.”
“The cure is worse than the disease.”
“Qui s'excuse s'accuse.”
“Whoever excuses himself, accuses himself.”
Words of common wisdom

“The truth is like a lion; you do not have to defend it.
Let it loose; it will defend itself.”
St. Augustine

"All truth goes through three stages.
First it is ridiculed.
Then it is violently opposed.
Then it is accepted as self-evident."
Arthur Schopenhauer, German philosopher.

“When the whole world is running towards a cliff,
he who is running in the opposite direction appears to have lost his mind.”
C. S. Lewis

"A fanatic is somebody who redoubles their efforts after losing sight of their aims."
Santayana

“The most hateful grief of all human griefs is this,
to have knowledge of the truth but no power over the event.”

Herodotus

“I think it is really unfortunate.
People would like to say we are done with covid.
But covid is not done with us.
And this is really the problem: that you cannot wish it away.”
"It was all for the good of mankind".
Anthony Fauci

"Insanity is doing the same thing over and over and expecting different results."
Albert Einstein

"People go mad all at once but recover their wits slowly and one at a time."
“In reading The History of Nations, we find that, like individuals, they have their whims and their peculiarities, their seasons of excitement and recklessness, when they care not what they do. We find that whole communities suddenly fix their minds upon one object and go mad in its pursuit; that millions of people become simultaneously impressed with one delusion, and run after it, till their attention is caught by some new folly more captivating than the first.”
‘Extraordinary Popular Delusions and the Madness of Crowds’, Charles Mackay

“But little Mouse, you are not alone,
In proving foresight may be vain:
The best laid schemes of mice and men
Go often awry,
And leave us nothing but grief and pain,
For promised joy!”
‘To a Mouse, on Turning Her up in Her Nest with the Plough,’ Robert Burns, 1785

“How did you go bankrupt?
Two ways. Gradually, then suddenly.”
‘The Sun Also Rises’, Ernest Hemingway

“Risk comes from not knowing what you’re doing.”
Warren Buffet, USA financier

"It's only rare until you get it."
Benjamin Franklin

"It is the mark of an educated mind to be able to entertain a thought without accepting it."
Aristotle, Greek Philosopher

"Try not to become a man of success but rather to become a man of value."
Albert Einstein

"Love Truth"
Marcus Aurelius Antoninus Augustus

“Whenever you find yourself on the side of the majority, it is time to pause and reflect”
Mark Twain

"Life is a fatal disease. Once contracted, there is no known cure."
Dr. Walter Bortz

“You play by the rules, or you got no game."
Yogi Berra.

"We need to find them, before they find us."
Shi Zheng Li, Wuhan Institute of Virology

“Mundus vult decepi, deceptimur.”
“The world wants to be deceived, so then, let us deceive it.”
The Magician’s Motto.

“Fairness is what justice really is.”
Potter Stewart, USA Supreme Court Justice

“If you have a garden and a library, you have everything you need.”
Cicero, Roman statesman, lawyer and Academic Skeptic philosopher

'The key is not to predict the future, but to prepare for it.'
Pericles 500 BC

“In preparing for battle I have always found that plans are useless, but planning is indispensable.”
General Dwight D. Eisenhower

"Everyone has a plan until they're punched in the face"
Mike Tyson, boxing champion

“A man’s reach should exceed his grasp, or else, what is Heaven for?”
Robert Browning

“Nature loves to hide.”
Heraclitus, Emperor of the Byzantine Empire

*“*One who does not know, but knows that he does not know...
his limping mule will eventually get him home.”
Ibn Yamin, Islamic poet/philosopher

“The prudent see danger and take refuge, but the simple keep going and pay the penalty.”
Proverbs 27:12

“There are three classes of people. Those who see. Those who see when they are shown. Those who do not see.”
Leonardo Da Vinci, 1400s

"All that is required for evil to triumph is for good men to do nothing."
"Nobody made a greater mistake than he who did nothing because he could do only a little."
Edmund Burke

"The world is a dangerous place to live; not because of the people who are evil, but because of the people who do nothing about it."
Albert Einstein

“Better to live a day as a lion than 100 years as a sheep.”
Benito Mussolini (1883 – 1945)
USA President Donald Trump retweet on February 28, 2016

"In politics, nothing happens by accident.
If it happens, you can bet it was planned that way."
President Franklin D. Roosevelt

"To fight and conquer in all our battles is not supreme excellence; supreme excellence consists in breaking the enemy's resistance without fighting."
Sun Tzu

"It's a recession when your neighbor loses his job;
it's a depression when you lose yours."
Harry S. Truman, 33rd USA President

“You steal a little, they put you in jail.
You steal a lot, they make you a king.”
Bob Dylan, Singer

“He who has the gold makes the rules”.
Golden Rule

“I refuse to join any club that would have me as a member.”
Groucho Marx, Comedian

"If you get one of these vaccines, you won’t get covid"
President Joe Biden

"We are obviously concerned we experienced some level of ‘waning immunity’"
Anthony Fauci, National Institute of Health, NIH

“What difference does it make, at this point?”
Hillary Clinton, Secretary of State

4.1 INTRODUCTION

Humans are intelligent, instinctive, and self-preserving creatures who generally seek to avoid high-risk behavior. The natural law of spontaneous order shows that people naturally take actions of self-protection by constantly minimizing risk exposure as a survival measure.

Risk is a part of life, and the world is full of things that are harmful to humans. Risk cannot be totally eliminated in human activities with a residual risk usually left out. Hoping to totally eliminate risk, the corresponding rewards that give life purpose and meaning would also be eliminated.

“It was the best of times, it was the worst of times,
It was the age of wisdom, it was the age of foolishness,
It was the epoch of belief, it was the epoch of incredulity,
It was the season of Light, it was the season of Darkness,
It was the spring of hope, it was the spring of despair,
We had everything before us, we had nothing before us.”

Charles Dickens, “A Tale of Two Cities.”

Probabilistic Risk Assessment, also designated as PRA, is a formal analytical method used for the protection of the public’s health and safety. Its goal is the development

of methods for predicting or "anticipating" safety concerns before they become manifest through the possible processes of:

1. Loss,
2. Injury,
3. Death.

Probabilistic Risk Management, on the other hand, is not about enhancing success; it is about avoiding the failures that are unacceptable.

It is a risky livelihood in the USA where there are 100 murders per day, 110 car accident deaths per day and 40 percent of the population will eventually get cancer in their lifetimes. Moreover, humanity survives on a planet in space spinning at one thousand miles per hour, traveling at 67 thousand miles per hour around its sun star, spinning 450 thousand miles per hour around the center of the Milky Way Galaxy while the universe is expanding at 151 thousand miles per hour.

Understanding the distinction between risk and uncertainty is crucial in all aspects of life. A risky decision is when one has a good sense of the odds and the payoffs of some action. It lends itself to statistical analysis and econometrics, particularly if it is a decision, one will have the opportunity to make multiple times.

An uncertain decision is when one does not have a good sense of the odds and pay-offs. Statistical analysis in this case may very well kill the individual, particularly if he is not going to get multiple attempts at playing the game, or if he does not know how many times he will be allowed to make a choice. Game theory is adopted to make sense of decisions made under uncertainty.

Risk may be quantified and described in Probability Theory and Possibility Theory terms, and analysts can factor this into their valuation models. However, uncertainty is different and hard to quantify because it refers to future events that cannot be fully understood nor quantified.

Risk is calculated using mathematical representations and building models. In this context one must distinguish between:

a) Calculated risk,
b) Perceived risk.

Accidents are the leading cause of death for people in the age group 1-41 years in the USA, and they are the fifth leading cause of death overall. One person dies every 5 minutes as the result of an accident. One death occurs every 11 minutes as a result of a motor vehicle accident: about half of them as a result of driving under the influence of alcohol or drugs. Accidents claim the lives of 13 people every hour on every day of the year, and one out of every 10 fatal accidents occurs on the job.

4.2 QUANTIFIED RISK

It is not enough to describe risk in terms of smart sayings like the one advanced by financier and investor Warren Buffet: "Risk is not knowing what you are doing." A quantification of the level of risk is necessary for objective decision making.

Risk is related to the following concepts of:

1. Safety,
2. Danger,
3. Hazard,
4. Loss,
5. Injury,
6. Death,
7. Toxicity,
8. Peril,
9. Vulnerability.

From this perspective, risk can have two possible meanings:

1. It could mean: "hazard, peril, exposure to injury or loss." In this context it refers to an unrealized potential for harm. It is most important to notice that *once* the danger becomes realized it is *no longer* risk: it becomes injury, loss or death.
2. Risk could be considered as the "chance" of loss, injury, or death. Chance, likelihood and probability are all related words for an underlying random process described by the laws of "Probability Theory."

Managing risk uses the tools of Probability Theory and Possibility Theory. For instance, if one wants to keep a stash of 6 dollars in one's possession; no more, no less, what would be the bet on each roll of a die? The answer is 1 dollar, since the probability of rolling a specific number in the long run is 1/6, and the expected value of the bet outcome can be calculated as:

$$\mathrm{E} = (\frac{1}{6}\times 1) + (\frac{1}{6}\times 1) + (\frac{1}{6}\times 1) + (\frac{1}{6}\times 1) + (\frac{1}{6}\times 1) + (\frac{1}{6}\times 1) = 1\,.$$

Risk is associated with uncertainty. However according to Nassim Taleb:

> "Uncertainty should not bother you. We may not be able to forecast when a bridge will break, but we can identify which ones are faulty and poorly built. We can assess vulnerability."

4.3 ACTUARIAL OR LINEAR RISK

If we accept the definition of risk as the chance of loss, injury, or death one can thus quantify it using the power of mathematics in the following way:

$$\text{Risk} = \text{Probability} \times \text{Consequence}$$

or in symbolic form:

$$R = p.C \qquad (1)$$

where: p is the probability of occurrence,

C is the consequence from the occurrence.

"Insurance" using the concept of the actuarial risk was invented in the 15-th century by the Genoese merchants to protect against catastrophic losses to their trading ships through storms or piracy by sharing the involved risk.

In this case, the insurer collects a "premium" of a certain amount of funds, money or currency to be placed in an "insurance pool" per ship:

$$R\left[\frac{\$}{insured\ \ ship}\right],$$

to insure a total number of ships per year of:

$$N\left[\frac{insured\ \ ships}{year}\right].$$

If the ships lost per year are:

$$n\left[\frac{lost\ \ ships}{year}\right],$$

The award paid per lost ship is:

$$C\left[\frac{\$}{lost\ ship}\right].$$

For the established insurance company to break even, the following balance relationship must hold:

$$N.R = n.C \tag{2}$$

This defines the break-even premium collected by the insurance company as:

$$R = \frac{n}{N}.C\left[\frac{\$}{insured\ \ ship}\right] \tag{3}$$

As the number of insured ships becomes large:

$$N \to \infty,$$

the ratio n/N tends to a probability p:

$$\lim_{N\to\infty}\frac{n}{N}=p \tag{4}$$

Comparing Eqns. 3 and 4 we can write:

$$R=p.C$$

which corresponds to the definition given in Eqn. 1.

EXAMPLE 1

As a numerical example, let us consider a person in a certain age group with a 1 percent probability of dying in a year:

$$p = 0.01$$

If he purchases a life insurance policy with a payoff value of $ 100,000:

$$C = \$\ 100{,}000.$$

To break even, or for the net income to the insurance company to be equal to the net award that it must pay, the insurance company must have him pay the following annual premium according to Eqn. 1:

$$\begin{aligned} R &= p.C \\ &= 0.01\times 100{,}000 \\ &= 1{,}000\left[\frac{\$}{year}\right] \end{aligned}$$

In practice, insurance companies incur an overhead in managing the insurance business, so to cover the overhead, either that the probability of death p must be lower, or the insurance company must charge a larger premium R'>R to cover its overhead cost.

4.4 TECHNOLOGICAL RISK

Technological risk is an application of the actuarial risk to the technological realm. Let us consider a world with a large chemical or nuclear plant population N, with all plants being identical. We also assume the same demography and geology. Let us also consider the plants to be separated in such a way that they are independent and do not affect each other.

Each year let us consider that n_i plants fail in the i-th failure mode, and that these failures lead to the release of chemical pollutants or radiation leading to a population dose d_i due to the i-th failure mode.

We can state that the population dose d_i is proportional to the number of plants failing n_i or:

$$d_i \, \alpha_\ell \, n_i .$$

We can replace the proportionality sign with an equality sign if we use the proportionality constant c_i as:

$$d_i = c_i . n_i \tag{5}$$

where the proportionality constant c_i can be identified as the average population chemical or radiation dose per plant due to the i-th failure mode.

Over all the failure modes M, the total population dose is the summation:

$$D = \sum_{i=1}^{M} d_i = \sum_{i=1}^{M} c_i . n_i \tag{6}$$

The probability of occurrence of the i-th failure mode in the limit of a large number of plants is:

$$p_i = \lim_{N \to \infty} \frac{n_i}{N} \tag{7}$$

The plant risk can be taken as population dose per plant as:

$$\begin{aligned} \text{R} \; = \; & \text{Plant Risk} = \text{Population dose per plant} \\ & = \lim_{N \to \infty} \frac{D}{N} \end{aligned} \tag{8}$$

Substituting for the population dose D from Eqn. 6, we get:

$$R = \lim_{N \to \infty} \frac{\sum_{i=1}^{M} c_i . n_i}{N} = \sum_{i=1}^{M} c_i . \lim_{N \to \infty} \frac{n_i}{N} = \sum_{i=1}^{M} c_i . p_i \tag{9}$$

This suggests that risk is the "*expected consequence"* in the same sense that an insurance premium is the expected consequence of the awards.

Risk as the product of the probability of occurrence (p_i) and the consequence (c_i) is the "expectation value," or the "mathematical expectation," or simply the "mean value" of the consequence. This leads to the important observation that:

"Risk is the premium paid by society for the benefit of using a given technology."

4.5 RISK EXPRESSION

The simplest expression of risk is in terms of frequency or likelihood of occurrence of a certain event.

Table 1. Individual risks in the USA expressed as frequency of occurrence or likelihood.

Event	Frequency or likelihood of death
Heart disease	1:5
Cancer	1:7
Water related disease	1:20
Car accident	1:84
Plane crash	1:5,051
Legal execution	1:62,468
Lightning strike	1:79,746

Table 1'. Causes of death worldwide.

Event	Deaths / year millions
Cardiovascular disease	17.70
Cancer	9.60
Hunger	9.13
Air pollution	8.00
Corona Virus	1.10

Risk can be expressed in practice in many different ways. In one approach it is expressed as a ratio:

$$\left[\frac{\text{Monetary losses, injuries, deaths}}{\text{person. year}}\right]$$

The monetary losses, injuries or deaths can further be specified, for instance as cancer occurrences per person per year. Table 2 shows estimates of such a risk for a variety of societal causes.

Table 2. Cancer occurrence risks from different causes.

Source of Risk	Risk [cancer occurrences/(person.year)]
Cosmic radiation risks	
One transcontinental flight/year	1/2,000,000
Airline pilot, 50 hours/month at 30,000 ft	1/20,000
Frequent airline passenger	1/65,000

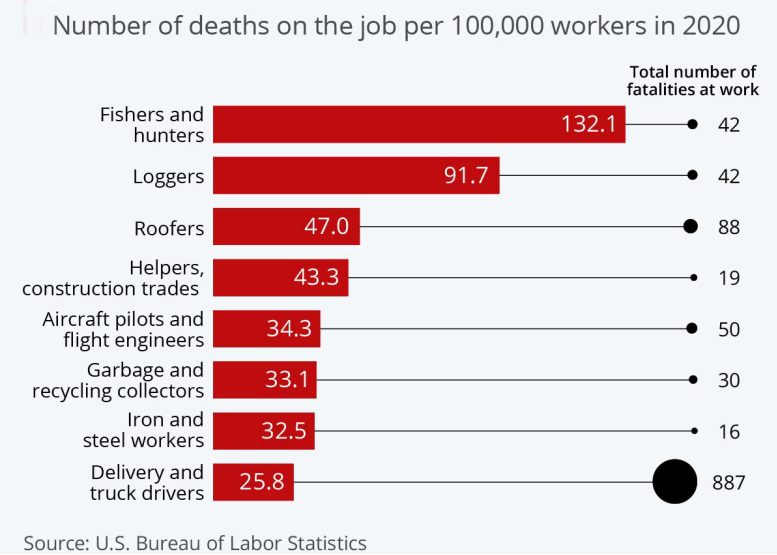
Living in Denver, Colorado (1 mile elevation), instead of New York at sea level	1/100,000
Four months (one summer) camping at 15,000 ft	1/100,000
Other radiation sources	
Average USA medical diagnostic x-rays	1/100,000
Living in a brick building (R^{222} radon gas) rather than a wood structure (C^{14})	1/200,000
Natural radiation background at sea level	1/65,000
Food and Drink	
A single diet drink per day from saccharin sweetener	1/100,000
Average USA saccharin consumption	1/500,000
Four tablespoons of peanut butter per day from aflatoxin	1/25,000
One pint of milk per day from aflatoxin	1/100,000
Miami or New Orleans drinking water	1/800,000
Cancer risk from ½ lb charcoal broiled steak per week	1/2,500,000
Alcohol averaged over nonsmokers and smokers	1/20,000
Tobacco consumption	
Smoker, cancer only	1/800
Smoker, all effects including heart disease	1/300
Person in same room as smoker, second-hand smoke	1/100,000
Other Causes	
Regular use of contraceptive pills	1/50,000
Curable skin cancer from sunbathing, and other outdoor activities	1/200

Another way of expressing risk is in terms of the average loss of life expectancy in days lost due to various causes as shown in Table 3.

Table 3. Average loss of life expectancy due to different causes.

Cause	Average Loss in Life Expectancy [days]
Being male and unmarried (involvement in risky behavior)	3,500
Cigarette smoking, male	2,250
Heart disease	2,100
Being female and unmarried	1,600
Obesity at 30 percent overweight	1,300
Being a coal miner	1,100
Cancers	980
Being 20 percent overweight	900
Cigarette smoking, female	800
Strokes	520
Dangerous jobs, accidents	300
Pipe smoking	220

Increasing food intake by 100 calories/day	210
Motor vehicles accidents	207
Alcohol drinking, USA average	130
Accidents in homes	95
Suicides	95
Being murdered, homicide	90
Legal drugs misuse	90
Average job, accidents	74
Drowning	41
Jobs involving radiation exposure	40
Accidental falls	39
Accidents to pedestrians	37
Safest jobs, accidents	30
Fire, burns	27
Energy generation	24
Illicit drug use, USA average	18
Firearms accidents	11
Natural radiation, Biological Effects of Ionizing Radiation (BEIR) Report	8
Medical x-rays	6
Drinking coffee	6
Oral contraceptives use	5
All catastrophes combined	3.5
Diet drinks	2
Reactor accidents, assuming all USA electrical power is nuclear, Union of Concerned Scientists.	2
Reactor accidents, Norm Rasmussen Wash-1400 report	0.02
Radiation from nuclear industry, assuming all USA electrical power is nuclear, Union of Concerned Scientists.	0.02



The risk associated with energy generation is shown in Table 4, in terms of the average loss of life expectancy among the public.

Table 4. Average loss of life expectancy among members of the public due to different modes of energy generation.

Energy Source	[Fatalities/year]	Average years lost	Life expectancy reduction [days]
Coal			
Air pollution	11,000	10	11.5
Transportation accidents	300	35	1.0
Sum			12.5
Petroleum			
Air pollution	2,000	10	2.2
Fires	500	35	2.0
Sum			4.2
Natural Gas, Methane			
Air pollution	200	10	0.2
Explosions	100	35	0.4
Fires	100	35	0.4
Asphyxiation	500	25	1.5
Sum			2.5
Hydroelectric			
Dam failures	50	35	0.2
Nuclear Energy (400 GWatts capacity)			

Routine emissions	8	20	0.018
Accidents	8	20	0.018
Transportation	<0.01	20	-
Waste	0.4	20	0.001
Plutonium toxicity	<0.01	20	-
Sum			0.037
Electrocution	1,200	35	5.0
Total			24

In Table 5 the risk is expressed in terms of fatalities per 100,000 persons per year, for different professional activities.

Table 5. Occupational fatality rates for some professions.

Occupation	Fatality rate [fatalities/(100,000 persons.year)]
Logging workers	92.4
Aircraft pilots and engineers	92.4
Fishermen and related workers	86.4
Structural iron and steel workers	47.0
Refuse and recycling collectors	43.2
Farmers and ranchers	37.5
Roofers	34.9
Power lines installers and repairers	30.0
Sales workers and truck drivers	27.6
Taxi drivers (homicides) and chauffeurs	22.7
All occupations	4.1

4.6 PERCEIVED VERSUS OBJECTIVE REAL RISK

Some observations can be made about different sources of risks. It must first be admitted that many accidents have trivial and complacency causes and can be averted.

The refuse and recycling of trash mortality rate is caused primarily by impatient drivers trying to pass garbage collection trucks in a hurry and hitting the workers in the process.

Given the few airline crashes, the rate for aircraft pilots and engineers seems too high, but is in fact caused by occurrences in small aircraft such as dare-devil crop dusters "buying the farm".

The USA has one of the highest fire deaths rates in the industrial world. For the year 1997, it was 15.2 deaths / million people. The National Fire Data Center reported 4,050 deaths and 23,750 injuries due to fires in 1997. These were the result of 1,750,000 fires that occurred in 1997. Fully 84 percent of the fatalities occurred in the home. Housing in the USA uses primarily flammable materials such as wood. Children with age 5 and under are at the greatest risk of home fire related deaths. They panic and do not know what to do in the case of a fire, hiding behind a bed or in a closet instead of attempting to escape.

Ninety percent of children fire deaths occur in homes that are not equipped with fire and smoke detectors. Some of these fires are preventable resulting from the use of matches, unnecessary candles and cigarette smoking.

About 1/3 of all house fires in the USA occur during the cold home heating season of December, January and February. According to the National Fire Protection Association (NFPA), the major cause of these winter fires can be attributed to faulty and improper use and maintenance of supplemental heating equipment such as space heaters. Some cities have banned the use of many types of portable space heaters.

Live and artificial Christmas trees are the ignition source of 300 reported USA home structure fires each year resulting in 14 fatalities, 21 injuries and $16.8 million in property damage.

Farming is perceived as an idyllic, healthy, low risk profession, but in fact it involves substantial risk. In addition to exposure to pesticides and farm chemicals, more farmers and rural residents are involved in farm and road accidents. Non highway vehicle accidents such as tractor overturns accounted for 40 percent of the farmer and ranchers deaths.

The National Safety Council estimates that each year more than 700 farmers and ranchers perish in work related accidents. Another 120,000 sustain disabling injuries. About 387,000 agricultural producers have disabilities and chronic health conditions limiting their daily activities.

Tractors are responsible for 41 percent of the accidental farm deaths of children under age 15; yet 4 out of 5 farm children ride tractors with family members.

From farm tractor rollovers to roadway accidents involving farm machinery, agriculture is one of the most risky occupations in the USA.

4.7 SYSTEMIC RISK AND RANDOM RISK

Systemic risk depends on predictable events whereas random risk depends on possible or random events. Random risk can be insured against, whereas systemic risk cannot.

As an example, the price of an agricultural commodity such as corn involves a systemic risk. The price of corn affects all farmers across the nation without regard to their management ability or agronomic skills. Farmers cannot affect the supply and demand situations that result in lower or higher prices for their crop; they are price takers not price makers.

Systemic risk is unsuitable for insurance. First, if the price of the corn goes down, it does so for all farmers, which is similar to all houses in the country burning down in a given year. Second, if prices enter into a multiyear decline, insurance would provide less and less protection as the price falls. At some point, the expected price that is offered in an insurance contract would become below the cost of production and thus offers no protection whatsoever, and guarantees a loss on the produced crop.

Insurance companies offering insurance against systemic risk would go bankrupt if the risk is realized. These companies become unstable and must receive some form of government subsidy to remain in business, or they must raise their premiums to unpalatable levels to the insured.

On the other hand, the crop yield is a random event and can be insured against. Yield depends on the weather, precipitation distribution, localized drought and disease incidence in different parts of the country. It would be a rare event that all farmers across the nation would be subject to the same yield loss in a given year. Such random risk can be insured against if different regions of the country are rated as to their different probabilities of yield loss. This is similar to offering lower fire insurance rates for a building equipped with a sprinkler system.

4.8 SOCIETAL RISKS

COMMON FOODS RISKS

Raw uncooked meats are not the only foods posing risks of disease through pathogens such as listeria, salmonella and E coli.

Raw unpasteurized bee honey carries botulism spores that can affect young children.

While rhubarb stems are safe to eat after boiling them, the leaves contain a toxin that can cause kidney damage.

The eyes of potatoes, especially if sprouted, can cause severe gastrointestinal pain.

Improper heating of castor beans can leave behind a powerful ricin toxin in the extracted castor oil.

Ingestion of large quantities of the nutmeg spice can cause hallucinations and even death.

Brazil nuts concentrate small amounts of thorium from the soil and are comestible, but their shells are highly carcinogenic.

AIR POLLUTION RISK, PARTICULATE MATTER (PM) AND OZONE LEVELS

PM2.5 is shorthand for Particulate Matter that is 2.5 micrometers in diameter or smaller. These fine particles are produced by burning fuel – car engines, factories, domestic heating or by chemical reactions that take place in the atmosphere. There are three major reasons that air pollution is getting worse in the USA: booming economic activity, increases in wildfires, and more relaxed enforcement of clean air regulations.

The Environmental Protection Agency's Air Quality Index takes into account the amount of carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide into the air, as well as the estimated concentration of PM2.5 and PM10. The 24-hour concentration of PM2.5, the most harmful type of air pollution, is considered unhealthy when it rises above 35.4 $\mu g/m^3$ or micrograms per cubic meter of air.

Air quality in the USA has been worsening and is killing people. While air quality had been improving since 2009, the trend reversed in 2016. Nearly 10,000 premature deaths have been attributed to this increase alone, according to the National Bureau of Economic Research.

As of 2019, more than 141 million Americans live in places with unhealthy levels of air pollution, according to the American Lung Association's 2019 State of the Air report. This is significantly more than the 134 million people reported in 2018.

Another harmful type of pollution is ground-level ozone. It forms when pollutants produced by cars, power plants, industrial boilers, and other sources react with sunlight. The hotter the days, the higher the levels of ozone pollution.

Whether from fine particles or ozone, air pollution can have serious health consequences. They range from effects such as asthma attacks from short-term exposure to pollutants to heart disease and lung cancer from long-term exposure. Bad air quality is not a concern just in the USA. An estimated 90 percent of the world's population breathes dangerously polluted air.

IONIZATION VS. PHOTOELECTRIC SMOKE DETECTORS

Four decades of use suggest that the most popular smoke alarm in ninety percent of homes in the USA, based on ionization, fails at a fifty percent rate compared with the more expensive high-tech photo-electric/heat type in a smoldering smoky fire. The ionization alarms are meant for fast moving flames such as a fire in a kitchen and pose an unwarranted risk in that they generate an alert several minutes slower than the more sensitive photo-electric type in the early stage of the more common smoldering smoky fires. They are also more prone to nuisance false alarms from ordinary cooking and steam from showers. Most fatal fires have a long smoldering phase. Photoelectric alarms can activate an hour or more before ionization alarms in smoldering fires. They detect hot, invisible particles from cooking or an open flame. They do not detect visible smoke, even though they may appear to. Slow smoldering fires emit cool, visible smoke particles, but usually not enough of the hot invisible particles to activate ionization alarms. They will almost always remain silent during the smoldering stage of a fire, until the fire bursts into flame, after which it is often too late to safely escape.

When fire-fighters are called out to homes with fires resulting from smoke alarm activations, the type of smoke alarm used is critical for public and fire-fighter safety. If the alarm is activated by a fire in the flaming stage, the difference between ionization and photoelectric alarms is only a matter of a difference of seconds, if it has not been disconnected and if it is in the room of fire origin. However, most fatal fires have a long smoldering phase. Photoelectric alarms can activate an hour or more before ionization alarms in smoldering fires. When this happens, in many cases consumers can safely put the fire out without any risk to themselves or fire fighters.

When firefighters are called out to a fire, if photoelectric alarms are installed, everyone should have already exited the home. When fires have not reached the flaming stage, the risk to fire fighters is dramatically reduced.

Interconnected wired or wireless smoke detectors will all sound an alarm when one of them is triggered. The ionization type uses radioactive isotopes such as Americium^{241} posing a radiation dose hazard if improperly emplaced in high traffic areas in home and a disposal hazard in landfills when retired from service. The alpha particle decay of Americium^{241} ionizes the air in a gap between two electrodes, causing a small electrical current to flow between them. When a sub-micron size of smoke particulates from burning in a kitchen enters the space between the electrodes, the alpha radiation is absorbed by the smoke particle, the current is interrupted, and the alarm is activated.

ALCOHOL SMALL AND BINGE-DRINKING RISKS

The World Health Organization WHO notes that even in good times, alcohol is the cause of major health issues, addiction, and death. Alcohol accounts for 3 million deaths per year worldwide– far more than the coronavirus pandemic.

A study published in the international medical journal The Lancet, shows that in 2016 almost 3 million deaths worldwide were attributed to alcohol consumption, including 12 percent of deaths in men between 15 and 49 years. There are convincing correlations between drinking and premature death, cancer and cardiovascular problems. The study, part of the annual Global Disease Burden (GBD), assesses the results and health patterns related to alcohol between 1990 and 2016 for 195 countries and territories and by age and sex.

The study does not distinguish between beer, wine and liquor. The "average consumption" refers to a standard drink, defined in the study as 10 grams of pure alcohol, consumed by one person daily, approximately the equivalent of: A small glass of red wine (100 ml) with 13 percent alcohol by volume; or a can or bottle of beer (375 ml) with 3.5 percent alcohol by volume; or a glass of whiskey or other liquors (30 ml) with 40 percent alcohol by volume. The study used 694 data sources on alcohol consumption at the individual and population levels, along with 592 prospective and retrospective studies on the risk of alcohol consumption. More than 500 GBD collaborators, researchers, academics and others from more than 40 nations contributed to the study. There is a pressing and urgent need to review policies to encourage the decline of alcohol consumption levels or to abstain altogether. The myth that "one or two drinks a day is good for you" is just that: a myth. This study collapses that myth.

For every ten fatalities of working-age adults, one is attributable to excessive alcohol consumption according to a study by researchers with the USA Centers for Disease Control and Prevention (CDC). Between 2006 and 2010 some 88,000 deaths could be attributed to excessive drinking. Each of these lost lives was cut short by an average of 30 years. Six Americans on-average die each day from drinking too much alcohol. Over a full year, the toll from fatal intoxications passes 2,220, according to the CDC. Binge drinking accounts for most of those lethal events.

What is noticeable about the death rate is that he vast majority of cases do not involve college-aged young adults, the group most often associated with binge drinking, but it is middle-aged white males. The CDC reported that more than 75 percent of those 2,220 alcohol poisoning deaths occur among adults between the ages of 35 and 64. More than 75 percent of people who die from alcohol poisoning deaths are men, and nearly 70 percent are white people.

The researchers urged that all USA residents be more aware that even one night of alcohol overindulgence can turn deadly. Too much alcohol in the body suppresses breathing. Binge drinking is defined as drinking enough to bring the blood alcohol level to 0.08 percent, which puts drivers past the limit in all 50 states. Once one gets above that level of consumption, the risk of death from alcohol poisoning really goes up.

Geographically, clear patterns emerged from the numbers illustrating what might be called America's binging belt. Among the 10 states with the highest average annual number of alcohol poisoning deaths, eight are in the West:
Alaska (46.5),
New Mexico (32.7),

Arizona (18.7),
Wyoming (17.7),
South Dakota (17.0),
Utah (16.7),
Colorado (14.4), and
Oregon (12.7).

In some areas, binge drinking behavior is strongly influenced by state and local laws governing the price and availability of alcohol, as well as other cultural and religious factors. Policies that boost prices and cut the clusters of retailers that make alcoholic beverages more available and accessible have been shown to reduce binge drinking in states. Living in geographically isolated rural areas might increase the likelihood that a person with alcohol poisoning will not be found before death or that timely emergency medical services will not be available.

In addition to using blood alcohol levels, health experts define binge drinking as consuming four or more alcoholic beverages in one session for women and five or more for men. The drinks may include shots of liquor, glasses of wine or cans of beer. More than 38 million American adults report they engage in binge drinking, on average, four times per month, and guzzle an average of eight drinks per spree. Most of the alcohol overdoses examined involved people for whom alcohol dependence was not listed as a contributing cause.

Roughly two-thirds of people who admitted binge-drinking 10 or more times per month were not alcohol dependent, another recent study found. All totaled, Americans lose approximately 2.56 million years of life each year due to alcohol-related deaths. And though most expect alcohol related deaths to be caused by car crashes and liver failure, excessive drinking leads to all kinds of fatal consequences: acute pancreatitis, psychosis, esophageal cancer, breast cancer, oral cancer, falling injuries, suicide and drowning. Alcohol intake plays a role in at least 54 different conditions linked to death. The victims are often middle-aged wage-earners. It is not just a loss of life, but a major hit to the economy. This lost potential saps some $224 billion a year from the USA economy.

From 2006 to 2010, the highest percentage of alcohol related deaths among citizens aged 20 to 64 occurred in Western locales. Sixteen percent of working-age adult fatalities in New Mexico are attributable to alcohol followed by Alaska, Colorado, Wyoming, Arizona, Montana, California, Nevada, Oregon and Idaho. The top three states least plagued by excessive drinking deaths are Maryland, New Jersey and New York, where just above 7 percent of working-age deaths are related to alcohol.

Researchers from the Boston University School of Medicine and Boston University School of Public Health have found that alcohol is a “major” contributor to cancer deaths in the USA, even when consumed in small amounts: “Alcohol remains a major contributor to cancer mortality and YPLL [Years of Potential Life Lost]. Higher consumption increases risk but there is no safe threshold for alcohol and cancer risk. Reducing alcohol consumption is an important and underemphasized cancer prevention strategy.”

Previous research has consistently shown that alcohol consumption is a significant risk factor for cancers of the mouth, throat, esophagus and liver. More recent research has demonstrated that alcohol consumption also increases the risk of cancers of the colon, rectum and female breast.

The study used 2 methods to calculate population-attributable fractions. it based relative risks on meta-analyses published since 2000, and adult alcohol consumption on data from the 2009 Alcohol Epidemiologic Data System, 2009 Behavioral Risk Factor Surveillance System, and 2009–2010 National Alcohol Survey. The researchers found that alcohol led to approximately 20,000 cancer deaths annually, indicating that alcohol contributes to about 3.5 percent of all cancer deaths in the USA [2].

Breast cancer was the most common cause of alcohol-attributable cancer deaths in women or about 15 percent of all breast cancer deaths. In men, they found that cancers of the mouth, throat and esophagus were common causes of alcohol-attributable cancer deaths or about 6,000 deaths annually.

Each alcohol-related cancer death resulted in an average of 18 years of potential life lost. Average consumption of 1.5 drinks / day or less made up 30 percent of all alcohol-attributable cancer deaths. Higher levels of alcohol consumption were associated with a higher cancer risk.

Dr. Timothy Naimi from the Department of Medicine at Boston University School of Medicine suggests that: “The relationship between alcohol and cancer is not widely appreciated by the public and underemphasized by physicians.”

A UK Lancet study of 600,000 drinkers estimated that having 10 to 15 alcoholic drinks every week could shorten a person's life by between one and two years. People who drink more than 18 drinks a week could lose four to five years of their lives.

Scientists, who compared the health and drinking habits of alcohol drinkers in 19 countries, modelled how much life a person could expect to lose if they drank the same way for the rest of their lives from the age of 40. They found people who drank the equivalent of about five to 10 drinks a week could shorten their lives by up to six months. The study's authors also found drinking increased the risk of cardiovascular illness, with every 12.5 units of alcohol people drank above the guidelines raising the risk of:
Stroke: 14%
Fatal hypertensive disease: 24%
Heart failure: 9%
Fatal aortic aneurysm: 15%

Drinking alcohol was linked with a reduced risk of non-fatal heart disease, but scientists said this benefit was wiped out by a higher risk of other forms of the illness. Previous studies have suggested that drinking red wine can be good for our hearts, although some scientists have suggested these benefits may be overhyped. A Danish study found drinking three to four times a week was linked to a lower risk of type 2 diabetes.

On balance there are no health benefits from drinking alcohol, which is usually the case when things sound too good to be true. Although non-fatal heart attacks are less likely in people who drink, this benefit is swamped by the increased risk of other forms of heart disease including fatal heart attacks and stroke. The key message of the research is that, if you already drink alcohol, drinking less may help you live longer and lower your risk of several cardiovascular conditions.

COLORECTAL CANCER RISK

The risk factors for colorectal cancer are age, Inflammatory Bowel Disease or Crohn’s Disease, family history of colorectal polyps or cancer, lack of regular physical

activity, low fruit and vegetable intake, low fiber/high fat diet, obesity, alcohol consumption and tobacco use.

Colorectal cancer is the 3rd leading of cancer deaths in the USA, and is the 3rd most common kind of cancers in men and women. Yet, if detected early, it is quite curable. The disease develops slowly over a period of several years in the colon or rectum, possibly from a benign polyp.

About 141,000 cases are diagnosed per year, and 49,000 die of it. A colonoscopy is recommended every 10 year beginning at age 50 using a colonoscope. A Fecal Immunochemical Test (FIT) is recommended yearly.

TRAFFIC AND PEDESTRIAN FATALITIES

There were 33,561 traffic fatalities in 2012, according to the Department of Transportation (DOT) National Highway Traffic safety Administration. This is a 3.3 percent increase of 1,082 deaths over 2011. Driving Under the Influence (DUI) fatalities increased by 4.6 percent.

Most of the increase involved motorcyclists, cyclists, large-truck occupants, in crashes involving drunken drivers and pedestrians.

MOSQUITOES RISK

Mosquitoes kill 1 million people each year according to the World Health Organization (WHO). They also pose a threat to livestock. As the deadliest animal to humans in the world, it spreads diseases such as malaria, dengue fever, chikungunya, West Nile Virus and yellow fever. A mosquito weighs only 2.5 mg and lives for only 4-6 weeks. Mosquitoes have existed since 400 million years and are the greatest transmitted disease insect vector challenge to the human race. Fleas and ticks are other challenges.

About 176 species of mosquitoes have been identified in the USA. The tree-hole mosquito can spread encephalitis. The inland flood water mosquito has a range of 30-60 miles from its breeding site. The latter hatch in the spring and need warm water with a temperature around 70 ^{o}F from spring showers and warming temperatures. Other species do best in hot dry weather and appear in mid-summer.

Mosquitoes can breed in house gutters and places where rain water can collect such as tires, bird baths and empty containers. They are attracted to the microbes and the foul odors from standing water to lay their eggs.

FIRST AND SECOND-HAND SMOKING RISKS

OVERVIEW

Cigarette smoking in the USA causes an estimated 443,000 deaths each year, including approximately 49,400 deaths due to exposure to secondhand smoke. One out of five Americans or more than 46 million people do smoke. People who smoke are up to six times more likely to suffer a heart attack than nonsmokers, and the risk increases with the number of cigarettes smoked. Smoking also causes most cases of chronic lung disease. It also causes a host of other cancers including throat, mouth, nasal cavity, esophagus, stomach, pancreas, kidney, bladder, cervix, and acute myeloid leukemia.

Figure 1. Flock or herd behavior associating glamor to smoking risk. Female smokers were induced to "Believe in Yourself!" and "Don't test one brand alone … compare them all!" and smoke "Victory Sticks." Source: Video grabs.

The Federation of State Medical Boards (fsmb) is reported to have told doctors that they could lose their medical licenses if they spread Covid-19 vaccine misinformation on social media. The July 29, 2021, news release says doctors "must share information that is factual, scientifically grounded and consensus-driven for the betterment of public health." This appears akin to the tobacco companies that did not have a problem claiming that doctors giving recommendations for the healthiest cigarette choices for years on: "Smoke Camels!", "More Doctors Choose Camels", "Doctors Say Chesterfield is best for you", "20,689 Doctors say Lucky's are good for you". People who spent their entire careers studying the human body are being threatened with cancellation if they spread what they believe is fact-based information that the establishment wants to keep suppressed, https://www.fsmb.org/advocacy/news-releases/fsmb-spreading-covid-19-vaccine-misinformation-may-put-medical-license-at-risk/

> "Physicians who generate and spread COVID-19 vaccine misinformation or disinformation are risking disciplinary action by state medical boards, including the suspension or revocation of their medical license. Due to their specialized knowledge and training, licensed physicians possess a high degree of public trust and therefore have a powerful platform in society, whether they recognize it or not. They also have an ethical and professional responsibility to practice medicine in the best interests of their patients and must share information that is factual, scientifically grounded and consensus-driven for the betterment of public health. Spreading inaccurate COVID-19 vaccine information contradicts

that responsibility, threatens to further erode public trust in the medical profession and puts all patients at risk."

Reasonable people believe that doctors would be speaking out if the vaccine were either ineffective or dangerous or both. Yet the reality is that doctors could lose their jobs and be ostracized if they speak out. In the 17th century the "consensus" was that the universe revolved around the Earth (Galileo Galilei, 1633) and combustion of anything in a fire was explained by the Phlogiston theory (Johann Joachim Becher, 1667).

On January 11, 1964, USA Surgeon General Luther Terry released a 387-page report that linked cigarettes to cancer. It became a ground-breaking report that health advocates say saved the lives of 8 million Americans and became one of the greatest public health successes of the 20th century. The Surgeon General and his committee had waded through 7,000 documents and put together a report that was a culmination of research on tobacco and smoking with the result that cigarettes could kill. People slowly took notice, and within 50 years, smoking has substantially decreased nationwide.

SWEDISH NATIONAL BOARD OF HEALTH AND WELFARE, BLOOMBERG PHILANTHROPIES

Globally, the mortalities from second-hand smoke add to an estimated 5.1 million deaths / year linked to first-hand smoking among the world's 1 billion smokers.

Second-hand smoke may have killed more than 600,000 people in 2004, causing one in every 100 deaths.

According to a study published in the British medical journal: The Lancet, the main causes of death were heart disease, lower respiratory infections, asthma, and lung cancer. Women accounted for 47 percent of the deaths, children 28 percent and men 26 percent. Deaths in adults were spread evenly across the globe. The research was led by Annette Pruess-Ustuen of the World Health Organization (WHO), in Geneva, Switzerland.

The 1 billion smokers in the world are exposing billions of non-smokers to second-hand smoke, a disease-causing indoor air pollutant. Few sources of indoor-air pollution can be completely eliminated. However, smoking indoors can be eliminated with substantial benefits.

The researchers used 2004 data gathered in 192 countries to estimate deaths and years of good health lost. The study estimates that 10.9 million persons-years of good health were lost.

The research was funded in part by the Swedish National Board of Health and Welfare and Bloomberg Philanthropies.

USA SURGEON GENERAL REPORT

More than 440,000 deaths per year in the USA are attributed to smoking and exposure to second hand smoke. Occasional smoking or second-hand smoke causes immediate damage to one's organs and poses risk of serious illness or death. There is no risk-free level of exposure to tobacco smoke.

A December 2010 report: "How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease" issued by Surgeon General Regina Benjamin describes tobacco smoke's assault on the body. The chemicals in tobacco smoke

reach the lungs quickly every time a smoker inhales causing damage immediately. Inhaling even the smallest amount of tobacco smoke can also damage the DNA, which can lead to cancer.

The telomere sequences of the DNA molecule are associated with the aging process of all carbon-based life forms. We age because DNA does not make perfect copies of itself. The DNA telomere tips are not copied during the replication process and eventually we need those DNA tips. If a DNA tip replication fix is figured out with a treatment that will make complete DNA copies including the tips you can become ageless. People who get this science fiction treatment could live 250 years.

Tobacco smoke is made up of more than 7,000 chemicals. Hundreds are toxic, and at least 70 are carcinogenic. One of these toxic chemicals is benzo-a-pyrene.

In addition to chemical toxicity, tobacco smoke is radiologically toxic. It contains daughters arising from the decay of the gaseous radioactive $Radon^{222}$ isotope deposited in the fields on the leaves of the tobacco plant. The solid decay products Pb^{210} and Po^{210} are deposited in the lung's alveoli and can eventually cause the generation of cancerous tumors by their emitted alpha particles radiation.

Smoking is responsible for more than 85 percent of lung cancers; but there are a host of other chronic diseases directly related to exposure to tobacco smoke. It is also a major cause of heart disease, stroke, aortic aneurysm and Peripheral Arterial Disease, PAD.

The report suggests that even low levels of exposure, like occasional smoking; having just a few cigarettes a day and second hand smoke are enough to increase the risk of a cardiovascular event. The report links smoking directly to 13 different cancers including esophagus, trachea, stomach, pancreas, kidney, bladder, cervix and acute myeloid leukemia.

It ties smoking to more than a dozen chronic diseases like stroke, blindness, periodontitis, heart disease, pneumonia; reproductive problems like diminishing fertility; Chronic Obstructive Pulmonary Disease (COPD), asthma and other respiratory illnesses.

Second-hand smoke affects adults and children differently. According to the report, children exposed can suffer middle ear infections, impaired lung function and are more susceptible to sudden infant death syndrome.

Adults are at risk for lung cancer, nasal irritation, heart disease and reproductive problems like low birth weight deliveries.

Casual smokers think they are improving their health by cutting back, but there is no safe level. It affects people's DNA immediately, and their heart and blood vessels literally seconds to minutes after being exposed.

Secondhand smoke is no less dangerous than smoking. It inflames and irritates the lining of blood vessels, making the blood more prone to clotting and the combination of inflammation, irritation and increased clotting can literally cause a heart attack even from the kind of exposure from walking into a smoky restaurant.

Today's tobacco products are designed to be more attractive to smokers, and they are more addictive. They deliver nicotine faster making them more subject to abuse than in the past.

Additives like ammonia NH_3 are added to cigarettes. It converts the nicotine, making it easier to pass through the blood to brain barrier. Other additives like moisture enhancers and sugar reduce the harshness of the smoke and that enhances the taste. This allows smokers to tolerate the smoke and pull it deeper into their lungs.

Efforts over the last 20 to 30 years to put out "filtered," "low-tar" and "light" products have not reduced the overall risk of disease. None of these changes have been effective in making the products safer.

The USA Food and Drug Administration, FDA, has been given more regulatory authority over tobacco products, which were totally unregulated. In October 2010, it announced that graphic warning labels would be added to cigarette packs.

Quitting smoking at any time gives the body a chance to heal the damage caused by smoking. It is never too late to quit, and the sooner it is done, the better.

ELECTRONIC CIGARETTES RISK, ELECTRONIC NICOTINE DELIVERY SYSTEMS (ENDS)

Electronic cigarettes or Electronic Nicotine Delivery Systems (ENDS) are devices whose function is to vaporize and deliver to the lungs of the user a chemical mixture typically composed of nicotine, propylene glycol and other chemicals, although some products claim to contain no nicotine. Each device contains an electronic vaporization system, rechargeable batteries, electronic controls and cartridges of the liquid that is vaporized. The manufacturers report that the cartridges typically contain between 6 and 24 mg of nicotine, but sometimes can contain more than 100 mg [10].

As part of the Tobacco Free Initiative (TFI), the World Health Organization (WHO) states that: "The safety of ENDS has not been scientifically demonstrated. The potential risks they pose for the health of users remain undetermined. Furthermore, scientific testing indicates that the products vary widely in the amount of nicotine and other chemicals they deliver and there is no way for consumers to find out what is actually delivered by the product they have purchased."

The risk due to the presence of large concentrations of propylene glycol in e-cigarettes is pointed out, considering that the chemical is a known irritant when inhaled. The risk of nicotine poisoning also exists, particularly to certain populations like children if they were to swallow the contents of a nicotine cartridge.

The WHO also asserts: "ENDS are often touted as tobacco replacements, smoking alternatives or smoking cessation aids. But we know that for smoking cessation products to be most effectively and safely used, they need to be used according to instructions developed for each product through scientific testing. There are no scientifically proven instructions for using ENDS as replacements or to quit smoking. The implied health benefits associated with these claims are unsubstantiated or may be based on inaccurate or misleading information." The WHO concludes that consumers should be strongly advised not to use any of these products, including electronic cigarettes [10].

INHERITED PREDISPOSITION TO SMOKING RISK

A study published in the journal "Pediatric" suggests that the children of people who smoked only in their teenage years were still 3.2 times more likely to also pick up the habit, compared to children whose parents had never smoked. Researchers gathered data from a sample of ninth grade students in St. Paul, Minnesota and followed this group from 1988 through age 38, and then also gathered data from the children of that cohort, starting at age 11.

The rate of smoking was 23-29 percent among kids ages 11 and older whose parents had once smoked or currently smoked, compared with 8 percent among children of parents who had never smoked. Children who had older siblings who smoked were also more likely to smoke.

Dr. John Spangler, a family and community medicine specialist at Wake Forest Baptist Medical Center in Winston-Salem, North Carolina stated: "We do not know exactly what is going on here, but my hypothesis is that there is a genetic predisposition toward smoking. Whether it is a genetic predisposition toward risk taking behavior, genetic disposition toward experimentation of substances, or even a genetic disposition toward nicotine addiction itself."

Dr. John Spangler noted that parents can still take action to prevent their children from taking up the unhealthy habit: "A parent should take the opportunity to make it a teachable moment. There is nothing you can do about your past history of smoking; there is something you can do about your current history of smoking. But if you talk and engage the child in a healthy lifestyle, it may make you more likely to quit and also make the child less likely to start smoking."

The authors of the study noted that their research had some limitations including: relatively low levels of education, the fact that only one parent provided information on their smoking history and the inability to determine exactly what caused the link.

RADON GAS RISK

According to the EPA, radon-induced cancer kills 21,000 Americans per year. A study by Harvard University ranks radon gas as America's leading in-home hazard. Radon gas is considered as the leading cause of lung cancer among non-smokers. It caused more American fatalities in 2013 than carbon monoxide poisoning, fires and handguns combined. The American Lung Association, Center for Disease Control and National Cancer Institute all agree that radon gas is a national health problem and encourage radon testing in newly purchased homes.

Radon is a naturally occurring, invisible and odorless radioactive gas emitted from the decay chains of uranium and thorium. One out of every 15 American homes contains high levels of radon gas, and millions of Americans are unknowingly exposed to this health hazard. Radon gas problems have been detected in every county of the USA.

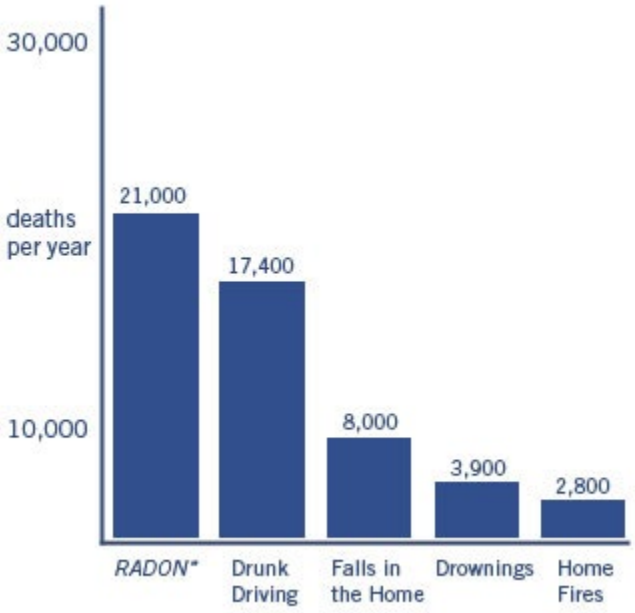


Figure 2. Yearly fatalities from radon gas. Radon is estimated to cause about 21,000 lung cancer deaths per year, according to EPA's 2003 Assessment of Risks from Radon in Homes (EPA 402-R-03-003). The numbers of deaths from other causes are taken from the Center for Disease Control and Prevention's 2005-2006 National Center for Injury Prevention and Control Report and 2006 National Safety Council Reports. Source: EPA.

CANCER RISK

One in three Americans are expected to be afflicted by some form of cancer in their lifetime, according to the American Cancer Society. The National Institute of Health estimates that cancer costs Americans $78.2 billion per year in medical bills. The average cost of a single hospital stay is $8,793.

In the 1930's about 1 in four people with cancer had a chance of surviving for at least 5 years. Today the five-year cancer treatment survival rate has risen to 66 percent.

Over 1.5 million new cases of cancer were diagnosed in 2010 of the types shown in Table 6. These do not include another 1 million cases of basal cell and squamous cell carcinoma skin cancers, for a total of about 2.4 million new cases per year.

Table 6. Types of cancer cases diagnosed, 2010.

Cancer Type	Cases
Lung and Bronchus	222,520
Prostate	217,730
Female Breast	207,090
Colon and Rectum	142,570
Urinary Bladder	70,530
Non-Hodgkin Lymphoma	65,540

Melanoma of the skin	68,130
Leukemia	43,050
Uterine Corpus	43,470
Uterine Cervix	12,200

ULTRAVIOLET UVA, UVB, AND UVC SKIN CANCER RISK

Ultraviolet (UV) light exposure from the sun, or from indoor tanning devices, increase the risk of developing skin cancer. The chance of developing skin cancer increases with age and a history of severe sunburns at childhood.

Other less common conditions can predispose a person to skin cancer: organ transplantations, chronic skin ulcers, prior x-ray treatment for acne in the 1950s, arsenic ingestion, smoking and toxic exposure to tars and mineral oils.

Ultraviolet light avoidance is the primary form of prevention and is important at all ages. Solar radiation is at its peak from 10 am to 4 pm. Wide brimmed hats, sunglasses long-sleeved shirts and protective clothing must be used. Broad spectrum sunscreen blocks for both ultraviolet A (UVA) and ultraviolet B (UVB) with a Sun Protection Factor (SPF) of 15 or higher should be applied to the skin even over short periods of sun exposure, and reapplied every 2 hours. Indoor tanning devices should be strictly avoided.

Ultraviolet light kills viruses and bacteria. The subway trains in Manhattan and buses in China are exposed to UVC light every night. Many hospital surgical rooms are also exposed to UVC light, of course while humans are not in them, making them very clean rooms for surgery.

A particular wavelength in the ultraviolet light spectrum would not harm humans but still kill superbugs. The "far-UVC," ultraviolet light in the spectrum of 205-222 nanometers would not penetrate human skin or eyes but can still kill bacteria and viruses both on surfaces and in the air. The sun produces these particular wavelengths, but our atmosphere's ozone layer stops them.

Simple LEDs that emit the proper wavelength can be manufactured to disinfect surfaces and enclosures. Japanese Company Ushio and a research group from Kobe University Graduate School of Medicine have completed a study proven that irradiation of filtered 222 nm UVC light on human skin reduces bacterial counts while causing no injury to the skin. This is the first study on the safety of 222 nm far UVC light conducted on humans. The research paper regarding this study is published on PLOS ONE, titled "Exploratory clinical trial on the safety and bactericidal effect of 222-nm ultraviolet C irradiation in healthy humans."

An optical filter that eliminates radiation from wavelengths above 230 nm must be used. Twenty-four hours after irradiation, none of a group of participants showed any signs of erythema or redness of skin. When the irradiated area of the participants was assessed three months post-irradiation, none of them showed any signs of erythema, and no adverse event was noted. Based on these findings, the researchers concluded that irradiation of filtered 222 nm UVC is safe and has a bactericidal effect on the human skin. A previous joint study between Kobe University and Ushio showed that repeated irradiation of filtered 222 nm UVC light did not cause skin cancer or cataract to hairless mice; a type of mice with extra sensitive skin.

It is important to use filtered 222 nm UVC light in occupied spaces. Unfiltered 222 nm UVC lamps will emit radiation in the 230 nm (UVC) to 320 nm (UVB) range.

Irradiation without blocking these higher wavelengths of light has been reported to cause erythema at 50 mJ/ cm^2 and damage to the cellular DNA at 63 mJ/ cm^2 or more.

SQUAMOUS CELL CARCINOMA

Squamous cell carcinoma is the second most common skin cancer with more than 250,000 new cases diagnosed per year in the USA. Middle-age and elderly person, especially those with fair complexions and frequent sun exposure are at risk.

These appear as crusted or scaly patches on the skin with a red inflamed base, a growing tumor, or a non-healing ulcer. They occur in the sun exposed areas like the face, neck, arms scalp, backs of the hands and ears. It can occur on the lips, inside the mouth, on the genitalia, or anywhere on the body.

The cancer develops in the epithelium or the outer layer of the skin. Some carcinomas develop from small sandpaper-like lesions called solar or actinic keratosis. It is possible for squamous cell carcinomas to spread to other body parts, necessitating early treatment. If left untreated, they can destroy much of the local tissue surrounding the tumor and could result in the loss of an ear or nose. Aggressive types, especially on the lips or ear can spread to the lymph nodes and other organs resulting in 2,500 deaths / year in the USA. Surgical excision to remove the entire cancer is the most common treatment.

MELANOMAS

The lifetime risk of a person in the USA to develop melanoma is 1 in 75. They appear as moles different than others, with a changing appearance, itches, or bleed. Melanomas are identified by the so-called ABCDD features:

Assymetry: One half does not match the other half in size, shape, color or thickness. Border irregularity: The edges are ragged, scalloped or poorly defined.

Color: The pigmentation is not uniform with shades of tan, brown and black present. Dashes of red, white, and blue add to the mottled appearance.

Diameter: Melanomas are usually larger than 6 mm in diameter or the size of pencil eraser.

FIREWORKS RISKS

During the 4th of July Independence Day holiday of 2008, about 5,000 Americans were sent to emergency rooms because of injuries due to fireworks. Ninety percent of fireworks injuries that required emergency medical care were approved by Federal regulation agencies. In addition, fireworks injure bystanders more often than those setting them off.

According to the USA Consumer Product Safety Commission, CPSC, about 1,000 of these injuries were to the eyes, including contusions, lacerations, debris in the eyes, as well as burns. Young people under the age of 14 accounted for 40 percent of the total injuries.

The organization “Prevent Blindness in America” supports the development and enforcement of restrictions on the importation, sale and use of fireworks and sparklers, except for those used in authorized public displays by competent licensed operators. The

organization advocates the idea that a ban would be an effective way of eliminating the social and economic impact of fireworks-related trauma and damage.

Five USA states ban all consumer sales of fireworks: Delaware, Massachusetts, New Jersey, New York and Rhode Island.

SPACE HEATERS FIRE RISK

The National Fire Protection Association, NFPA reports that in 2007, USA fire departments responded to 66,400 home structures fires that involved heating equipment. These fires resulted in 580 deaths, injured another 1,850, and were responsible for $608 million in direct property damage.

Electric Space Heaters that meet voluntary safety standards in their construction and performance are certified with a label from a recognized testing laboratory such as Underwriters Laboratory (UL), Intertek (ETL) or the Canadian Standards Association (CSA).

It is recommended that people purchase electric heaters with automatic shutoffs when tipped over. Heaters must be turned off when people leave the heated room of go to sleep. Power cords must be plugged directly into power outlets and never into an extension cord. A large load on an extension cord can cause it to overheat setting the surrounding furniture or carpeting on fire. Broken plugs, loose connections, cracked or damaged outlets or cords must be regularly checked or replaced before being used.

MEDICAL RADIATION PROCEDURES RISK

A rule of thumb is that anyone who is given a standard x-ray is exposed to roughly 0.05 centiSievert (cSv) or rem of "effective dose" or "dose equivalent." Anyone who is examined using computer tomography is exposed to 1.0 cSv or 1 rem of radiation.

Medical doctors in the USA ordered Computed Tomography (CT) scans at a rate of 149 tests per 1,000 patients in 2010, nearly triple the rate of 52 scans per 1,000 patients in 1996.

Table 7. Age distribution of medical imaging radiation doses of 2 cSv (rem) or more. Data: Journal of the AMA.

Age group [years]	1996 [percent]	2010 [percent]
0-14	0.1	0.3
15-44	0.8	1.5
45-64	2.4	5.2
> 65	6.4	11.5
Total	1.8	3.9

The use of Computed tomography CT), Magnetic resonance Imaging (MRI) and other medical imaging tests has increased over the last 15 years, raising the issue of cost-

benefit considering the potential risk from radiation exposure as well as the cost to the healthcare system.

Data from patients enrolled in six large Health Maintenance Organizations (HMOs) found that medical doctors ordered CT scans at a rate of 149 tests per 1,000 patients in 2010, nearly triple the rate of 52 scans per 1,000 patients in 1996. MRI use nearly quadrupled during the period, jumping from 17 to 65 tests per 1,000 patients according to the Journal of the American Medical Association (AMA).

The proportion of patients who had any amount of radiation exposure from CT scans rose from 28.5 percent in 1996 to 36.2 percent in 2010. Their average exposure jumped from 0.48 cSv (rem) to 0.78 cSv (rem). At the top end of the spectrum, the proportion of patients in the study who got radiation at high or very high levels rose from 1.8 percent to 3.9 percent.

Computed Tomography (CT) scans combine a series of x-rays into a detailed three-dimensional image. Magnetic Resonance Imaging (MRI) machines detect energy emitted by hydrogen atoms in the body and convert that into pictures. Both tests can reveal blockages in arteries, bleeding in the brain, tumors and other life-threatening conditions.

MRIs do not use ionizing radiation, but CTs do. A number of recent studies have linked increases in medical imaging to higher rates of radiation-induced cancers, including a report in the British Lancet journal suggesting a correlation between CT scans in children and their subsequent risk of developing brain tumors or leukemia.

Advanced imaging adds about $100 billion to the USA medical bills each year. There is an agreement in the medical community that imaging tests are being over-utilized, particularly CT scans. In April 2012, the American Board of Internal Medicine released a report that asked medical doctors from numerous medical specialties to list five procedures they felt were used too much. All of them, including cardiologists, oncologists and family physician, listed CT scans among their top five.

The increase in testing may be related to unrealistic expectations about the ability of CTs and MRIs to show what is wrong with a patient and doctors fear that if they do not order the tests, they will miss something that could lead to a malpractice lawsuit.

About 2.5 percent of the patients in six HMOs were exposed to between 2.0 and 5.0 cSv (rem) of radiation in 2010, a level that the International Commission on Radiological Protection (ICRP) says exceeds the safe limit. Another 1.4 percent of the patients were exposed to more than 5.0 cSv (rem) of radiation in 2010, which exceeds the USA Nuclear Regulatory Commission limit for occupational workers. Patients and medical professionals must jointly weigh the risks against the benefits for each situation at hand.

DENTAL X-RAYS RISKS

Dental x-rays are essential for detecting serious oral and systemic health problems, and generally the amount of radiation is very low. The radiation from a dental x-ray is equivalent to that received from the potassium-40 K^{40} radioactive isotope from eating 8 bananas.

The notion of dental x-rays to be administered every year and a full set of x-rays every three years for every patient is being abandoned [12]. Dentists strive to minimize unnecessary exposure, particularly to radiation-sensitive youngsters.

The effective radiation dose administered depends on how it is taken. If the dentist uses slow film and round collimation, a person gets approximately double the dose from digital imagery and rectangular collimation.

Dentists follow the As Low As Reasonably Achievable (ALARA) radiation exposure principle. Dentists who have not switched to digital imagery can reduce patients' risk by opting for faster film. Another important factor is that the technician who is taking the images should be well-trained and skilled, which reduces the amount of re-exposures. For round collimation, the problem is that it exposes more tissue, including the salivary glands, which are sensitive to radiation. Changing to rectangular collimation is not a big expense and systems can be converted for a few hundred dollars.

X-rays exposure is especially worrisome for children because their developing tissue is more vulnerable. There is concern about a new trend in orthodontics as popularity grows for cone-beam CT scanners, used to create 3-D images. Radiation doses from these machines can vary dramatically, depending on the manufacturer and settings.

Whenever any kind of dental X-ray is done, patients should wear protective lead aprons with thyroid collars. The aprons do not shield from internal radiation scattering, especially with sensitive tissue like the thyroid gland. That is why it is important to reduce the x-ray beam to the smallest size that provides necessary information.

Dental x-rays made news in 2012 after the American Cancer Society journal Cancer published a study saying that people with one type of brain tumor remembered having twice as many dental x-rays as individuals in the control group, who did not have brain tumors. Dental x-rays are administered only when medically indicated, tailored to each patient's health needs [12].

DIESEL FUEL EXHAUST FUMES RISK

Diesel exhausts are a cancer risk according to the World Health Organization (WHO). The International Agency for Research on Cancer, part of the WHO, elevated diesel exhaust from the "probable carcinogen" to the "known carcinogen" level, a move that could help exhaust be seen as a more serious public health threat. It is on the same order of magnitude as passive smoking.

One of the biggest concerns is the large number of people exposed to diesel fuel exhaust. Affected groups include farmers, street pedestrians, ship passengers and crew, railroad workers, truck drivers, mechanics, miners, and people who operate heavy machinery. Diesel is as of 2012 in the same category as other known health risk hazards such as asbestos, alcohol, and ultraviolet radiation.

PASSIVE SMOKING RISK

A study published in the American Journal of Preventive Medicine of 70,900 non-smoking men and women led by the American Cancer Society suggests that non-smoking adults have a higher risk of dying from serious lung disease if they grew up with parents who smoked. Researchers said childhood passive smoking was "likely to add seven deaths to every 100,000 non-smoking adults dying annually". The best way to protect children was to quit smoking.

If participants lived with a smoker during adulthood, there were other health implications. Smoke exposure of 10 or more hours every week increased their risk of death from ischemic heart disease by 27 percent, stroke by 23 percent and chronic obstructive lung disease by 42 percent compared to those who lived with non-smokers.

The participants were questioned about their exposure to smoking throughout their lives, and then their health was tracked over the next 22 years. The study shows that the effects of childhood smoke exposure persist into adulthood, resulting in chronic obstructive lung disease.

PROCESSED MEAT RISKS

Americans eat 16 billion hot dogs per year, according to the National Hot Dog and Sausage Council. Roughly 1.1 million hot dogs were served up to hungry NASCAR fans at the speedway in 2010. Americans consume on average about 60 hotdogs between the Memorial and Labor Day holidays. During the Fourth of July weekend, the nation consumes about 150 million hot dogs, which is enough to stretch from Washington D.C. to California more than five times. Chicago's O'Hare International Airport sells more hot dogs than any other location in the USA; over 2 million a year.

President Franklin D. Roosevelt, and his wife, Eleanor Roosevelt, wanting to introduce something truly American to the visiting King George VI of England and his queen, served the royal guests Nathan's hot dogs at a picnic at their estate in Hyde Park, New York on June 11, 1939. The press made a great deal about the hotdogs, and the picnic menu made the front page of The New York Times. The King was so pleased with "this delightful hot-dog sandwich" that he asked Mrs. Roosevelt for seconds.

However, health officials say eating processed meat is a really bad idea because it can cause colon cancer. That is the message leaders at the Cancer Project of the group Physicians Committee for Responsible Medicine (PCRM) want to get out. PCRM installed the giant sign and the graphics draws national attention. It features an image of hot dogs sticking out of a cigarette pack with the skull and crossbones stamped on the front. The billboard reads: "Warning: Hot dogs can wreck your health." Processed meats like hot dogs can increase the risk for diabetes, heart disease, and various types of cancer.

The American Institute for Cancer Research suggests one 50-gram serving of processed meat (about the amount in one hot dog) consumed daily increases the risk of colorectal cancer by more than 20 percent. Those who regularly eat processed meats increase their risk for diabetes by about 41 percent.

Cancer researchers report that every year about 143,000 Americans are diagnosed with colorectal cancer and approximately 53,000 die of it. A "hot dog" campaign was initiated by the American Institute for Cancer Research and the World Cancer Research Fund after both organizations reached the conclusion that eating processed meats is as risky as smoking cigarettes. Like cigarettes, hot dogs deserve to come with a warning label that helps consumers understand the associated health risk.

OCCUPATIONAL FATALITIES, INJURIES AND ILLNESSES RISKS

The farming profession is one of the riskiest ones in terms of rotating farm machinery and tractors overturns. The rate of fatal occupational injuries for farmers and

ranchers is 38.5 per 100,000 full-time workers, versus 4.4 for firefighters, and 13.1 for police and sheriff's patrol officers, according to The USA Labor Department data for 2009.

The rate of fatal injuries for aircraft pilots and flight engineers is 57.1, and for fishermen and related fishing workers it is 200. Among civilian workers, the military, volunteers and those under 16 being excluded, the fatality rate is an average of 3.3.

Other workers face higher-than-average rates of nonfatal occupational injuries and illnesses involving days away from work. State psychiatric aides have an injury and illness rate that is more than twice the rate for local police and sheriff's patrol officers. Other jobs with surprisingly high incidence rates are: flight attendants, housekeeping workers and bus drivers.

The average incidence rate of nonfatal occupational injuries and illnesses, requiring days away from work, was 117 per 10,000 full-time workers in 2009. Police and sheriff's patrol officers have a rate of 676, and firefighters, with a rate of 512. Local government transit and intercity bus drivers have an incidence of rate is 892. Bus drivers are exposed to a lot of force and vibrations when they are driving.

Some health-care workers, including registered nurses, nursing aides, orderlies and attendants, also have higher-than-average rates of illness or injury, though the rates for these jobs are higher for government versus private workers. Being stuck by a needle can be a problem, lifting or moving hospital patients, is another issue.

Some workers spend a lot of time maintaining awkward physical positions at work such as dental hygienists, who may assume contorted positions as they work hard on plaque-covered teeth.

Other workers lift heavy objects, often repetitively causing an impact on the musculoskeletal system, the nerves, and on the vascular system.

The incident rates for injuries and illnesses are higher for public than private workers: the average private incident rate was about 106, compared with 180 for state governments and 185 for local governments.

The incident rate for local government police and sheriff's patrol officers was about 676, versus 2,041 for athletes and sports competitors, and two for computer programmers. Surgeons have a rate of about four; butchers and meat cutters have a rate of 266.

Lawyers have a rate of about two, while personal financial advisers have a rate of three, and accountants and auditors weigh in at about seven, but they can still have problems. For employees who log many hours at a workstation, ergonomic-related problems resulting in musculoskeletal disorders may be an issue, such as back, neck and chronic shoulder pain.

Some of these statistics can be biased by extraneous factors. For instance, in the city of Parma, Ohio, the police force had a "sick day scam" going. Because of a provision in their union contract, one officer would call in sick, so a fellow officer would have to take "call" and work his shift for "time and a half." They could then "rotate" the sick days scams to the point that one patrol sergeant is reported to have made $230,000 as an annual salary.

Table 8. Occupational fatal injuries incidence rate involving days away from work, for full-time employees. USA Labor Department, 2009.

Occupation	Fatalities / 100,000 full-time workers

Fishermen and related fishing workers	200.0
Aircraft pilots and engineers	57.1
Farmers and ranchers	38.5
Police and sheriff's patrol officers	13.1
Firefighters	4.4
Civilian workers (excluding volunteers, the military and those under 16 years of age)	3.3

Table 9. Nonfatal occupational injuries and illnesses incidence rate involving days away from work, for full-time employees, 2009.

Occupation	Injuries and illnesses / 10,000 full-time employees
Athletes and sports competitors	2,041
State psychiatric aides	1,459
Local government bus drivers, transit and intercity local government emergency medical technicians and paramedics	892
Private tree trimmers and pruners	712
Police and sheriff's patrol officers	676
Local governments nursing aides, orderlies and attendants	646
Private shuttle car operators	610
Local government dieticians and nutritionists	589
Local governments house-keeping workers	570
Firefighters	512
Butchers and meat cutters	266
Local government employees	185
State government employees	180
Average rate	117
Private sector employees	106
Accountants and auditors	7
Surgeons	4
Personal financial advisers	3
Computer programmers	2
Lawyers	2

YOUNG-DRIVER DRIVING RISKS

In 2007, 19 percent of the fatalities in the USA were related to young-driver crashes. In the same year, only 6 percent of licensed drivers were 20 or younger.

Car crashes in the USA injure about 300,000 teenagers / year and cause the death of about 6,000 of them per year. Being a teenager is a risky period in each person's life. People must be aware of the situation to safely sail through that treacherous period. The statistics are that 16-year old drivers have crash rates that are 3 times higher than 17-year olds and 5 times higher than 18-year olds. Insurance companies hence impose higher rates for insuring families with teenage drivers. Car rental companies have policies against car rentals to young drivers.

The adolescence period entails a significant risk as well as to the rest of society. It is not the fault of bright and mature teenagers when they sometimes commit what is considered by adults as reckless actions. The medical professionals suggest that the reason is that their brains are still in the development stage in the dorsal lateral prefrontal cortex. This part of the brain plays a critical role in decision making, problem solving and understanding future consequences of the present actions. It does not fully develop until they age into the twenties.

The surge during the teenage years in anxiety and fearfulness is attributed to a quirk of brain development. Adolescents, on average, experience more anxiety and fear and have a harder time learning how not to be afraid than either children or adults. Different regions and circuits of the brain mature at very different rates.

It turns out that the amygdala which are the brain circuit for processing fear is precocious and develops way ahead of the prefrontal cortex, the seat of reasoning and executive control. This means that adolescents have a brain that is wired with an enhanced capacity for fear and anxiety, but is relatively underdeveloped when it comes to calm reasoning: "The amygdala is a region buried deep beneath the cortex that is critical in evaluating and responding to fear. It sends and receives connections to our prefrontal cortex alerting us to danger even before we have had time to really think about it. Think of that split-second adrenaline surge when you see what appears to be a snake out on a hike in the woods. That instantaneous fear is your amygdala in action. Then you circle back, take another look and this time your prefrontal cortex tells you it was just a harmless stick [16]."

The brain's reward center, just like its fear circuit, matures earlier than the prefrontal cortex. That reward center drives much of teenagers' risky behavior. This also explains why adolescents are particularly prone to injury and trauma. The top three killers of teenagers are: accidents, homicide and suicide [16].

Most adolescents do not develop anxiety disorders, but acquire the skill to modulate their fear as their prefrontal cortex matures in young adulthood, at around age 25. But up to 20 percent of adolescents in the USA experience a diagnosable anxiety disorder, like generalized anxiety or panic attacks, probably resulting from a mix of genetic factors and environmental influences [16]. The fear circuit is a two-way street. While we have limited control over the fear alarm from our amygdala, our prefrontal cortex can effectively exert top-down control, giving us the ability to more accurately assess the risk in our environment. Because the prefrontal cortex is one of the last brain regions to mature, adolescents have far less ability to modulate emotions [16].

"Adolescents are not just carefree novelty seekers and risk takers; they are uniquely vulnerable to anxiety and have a hard time learning to be unafraid of passing dangers. Parents have to realize that adolescent anxiety is to be expected, and to comfort their teenagers, and themselves, by reminding them that they will grow up and out of it soon enough [16]."

USE OF CANNABIS RISK

Research published in the USA's Proceedings of the National Academy of Sciences, found that: "Persistent cannabis use over 20 years was associated with neuropsychological decline, and greater decline was evident for more persistent users." Collectively, these findings are consistent with speculation that cannabis use in adolescence, when the brain is undergoing critical development, may have neurotoxic effects.

Young people who smoke cannabis for years run the risk of a significant and irreversible reduction in their IQ, according to a study of around 1,000 people Dunedin in New Zealand, over 20 years. An international team found those who started using cannabis below the age of 18, while their brains were still developing, suffered a drop in IQ. People who use the drug often seem to under-achieve.

The subjects were assessed as children, before any of them had started using cannabis, and then re-interviewed them repeatedly, up to the age of 38. Taking into account other factors such as alcohol or tobacco dependency or other drug use, as well the number of years spent in education, it was found that those who persistently used cannabis - smoking it at least four times a week year after year through their teens, 20s and, in some cases, their 30s - suffered a decline in their IQ. The more that people smoked, the greater the associated loss in their IQ.

Researchers found that individuals who started using cannabis in adolescence and then carried on using it for years showed an average eight-point IQ decline. Stopping or reducing cannabis use failed to fully restore the lost IQ.

ALL TERRIAN VEHICLES, ATV RISK

The Consumer Product Safety Commission reports that 4,541 deaths were associated with ATVs from 1982 to 2001. During that same period, 37 percent of the injuries occurred to youth under the age of 16. Interestingly, 95 percent of the injured drivers under 16 rode adult-sized machines.

INFLUENZA, FLU RISK. GREAT FLU EPIDEMIC

Each year up to 650,000 people die around the world from flu and five million become severely ill, according to the World Health Organization (WHO). Superspreading becomes a concern as "Typhoid Mary", Irish cook Mary Mallon (1869-1938), unknowingly passed on typhoid fever when she was asymptomatic and ended up spending decades in exile and forced quarantine.

Flu season typically begins in October, peaks between December and February and lasts well into March although activity can last as late as May. Every season, flu sickens millions of Americans, hospitalizes hundreds of thousands and kills an estimated tens of thousands, according to the Center for Disease Control and Prevention, CDC. In 2018, the CDC estimated there were between 36,400 and 61,200 flu-related deaths in the USA. During the 2017-2018 season, the CDC estimated there were 61,000 flu-related USA deaths.

Table 10. Influenza deaths "winter-burden mortality" per 100,000 persons in the USA. Source: CDC.

Comparison of Adjusted Influenza Death Rates for 12 Influenza Seasons: United States, 1941–1976

		Influenza Deaths per 100 000 Population												
Season	Type	Mean	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1941–1942	Nonpandemic	9.9	3.4	2.8	2.9	5.2	9.7	12.1	18.9	19.5	21.5[a]	12.7	7.0	3.4
1942–1943	Nonpandemic	10.8	2.7	2.5	3.7	6.9	9.1	14.8	20.9[a]	19.7	20.8	15.0	8.8	4.4
1943–1944	Nonpandemic	22.2	3.1	3.0	3.2	6.5	9.0	78.8	92.0[a]	29.4	19.4	11.9	6.6	3.5
1944–1945	Nonpandemic	7.4	2.5	2.5	2.8	5.3	7.2	11.7	14.2[a]	14.0	12.2	7.1	5.8	3.5
1945–1946	Nonpandemic	11.2	2.2	2.1	3.0	4.3	8.4	36.9[a]	34.2	19.3	11.6	5.6	4.1	2.6
1946–1947	Nonpandemic	6.9	1.3	1.4	2.0	3.2	4.0	6.7	8.7	7.0	24.0[a]	18.2	4.8	1.8
1952–1953	Nonpandemic	5.9	0.9	0.7	0.8	1.6	2.2	3.3	19.1	27.1[a]	9.4	3.5	1.7	0.8
1957–1958	Pandemic	5.4	0.6	0.8	1.7	13.1	18.8[a]	6.2	5.6	6.9	6.2	2.8	1.2	0.6
1959–1960	Nonpandemic	4.1	0.4	0.4	0.6	0.8	1.1	1.8	10.1	21.9[a]	9.4	1.9	0.9	0.4
1967–1968	Nonpandemic	2.3	0.2	0.2	0.2	0.4	0.6	3.0	17.1[a]	4.2	1.2	0.4	0.2	0.2
1968–1969	Pandemic	4.2	0.1	0.2	0.2	0.5	1.0	16.4	23.3[a]	4.8	2.6	0.9	0.4	0.2
1975–1976	Nonpandemic	3.6	0.2	0.1	0.2	0.3	0.3	0.4	0.8	12.8	22.1[a]	4.5	0.6	0.3

[a]Denotes peak monthly mortality during given season.

The flu causes the death of 30,000-49,000 people in the USA every year, and about 500,000 globally. On average, about 24,000 Americans die each flu season, according to the Center for Disease Control and Prevention (CDC). The dreaded H3N2 strain of the influenza A virus causes more health complications and is more difficult to prevent. H3N2 hits people harder than other seasonal flu strains and can be especially deadly among vulnerable groups like the elderly and children. Researchers still are not sure why, but they have found that a flu season involving the H3 virus is generally of more concern, with more hospitalizations and flu-related deaths than seasons involving mostly H1N1 or influenza B viruses. In recent years, two different bird influenza viruses have been infecting people directly: the H5N1 strain has struck in many nations, while H7N9 was limited to China [26].

The B/Yamagata type, and H3N2, a particularly aggressive Australian strain known as "Aussie flu," were prevalent in 2018. Health officials have noted that over 55,000 surgeries have had to be canceled because of the "extreme" additional pressure placed on hospitals by the flu outbreak. Meanwhile, dozens of hospitals have warned that there are no free beds available for new patients.

According to Scientific American, it is not the flu that kills people, but the body's attempt to heal itself through its immune system response. After entering someone's body, usually via the eyes, nose or mouth, the influenza virus begins hijacking human cells in the nose and throat to make copies of itself. The overwhelming viral hoard triggers a strong

response from the immune system, which sends battalions of white blood cells, antibodies and inflammatory molecules to eliminate the threat. The T cells attack and destroy tissue harboring the virus, particularly in the respiratory tract and lungs where the virus tends to take hold. In most healthy adults this process works, and they recover within days or weeks. But sometimes the immune system's reaction is too strong, destroying so much tissue in the lungs that they can no longer deliver enough oxygen to the blood, resulting in hypoxia and death.

In other cases it is not the flu virus itself that triggers an overwhelming and potentially fatal immune response but rather a secondary infection that takes advantage of a taxed immune system. Typically, bacteria; often a species of Streptococcus or Staphylococcus, infect the lungs. A bacterial infection in the respiratory tract can potentially spread to other parts of the body and the blood, even leading to septic shock: a life-threatening, body-wide, aggressive inflammatory response that damages multiple organs. Based on autopsy studies, Kathleen Sullivan, chief of the Division of Allergy and Immunology at The Children's Hospital of Philadelphia, estimates about one third of people who die from flu-related causes expire because the virus overwhelms the immune system; another third die from the immune response to secondary bacterial infections, usually in the lungs; and the remaining third perish due to the failure of one or more other organs.

PREVENTION

Propylene glycol was used extensively in hospitals up till the 1950's as an antibacterial aerosol cutting respiratory and viral infections by 65 percent. Concentrations of 1 gm of propylene glycol, rubbing alcohol vapor in two to four million cc of air produced immediate and complete sterilization of air into which pneumococci, streptococci, staphylococci, H. influenzae, and other microorganisms as well as influenza virus had been sprayed.

Social isolation is the best way to keep healthy, but in a world where people work, shop for food supplies and go to school, this is not always possible. A strict handwashing regimen can also help lessen the likelihood of contracting the flu.

VACCINES VS. CURES

French scientist Louis Pasteur discovered the first cholera vaccine for a strain of the disease that affects chickens. In 1885, Jaime Ferran, a Spanish doctor, developed a vaccine that immunized humans against cholera for the first time.

An American virologist, Dr Jonas Salk, developed the first effective vaccine against polio in 1955. This was followed shortly after by another Cold War-era breakthrough - the first oral polio vaccine, which is still used to eradicate the disease around the world today. It should be seen as a collaborative effort between Dr Albert Sabin, an American, and Mikhail Chumakov, a Russian scientist.

A challenge is that coronaviruses have historically been hard to make safe vaccines for, partly because the virus infects the upper respiratory tract, which our immune system is not great at protecting. For each virus or different bacterium that causes a disease, we

need a different vaccine because the immune response that is mounted is different. There are several reasons why our upper respiratory tract is a hard area to target a vaccine.

It is a separate immune system which is not easily accessible by vaccine technology. Despite the upper respiratory tract feeling very much like it is inside the body, it is effectively considered an external surface for the purposes of immunization. It is a bit like trying to get a vaccine to kill a virus on the surface of the skin. The skin, and the outer layer of cells in your upper respiratory tract act as a barrier to viruses, stopping them getting into the body. Finding a way to neutralize the virus outside of the body is very difficult.

This is partly because only the outer layer of cells or the epithelial cells get infected, which, compared to a severe infection of internal organs does not produce the same immune response, so is harder to target. It is hard to produce a successful vaccine if the virus is not activating a strong immune response. And if a vaccine elicits an immune response that misses the target cells, the result could potentially be worse than if no vaccine was given.

One of the problems with corona vaccines in the past has been that when the immune response does cross over to where the virus-infected cells are, it actually increases the pathology rather than reducing it. So that immunization with SARS corona vaccine caused, in animals, inflammation in the lungs which would not otherwise have been there if the vaccine had not been given."

The wrong conclusion may have been drawn. It helps to knock out the virus but has zero impact on the pneumonia triggered by the virus. All indications are that corona virus is a mild condition, but it triggers pneumonia in some and that is a more serious situation. The evidence indicates, for those suffering severe conditions, you do not treat the virus but the pneumonia the virus has triggered. Treating the virus is exactly closing the gate after the horse has bolted.

To make people safe, one either prevents exposure to the virus, treat the pneumonia or stop the virus from triggering the pneumonia. The Tuberculosis (TB) inoculation is an example, and all the data for that approach is already accessible in the medical literature.

Covid-19 vaccine boosters for young adults: A risk-benefit assessment and five ethical arguments against mandates at universities

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Booster shots mandates at universities.

Clots in vascular system.

USE OF ANTIBODIES

Antibodies are proteins that are released by the immune system to neutralize a threat, like a virus. With coronavirus, it was observed that that those infected have had different antibody responses, some weak, some strong. So is antibody response critical to whether or not a vaccine is going to work? To answer this we have to go back to what we know about coronaviruses and rhino viruses that cause the common cold. One get antibodies after a cold infection, and it lasts for a while, but it is not lifelong. It lasts for months rather than years.

The natural immunity that one gets after infection from Covid-19 is probably going to turn out like the coronaviruses we have seen in the past. There will be some natural protection over a period of months, maybe even years, but it would not be lifelong.

The good news is that if one gets reinfected with the virus a second time some months down the track, there will probably be enough immunity there to stop a person becoming seriously ill.

Teams around the world are deploying different technologies in vaccine development, from killing the virus and using it in the vaccine like we do with influenza, to using messenger RNA to prompt the infected cells to produce antibodies. The reality of vaccine development is that many fail before a successful one is developed. The most likely candidate will be a vaccine that uses a part of the virus attached to a chemical to induce an immune response, or "subunit" vaccine. That vaccine type has been successful in animal models for coronaviruses in the past and that is of course where the money is being put in large measure at the moment.

Another sort of vaccine would be just antibodies transferred from somebody who had been infected already and had got rid of the infection. This would be an immunological means of preventing infection and could probably be more quickly developed than an actual vaccine. This sort of vaccine was tested with SARS in 2003 and resulted in reinfected

lab monkeys having a nasty immune response, which is why many groups working on a vaccine for Sars-CoV-2 are going for a very specific antibody response. The narrow, targeted approach is fine, unless one picks the wrong specific antigen or the substance that stimulates an immune response which antibodies bind to, in which case one could end up with the same problem.

Experts point out that just as we cannot be vaccinated against the common cold, except perhaps for the past year's version we cannot be vaccinated against Covid-19 and other mutating viruses. Vaccination has been elevated above cure, as the positive experience doctors report of successful treatments with Hydroxychloroquine (and Azithromycin, and the effectiveness of Vitamin C, Vitamin D3, and Zinc in strengthening the ability of immune systems to fight off the virus.

SUPREME COURT CASE OF JACOBSON V. MASSACHUSETTS, MANDATORY VACCINES

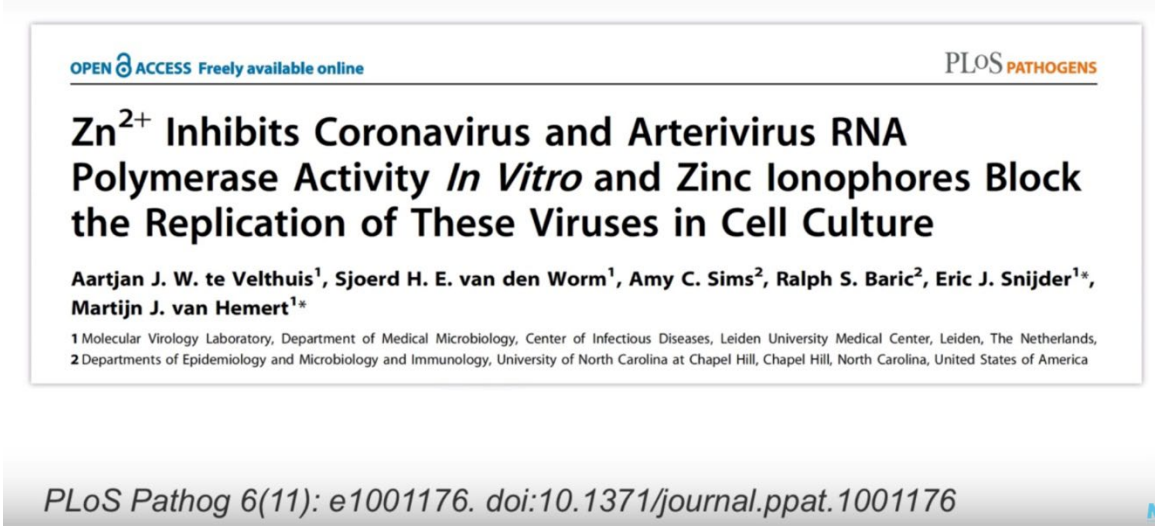
The USA Supreme Court case that allowed government to make vaccination mandatory, is Jacobson v. Massachusetts. According to Jacobson v. Massachusetts, the Supreme ruled that the government can mandate forced vaccinations if the vaccine and situation meets three criteria, which are the following: The vaccine must be:
1) "effective" and
2) the "best known way" to treat the disease, and
3) there must be an epidemic.

Over 700 physicians from all 50 states in the USA have called on President Donald Trump to issue an Emergency Use Authorization on HCQ that is outlawed in the USA, but not in the EU and the rest of the world. The physician signatories specialize in the following branches of medicine:
Emergency: 47
Surgery: 74
Anesthesiology: 48
Cardiology: 20
Dentistry: 3
General/Family/Internal: 371
Neurology: 12
Pediatrician: 28
Psychiatry: 44
Radiology: 24
Women's health: 30
Alternative: 20.

Covid-19 causes prolonged and progressive hypoxia, starving the body of oxygen by binding to the heme groups in hemoglobin in the red blood cells. People are desaturating losing O_2 in their blood, and that is what eventually leads to organ failures that kill them, not any form of ARDS or pneumonia. The damage to the lungs seen in CT scans are from the release of oxidative iron from the hemes, this overwhelms the natural defenses against pulmonary oxidative stress and causes an always-bilateral ground-glass opacity in the lungs. Patients returning for re-hospitalization days or weeks after recovery suffering from

apparent delayed post-hypoxic leukoencephalopathy strengthen the notion that Covid-19 patients are suffering from hypoxia despite no signs of respiratory tire out or fatigue.

A vaccine is designed to anticipate the three (trivalent) to four (quadrivalent) most active strains for an upcoming flu season, though scientists sometimes get stumped by the rapidly mutating influenza viruses. Vaccination can make a person about 60 percent less likely to get sick. Even when the shot fails to prevent a bout of flu, it can make it much less severe extending over a few days of moderate sickness compared with up to two weeks otherwise.



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Zn^{2+} Inhibits Coronavirus and Arterivirus RNA Polymerase Activity *In Vitro* and Zinc Ionophores Block the Replication of These Viruses in Cell Culture

Aartjan J. W. te Velthuis[1], Sjoerd H. E. van den Worm[1], Amy C. Sims[2], Ralph S. Baric[2], Eric J. Snijder[1]*, Martijn J. van Hemert[1]*

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PLoS Pathog 6(11): e1001176. doi:10.1371/journal.ppat.1001176

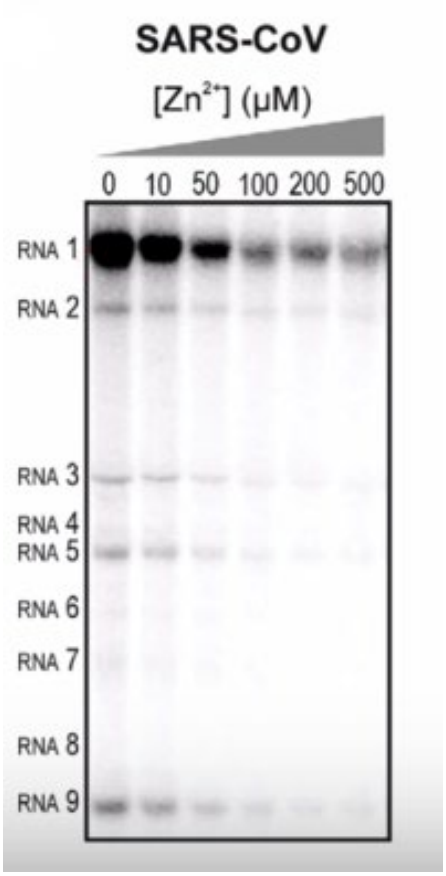


Figure 3. Zinc (as well as selenium) inhibition of RNA replication of SARS-CoV. Zinc results in reduced level of viral RNA.

Research | Open Access | Published: 22 August 2005

Chloroquine is a potent inhibitor of SARS coronavirus infection and spread

Martin J Vincent, Eric Bergeron, Suzanne Benjannet, Bobbie R Erickson, Pierre E Rollin, Thomas G Ksiazek, Nabil G Seidah & Stuart T Nichol

Virology Journal **2**, Article number: 69 (2005) | Cite this article

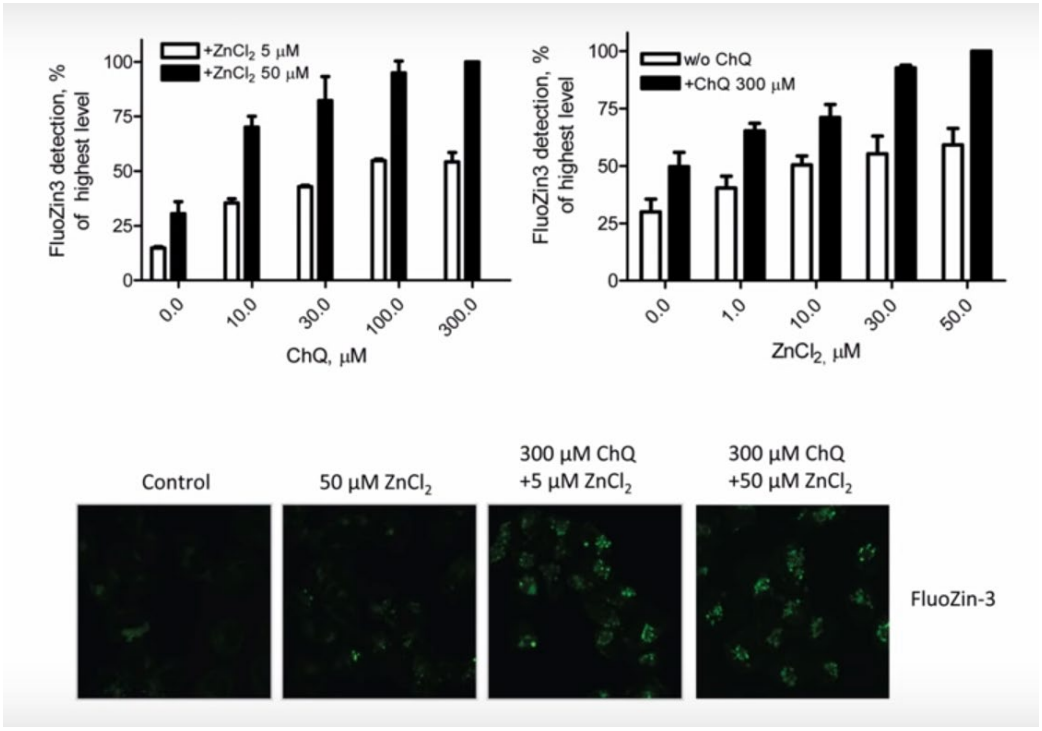
Chloroquine Is a Zinc Ionophore

Jing Xue, Amanda Moyer, Bing Peng, Jinchang Wu, Bethany N. Hannafon, Wei-Qun Ding

Published: October 1, 2014 • https://doi.org/10.1371/journal.pone.0109180

Abstract

Chloroquine is an established antimalarial agent that has been recently tested in clinical trials for its anticancer activity. The favorable effect of chloroquine appears to be due to its ability to sensitize cancerous cells to chemotherapy, radiation therapy, and induce apoptosis. The present study investigated the interaction of zinc ions with chloroquine in a human ovarian cancer cell line (A2780). Chloroquine enhanced zinc uptake by A2780 cells in a concentration-dependent manner, as assayed using a fluorescent zinc probe. This enhancement was attenuated by TPEN, a high affinity metal-binding compound, indicating the specificity of the zinc uptake. Furthermore, addition of copper or iron ions had no effect on chloroquine-induced zinc uptake. Fluorescent microscopic examination of intracellular zinc distribution demonstrated that free zinc ions are more concentrated in the lysosomes after addition of chloroquine, which is consistent with previous reports showing that chloroquine inhibits lysosome function. The combination of chloroquine with zinc enhanced chloroquine's cytotoxicity and induced apoptosis in A2780 cells. Thus chloroquine is a zinc ionophore, a property that may contribute to chloroquine's anticancer activity.



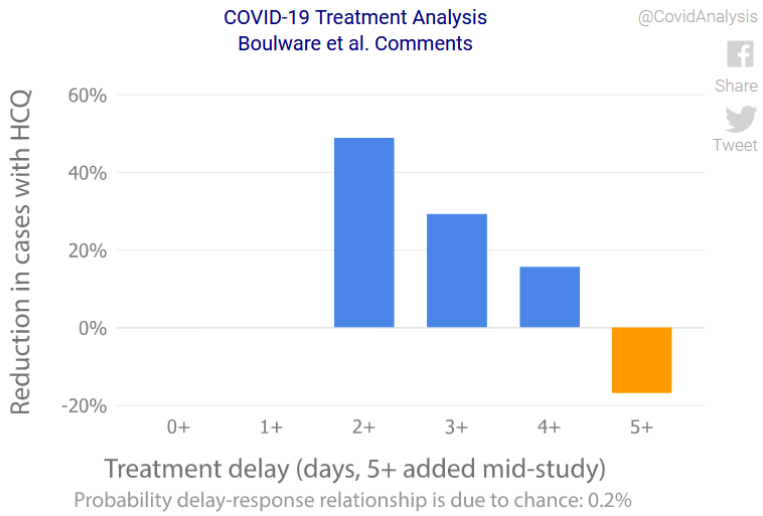
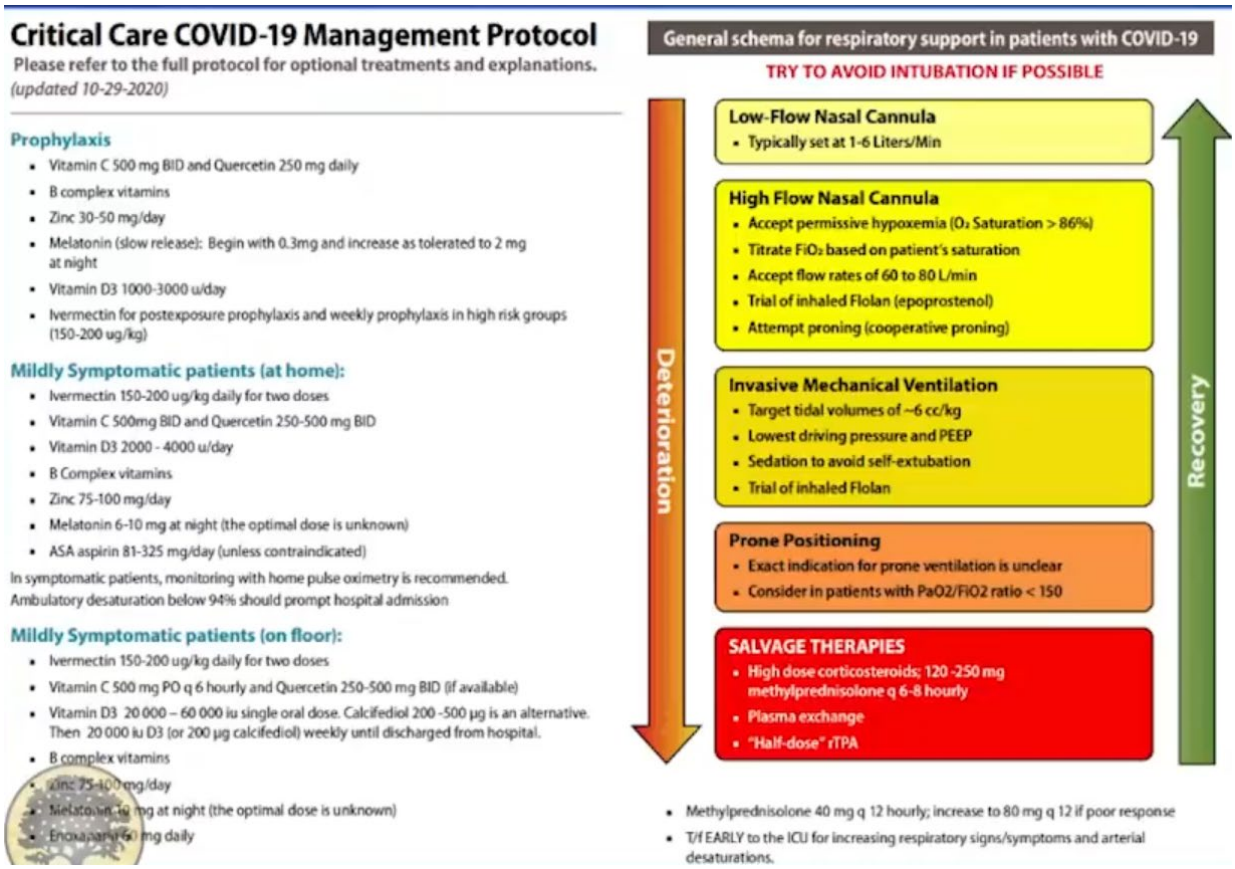


Figure 4. Chloroquine (ChQ) enhances $ZnCl_2$ uptake into cell. Its use as prophylaxis, in addition to zinc is suggested, but not as a cure. According to Harvard Medical School's Brigham and Women's Hospital (BWH) in Boston, Dr. Mandeep Mehra: " … once you have been infected (5 to 7 days after) to the point of having to be hospitalized with a severe viral load, the use of hydroxychloroquine and its derivative is not effective." At that stage, an antiviral like Remdesivir by Gilead Sciences, in combination with a macrolide antibiotic may be considered: "Remdesivir was superior to placebo in shortening the time to recovery in adults hospitalized with Covid-19 and evidence of lower respiratory tract infection." Dexamethasone anti-inflammatory may be needed to suppress immune system at later stages. Dr. Vladimir (Zev) Zelenko from New York recommends as an outpatient treatment protocol: 1. Hydroxychloroquine 200mg twice a day for 5 days, 2. Azithromycin 500mg once a day for 5 days, 3. Zinc sulfate 220mg once a day for 5 days. These three drugs are well known and usually well tolerated, hence the risk to the patient is low. Side effects in 10% of patients are temporary nausea and diarrhea.



Critical Care COVID-19 Management Protocol

Please refer to the full protocol for optional treatments and explanations.
(updated 10-29-2020)

Prophylaxis

- Vitamin C 500 mg BID and Quercetin 250 mg daily
- B complex vitamins
- Zinc 30-50 mg/day
- Melatonin (slow release): Begin with 0.3mg and increase as tolerated to 2 mg at night
- Vitamin D3 1000-3000 u/day
- Ivermectin for postexposure prophylaxis and weekly prophylaxis in high risk groups (150-200 ug/kg)

Mildly Symptomatic patients (at home):

- Ivermectin 150-200 ug/kg daily for two doses
- Vitamin C 500mg BID and Quercetin 250-500 mg BID
- Vitamin D3 2000 - 4000 u/day
- B Complex vitamins
- Zinc 75-100 mg/day
- Melatonin 6-10 mg at night (the optimal dose is unknown)
- ASA aspirin 81-325 mg/day (unless contraindicated)

In symptomatic patients, monitoring with home pulse oximetry is recommended. Ambulatory desaturation below 94% should prompt hospital admission

Mildly Symptomatic patients (on floor):

- Ivermectin 150-200 ug/kg daily for two doses
- Vitamin C 500 mg PO q 6 hourly and Quercetin 250-500 mg BID (if available)
- Vitamin D3 20 000 – 60 000 iu single oral dose. Calcifediol 200 -500 µg is an alternative. Then 20 000 iu D3 (or 200 µg calcifediol) weekly until discharged from hospital.
- B complex vitamins
- Zinc 75-100 mg/day
- Melatonin [illegible] mg at night (the optimal dose is unknown)
- Enoxaparin [illegible] mg daily

General schema for respiratory support in patients with COVID-19

TRY TO AVOID INTUBATION IF POSSIBLE

Deterioration

Recovery

Low-Flow Nasal Cannula
- Typically set at 1-6 Liters/Min

High Flow Nasal Cannula
- Accept permissive hypoxemia (O_2 Saturation > 86%)
- Titrate FiO_2 based on patient's saturation
- Accept flow rates of 60 to 80 L/min
- Trial of inhaled Flolan (epoprostenol)
- Attempt proning (cooperative proning)

Invasive Mechanical Ventilation
- Target tidal volumes of ~6 cc/kg
- Lowest driving pressure and PEEP
- Sedation to avoid self-extubation
- Trial of inhaled Flolan

Prone Positioning
- Exact indication for prone ventilation is unclear
- Consider in patients with PaO2/FiO2 ratio < 150

SALVAGE THERAPIES
- High dose corticosteroids; 120 -250 mg methylprednisolone q 6-8 hourly
- Plasma exchange
- "Half-dose" rTPA

- Methylprednisolone 40 mg q 12 hourly; increase to 80 mg q 12 if poor response
- T/f EARLY to the ICU for increasing respiratory signs/symptoms and arterial desaturations.

For more than 30 years, the vaccine has offered protection against only three influenza strains: two common Type A strains called H1N1 and H3N2, and one strain of Type B. Flu strains continually evolve, and the recipe for each year's vaccine includes the subtypes of those strains that experts consider most likely to cause illness that winter. Certain quadrivalent vaccines will guard against four strains of flu rather than the usual three. They may prove more popular for children than their parents. That is because young people tend to catch the newly added strain more often.

Type A flu causes more serious disease and deaths, especially the H3N2 form that made 2012 a nasty flu season. But the milder Type B flu does sicken people every year as well, and can kill. Two distinct Type B families circulate the globe, making it difficult to know which to include in each year's vaccine. Adding both solves the guesswork, and a CDC model estimates it could prevent as many as 485 deaths a year depending on how much Type B flu is spreading.

Traditional flu vaccine is made from viruses grown in eggs, and specialists say it is usually not a problem unless someone has a serious egg allergy. The FluBlok vaccine eliminates that concern because it is made with cell technology, like many other non-flu vaccines.

The Fluzone High-Dose for seniors vaccine protects against the traditional three strains of flu, but it quadruples the standard vaccine dose in an effort to rev-up age-weakened immune systems that do not respond as actively to regular flu shots. The pharmaceutical company Sanofi Pasteur said initial results from a study of 30,000 seniors

vaccinated over two flu seasons suggest the high-dose shot is about 24 percent more effective.

The flu costs USA employers $10.4 billion in direct costs of hospitalization and outpatient visits per year. Americans are not very good about going in for checkups or for getting the recommended shots. About 37 percent get vaccinated by November, when the outbreak starts to pick up and then peaks in the January-February time frame. It takes two weeks for the vaccine to take full effect.

Influenza is present not only in humans, but also in other animals like birds (bird flu) and pigs (swine flu, African swine fever, swine ebola). Sometimes, a virus jumps between species or combine its genes with a human-specific version, creating a deadly and highly infectious new variety. New strains constantly emerge to which humans have not developed immunity. Early fall is ideal for vaccination, as it is impossible to predict when flu will start spreading and it takes about two weeks for protection to kick in. Later vaccination is not too late as the flu season typically peaks in January or February.

Scientists today understand that bird influenza viruses, like human influenza viruses, can also infect pigs, and when a bird virus and a human virus infect the same pig cell, their different genes can be shuffled and exchanged like playing cards, resulting in a new, perhaps especially lethal, virus. The influenza virus mutates rapidly, changing enough that the human immune system has difficulty recognizing and attacking it even from one season to the next.

A pandemic occurs when an entirely new and virulent influenza virus, which the immune system has not previously seen, enters the population and spreads worldwide. Ordinary seasonal influenza viruses normally bind only to cells in the upper respiratory tract—the nose and throat—which is why they transmit easily. The 1918 Spanish Flu pandemic virus infected cells in the upper respiratory tract, transmitting easily, but also deep in the lungs, damaging tissue and often leading to viral as well as bacterial pneumonias.

The entire USA has an "excess death" rate from Covid-19 of about 5.5% (50,331) higher than the 4 year average. This may be a more reasonable approach as it gets past the deaths "with/from" issue.

Table 11. Marginal risk of excess pneumonia and influenza deaths at different states locations during Covid-19 pandemic in 2020. Texas, Florida and Michigan only record values above the average. This may not justify universal lockout of population. Source: NCHS, CDC, https://gis.cdc.gov/grasp/fluview/mortality.html

Location	Expected number of deaths	Actual Number of deaths
New York	50,319	39,005
Georgia	27,699	27,161
Illinois	50,138	37,870
Texas	60,408	66,071
Washington	19,599	19,270
Oregon	12,028	11,834
Florida	66,462	68,427
Michigan	32,306	35,598
Pennsylvania	44,029	37,383

BOOSTER SHOTS LATENCY, LONG COVID RISK, VITAMIN D ROLE

According to Dr. Richard Urso:

"Some viruses, after initial infection, remain latent in the body for a lifetime and may reactivate to cause infection again or a different condition. These kinds of latent viruses are being reactivated in a large number of people following their booster COVID-19 shots, causing symptoms of long COVID and other health conditions, according to Dr. Richard Urso.

Long COVID is a condition where people experience ongoing, recurring, or new health problems weeks to months after first being infected with SARS-CoV-2, the virus that causes COVID-19, or receiving a COVID-19 injection. Symptoms may include brain fog, fatigue, chest pain, and insomnia, among others.

"So in my clinic right now, I am seeing three to five people a week because they know that I am taking a lot of time in my practice to do COVID, and they're coming to see me with long COVID and … with problems after the vaccine," Urso, an ophthalmologist, a drug design and treatment specialist, and co-founder of the International Alliance of Physicians and Medical Scientists, told EpochTV's "American Thought Leaders" program. "And what I'm finding is a huge number of them have reactivated Epstein-Barr, herpes simplex, herpes zoster, CMV."

Of the more than 100 species of herpesviruses, eight are known to infect humans and remain in the body for life after the primary infection has cleared, and which can reactivate later under certain conditions:

- Epstein-Barr virus (EBV) is a common virus that causes infectious mononucleosis and is associated with several types of cancer and multiple sclerosis. It is estimated that more than 90 percent of healthy adults have been infected at some point in their lives.
- Varicella-zoster virus is another common virus that primarily causes chickenpox and when reactivated, causes shingles in adults.
- Herpes simplex virus types 1 and 2 cause oral and/or genital herpes, and it is estimated that 67 percent (3.7 billion) people worldwide under the age of 50 are infected with herpes simplex virus 1, whereas 13 percent (491 million) globally have herpes simplex 2.
- Cytomegalovirus (CMV) is a common virus that infects people of all ages causing symptoms of fever, sore throat, swollen glands, and fatigue. It can also occasionally cause mononucleosis or hepatitis.
- Human herpesvirus-6 and Human herpesvirus-7 cause roseola, a mild infection that mainly occurs in children between the ages of 6 months to 2 years.
- Kaposi's sarcoma-associated herpesvirus infects the endothelial cells (that line lymphatic and blood vessels) which can become cancerous, a disease known as Kaposi's sarcoma.

Most people are unaware that they've been infected with some of these viruses as they experience no symptoms.

"A lot of people are looking at this long COVID as if it's all viral related problems, specifically to the spike protein or to other issues. They don't know that we're seeing this huge reactivation in the herpesvirus family and we have treatment for it. It's been working really really well," Urso said.

While there is still no standard clinical definition or treatment for Long COVID, Urso says that there are many different repurposed drugs doctors can prescribe off-label to treat the syndrome, such as those used in the I-RECOVER protocol, developed by The Front Line COVID-19 Critical Care Alliance.

For long COVID symptoms caused by one of the reactivated herpesviruses, Urso says he prescribes Valtrex and supplements like lysine and vitamin D.

"We use lysine because it's one of those nutritionals that's good against the herpesvirus family. The ratio of lysine-arginine seems to impact the ability of these viruses to replicate," Urso said.

He added, "I tell people vitamin D is your data analyst. It allows the immune system to make good decisions … And when vitamin D is around, your immune system can recognize, 'Oh, this is pollen, let's leave it alone. Let's attack this pathogen, let's attack this cancer.'"

Urso said he's been recommending vitamin D since 1995 when he was the chief of orbital oncology at MD Anderson Cancer Center. He came upon a study that showed the supplement "had some impact on a tumor recognition protein" and began to test all of his patients' vitamin D levels.

"Virtually 100 percent of the patients were vitamin D deficient with cancer, colon cancer particularly, we became aware of it," Urso said, adding that vitamin D has also been "amazing for allergies, it's amazing for prevention, and resistance against cancer, particularly lymphomas and breast cancer."

When the pandemic began, Urso said that he couldn't stay quiet knowing that COVID-19 can be treated early with various repurposed drugs and "reluctantly started treating" patients as a result of other doctors refusing to prescribe early treatment.

"I told my patients if you have COVID, nobody is going to help you. I said, first go through the chain, [and] if no one's going to help you, I'll help you," Urso said.

More than two years into the pandemic, the Centers for Disease Control and Prevention (CDC) continues to tell people to stay home unless they show "emergency warning signs" that include difficulty breathing, new confusion, and persistent chest pain or pressure.

The health agency only began recommending in January 2022 that individuals at high risk of developing severe disease should seek early treatment with one of the emergency authorized medications when they test positive for COVID-19.

Throughout the pandemic, the CDC has not recommended people to take vitamin D. Studies have shown that vitamin D can help prevent COVID-19, reduce admission to the intensive care unit, and significantly reduce mortality. A study from Israel found that people who were vitamin D deficient were 14 times more likely to have severe COVID-19.

Lipid nanoparticles (LPNs) are tiny particles made up of lipids or fat that act as a delivery system by encapsulating the mRNA that encodes the SARS-CoV-2 spike protein into the human cells.

Without the LPNs, the mRNA would degrade in a matter of seconds once injected into the arm.

Studies have found that the LPNs are not degrading and being eliminated from the body in the 36-hour time frame the FDA recently told The Epoch Times about, nor do they stay only at the injection site.

The Japanese regulatory agency's biodistribution study (pdf) of the Pfizer vaccine showed that some of the mRNA moved from the injection site and through the bloodstream, and was found in various organs such as the liver, spleen, adrenal glands, and ovaries of rats 48 hours following injection.

"This is something that I would have known quite readily because I work with lipid nanoparticles," Urso said. "I could have told you that lipid nanoparticles, I usually say, they need a door crack [to leave the injection site], whereas a virus needs an open door."

Since a normal vaccine requires an "open door" to distribute to other parts of the body, Urso says, "a normal vaccine stays in the arm, pretty much 99.9 percent or 99 percent," while "a large majority" of LPNs will not stay in the arm.

"In fact, we now know that a large part of it goes into the lymph node right underneath here, and is still making spike protein 60 days later," Urso said, adding that the spike protein "is actually being found up to 15 months later, in monocytes and other cells, it's not being degraded."

Urso says that the persistence of spike protein in different parts of the body is interfering with the immune system's normal functions and causing health problems.

"It's blocking important tumor repairing genes called p53, it's blocking BRCA [genes], it's also messing with microRNA-27A, which is causing upticks in colon cancer cells," Urso said.

Urso says that the presence of spikes and LPNs is also "messing with Toll-like receptors 7 and 8," which are "important for immune surveillance for viruses."

"So we're going to see this huge uptick in all the viruses that lay kind of dormant in our body like herpesvirus family."

COVID-19 SYMPTOMS

Symptoms of Covid-19 include:

New and continuous cough: coughing a lot for more than an hour, or having three or more coughing episodes in 24 hours,

Fever: a temperature above 37.8 ºC,

Change in smell or taste: either you cannot taste or smell anything, or these senses are different to normal.

It takes five days on average incubation period from the moment you are infected to start showing the symptoms, but the World Health Organization says it can take up to 14 days. About 85% of people with Covid will have at least one symptom. People infected with the mutation variants may be more likely to have a cough, sore throat, fatigue and muscle aches than people with the old variant, and slightly less likely to lose their sense of taste or smell.

The coronavirus can affect multiple organs and has several less-common symptoms. Covid-19 has six sub-types. Symptoms include:

1. Flu-like with no fever: Headache, loss of smell, muscle pains, cough, sore throat, chest pain, no fever
2. Flu-like with fever: Headache, loss of smell, cough, sore throat, hoarseness, fever, loss of appetite
3. Gastrointestinal: Headache, loss of smell, loss of appetite, diarrhea, sore throat, chest pain, no cough
4. Fatigue (severe level one): Headache, loss of smell, cough, fever, hoarseness, chest pain, fatigue
5. Confusion (severe level two): Headache, loss of smell, loss of appetite, cough, fever, hoarseness, sore throat, chest pain, fatigue, confusion, muscle pain
6. Abdominal and respiratory (severe level three): Headache, loss of smell, loss of appetite, cough, fever, hoarseness, sore throat, chest pain, fatigue, confusion, muscle pain, shortness of breath, diarrhea, abdominal pain

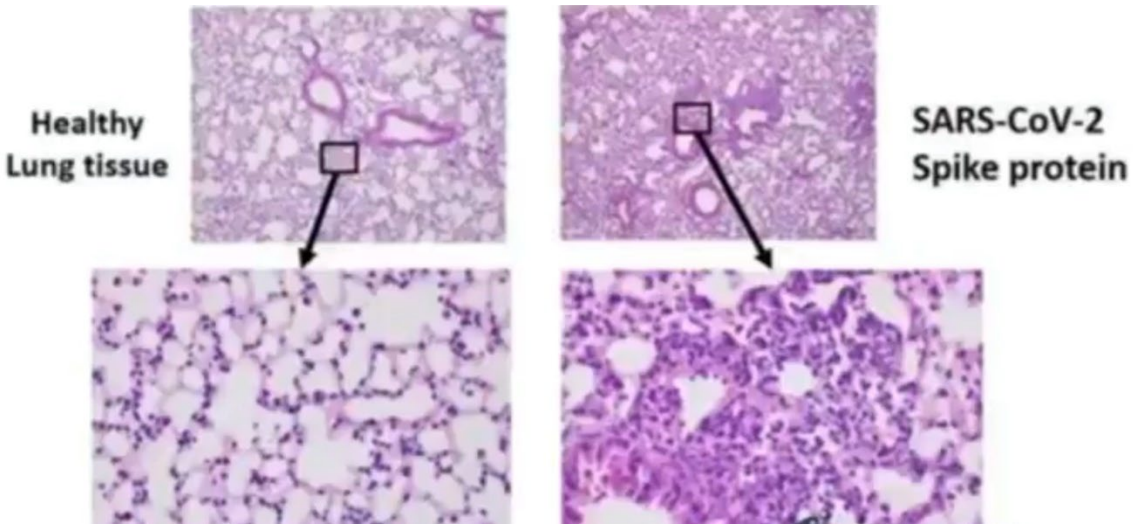
Researchers think that vomiting, diarrhea and abdominal cramps could be a sign of coronavirus infection in children.

SYNTHETIC MESSENGER RIBONUCLEIC ACID, mRNA ROLE, OPERATION WARP SPEED

Gene therapies have no FDA approval, and liability should therefore be with any employer who compels any individual to take the experimental therapies. Same goes for any school or other institution that attempt to bully individuals against their best judgment. Per these breakthrough cases, 74 deaths out of 5,800 is slightly higher than the standard mortality rate. 74/5800 is 1.2 percent, which is slight elevation for the USA, but not globally. This data is probably selecting for people who just have ineffective immune responses to COVID in general (immunocompromised, bad gene luck, etc), since very, very few people are breakthrough cases. It is still a reduction from the deaths you would see for that group without vaccine, exposed to virus.

The mRNA vaccines make spike proteins and the Salk Institute says it is the spike protein that causes more damage than the actual virus because it targets the vascular

system, which is everywhere. The spike protein targets the ACE receptors on vascular cells which then cause the mitochondria in the cells to fragment and induce cell death.



Spike protein effect in lung tissue. Source: https://vid8.poal.co/user/AOU/0UIGzUs

The science behind the blood clotting is already known from research in Scandinavia and Germany. The viral spike protein triggers an immune response which includes the production of antibodies which activate blood platelets and cause clotting. This is not just with certain vaccines but all of them which introduce or manufacture viral genetic material into human cells and induce them to manufacture viral spike proteins to generate an immune response. The DNA vaccines (AstraZeneca-Oxford, Janssen (J&J), Sputnik V) deliver a payload of viral DNA, specifically the gene that expresses for the viral spike protein, using a benign delivery virus. Once inside human cells, the viral DNA is reverse-transcribed into the same viral mRNA as in the mRNA vaccines and from that point on they are ALL identical: the viral mRNA is used by the human cells to manufacture the viral spike protein which then triggers an immune response. So given that it is the spike protein that is causing the production of antibodies causing the clotting, all the mRNA and DNA vaccines can be expected to cause the same clotting because they all trigger an immune response from viral spike proteins, via viral mRNA. If you are in the age cohort below age 55, the survival rate from acquiring this disease is virtually 100% with no longer-term associated problems.

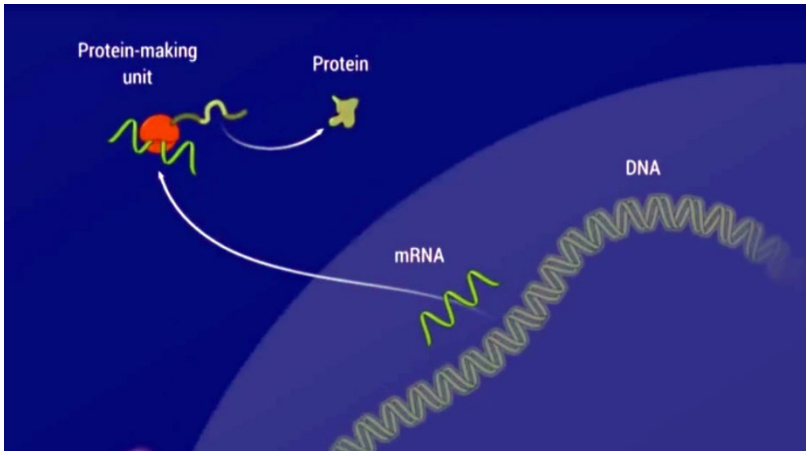
There has never been an mRNA or Adenovirus DNA vaccine given to humans before. mRNA gene therapies do not cause permanent DNA changes. The human body naturally sweeps up mRNA quickly. It is gone within 2 days roughly. It lacks both reverse transcriptase and a nucleus transport protein, which would be necessary to modify your genes. On the other hand, the covid-19 virus hijacks the exact same RNA into the cells, plus another dozen or so different ones, which in turn create disease.

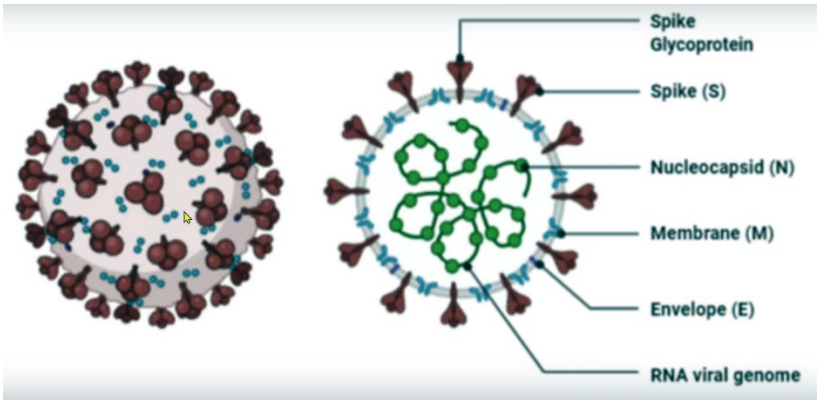
They would want to test everyone for COVID exposure before giving them the vaccine. It does not make sense to get a vaccine if you have already been naturally exposed to a virus. It just seems counter intuitive to use a vaccine if you already have some natural immunity. The prior existence of antibodies could be leading to an anaphylaxis shock.

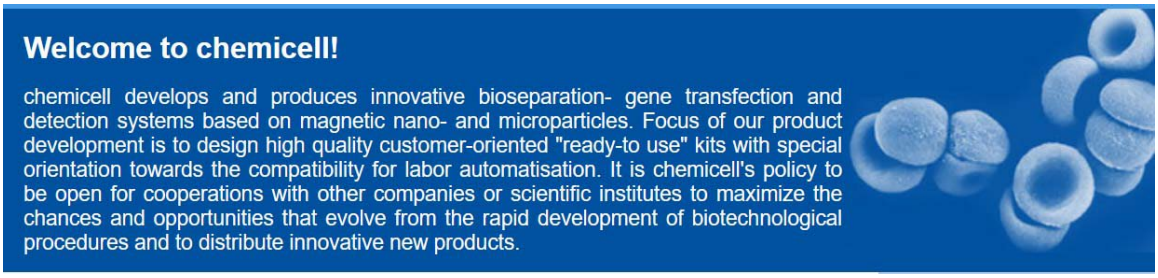
Those with pre-existing immunity, those who have already contracted Covid or those who have been asymptomatically exposed to the virus; a group which has been variously estimated at up to 60% of the population, have a real lasting immunity and cannot transmit the virus. In reality, this group makes a huge contribution to achieving herd immunity, which is being conveniently ignored.

Moderna did a bunch of underlying research, and can tune it some. They use a more complex method, while Pfizer just puts a string AAAAAAAAAAA at the end of their mRNA. Moderna's method is not that, but is to basically stick on a bunch of garbage letters at the ends of their mRNAs to make them take a bit longer to decay:
https://www.pnas.org/content/116/48/24075

They are still only boosting to a half-life of 8-10 hours in this paper. That is just for any custom mRNA. If you are having an immune reaction, T Cells are going to get very violent at cells showing covid spike pretty quickl and any still flashing it (who still have some mRNA present) are going to get enveloped and killed, which of course destroys the mRNA, since that involves injecting the cell to be killed with all sorts of caustic and oxidizing substances.







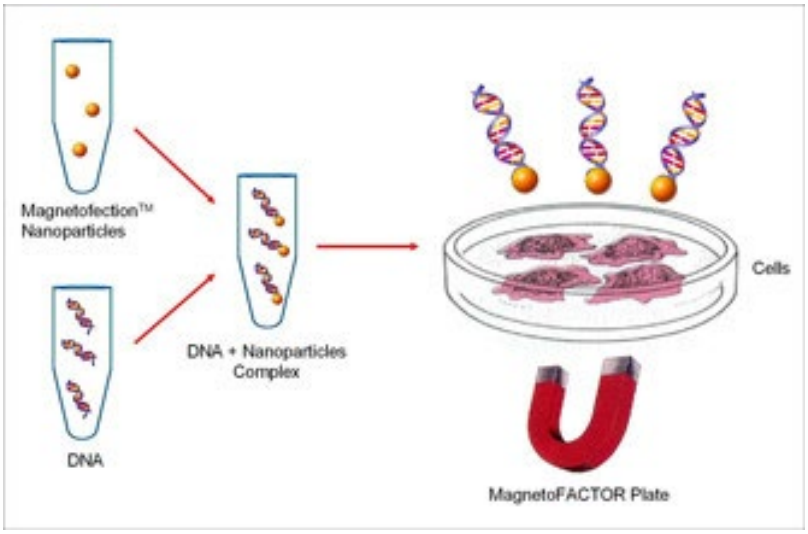


Figure 5. Magnetofection reagents nano and microparticles. Biological lipid nanoparticles enclose the spike proteins. The gene delivery system uses Spions which are Supra magnetic Iron Oxide Nano particles. Blood hemoglobin contains iron. Virus has about 22 different proteins that the immune system responds to.

Magnetofection is a novel, simple and highly efficient method to transfect cells in culture. It exploits magnetic force exerted upon gene vectors associated with magnetic particles to draw the vectors towards, possibly even into, the target cells. In this manner, the full vector dose applied gets concentrated on the cells within a few minutes so that 100 percent of the cells get in contact with a significant vector dose. This has several important consequences:
Greatly improved transfection rates in terms of percentage of cells transfected compared to standard transfection.
Up to several thousand-fold increased levels of transgene expression compared to standard transfections upon short-term incubation.
High transfection rates and transgene expression levels are achievable with extremely low vector doses, which allows to save expensive transfection reagents.
Extremely short process time. A few minutes of incubation of cells with gene vectors are sufficient to generate high transfection efficiency, compared to several hours with standard procedures.

Magnetic particles for bio-separation consist of one or more magnetic cores with a coating matrix of polymers, silica or hydroxylapatite with terminal functionalized groups.

The magnetic core generally consists either of magnetite (Fe_3O_4) or magnemite (gamma Fe_2O_3) with superparamagnetic or ferromagnetic properties. Magnetic cores made with magnetic ferrites, such as cobalt ferrite or manganese ferrite are also possible.

The manufacturer of the Magnetofection technology, Chemicell
http://www.chemicell.com/home/index.html
offers two types of ready-to-use Magnetofection reagents
http://www.chemicell.com/products/Magnetofection/Magnetofection_separation.html

PolyMAG is a universally applicable magnetic particle preparation for high efficiency nucleic acid delivery. It is mixed in a one-step procedure with the nucleic acid to be transfected and has been used successfully with plasmid DNA, antisense oligonucleotides and siRNAs.

CombiMAG is a magnetic particle preparation designed to be combined with any commercially available transfection reagent such as polycations and lipids and can be associated with plasmid DNA, antisense oligonucleotides, siRNAs or viruses. It allows you to create your own magnetic gene vector based on your favorite transfection reagent.

Magnetofection technology is generally applicable for adherent cells and has been tested with a variety of immortalized cell lines and primary cells. The CombiMAG reagent can be combined with any polycationic and lipidic transfection reagent, and also with adenoviral and retroviral vectors.

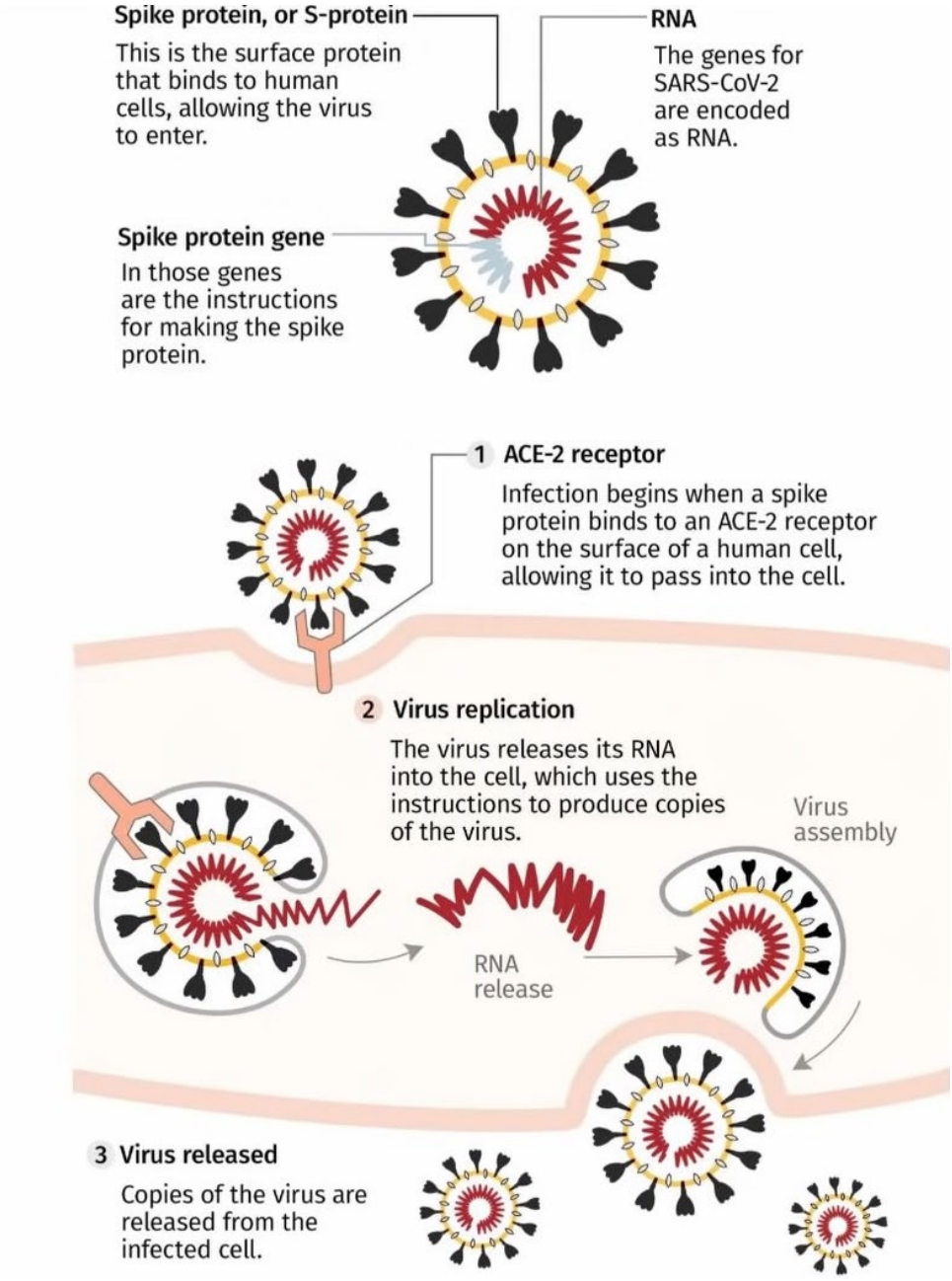
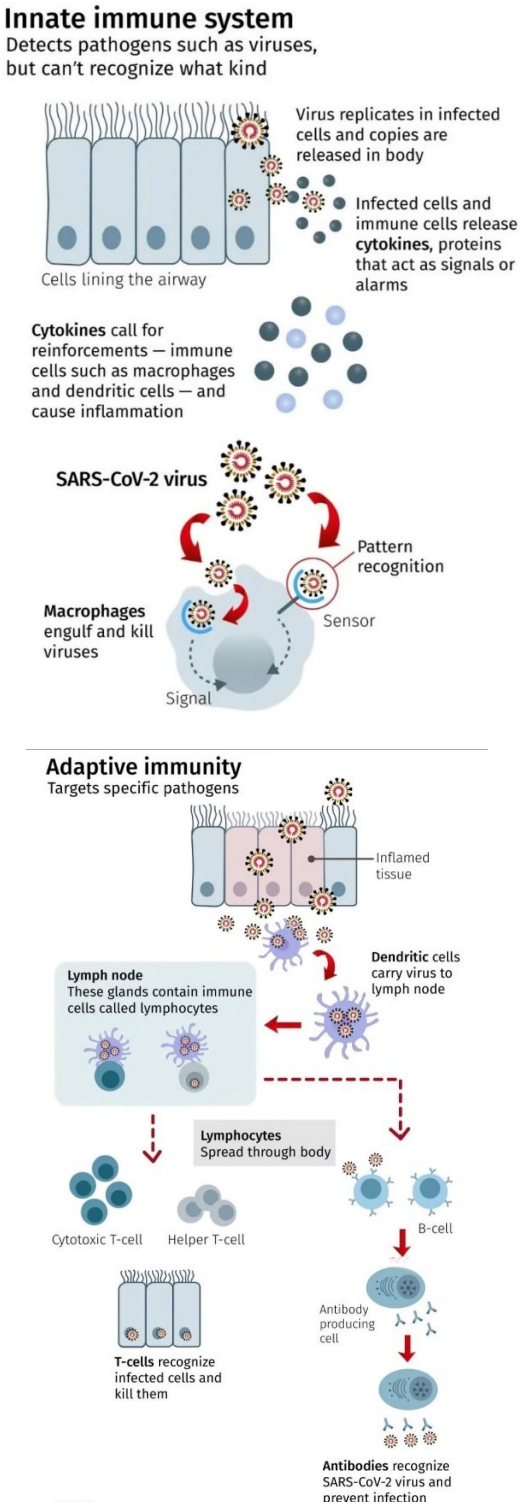


Figure 6. Messenger mRNA role. Virus infection process.



Innate and adaptive immune systems.

Moderna's website explains the gene modification as a "Operating System" for the 2nd shot and subsequent shots of other medicines for other illnesses later. It is not the mRNA that is the problem. It is the spike protein. The spike protein is invoked both by the

virus and the vaccine. Unfortunately, all experimentation causes an EDA reaction at some future point as the immune system interprets the viral fighting part of the body to be the enemy. This is why all the previous experimentation on animals failed and most animal test subjects eventually died. A sad situation is that a lot of these people dying from the vaccine may already had covid immunity and they literally killed themselves.

Reactions to gene therapies abound. It may be the mRNA technology. It makes a subject real tired. They may be using an overly large dose. Virutally everyone feels at least a little bad after the second dose: https://www.nature.com/articles/s41586-020-2639-4. At the 30ug dose, subjects get headache/fever/fatigue.

The only effects that anyone should really care a lot about though are things like this clotting issue. The high frequency effects are definitely very short term, and people can decide for themselves if it's worth it to them. I have a 0.2% chance of death by covid if infected, so it was worth it to me. Maybe it wouldn't be worth it to me if I was 23 or something and my chance was nearly zero and I was pretty sure I could avoid infection and the annoying week of being sick.

Synthetic mRNA, the ingenious technology behind the Pfizer-BioNTech and Moderna vaccines, might seem like a sudden breakthrough, or a new discovery. Almost nobody in the world knew what an mRNA vaccine was, for the good reason that no country in the world had ever approved one. The technology now powers the two fastest vaccine trials in the history of science.

This apparent overnight success was many decades in the making. More than 40 years had passed between the 1970s, when a Hungarian scientist pioneered early mRNA research, and the day the first authorized mRNA vaccine was administered in the USA, on December 14, 2020. In the interim, the idea's long road to viability nearly destroyed several careers and almost bankrupted several companies. The dream of mRNA persevered in part because its core principle was tantalizingly simple, even beautiful: The world's most powerful drug factory might be inside all of us.

People rely on proteins for just about every bodily function; mRNA—which stands for messenger ribonucleic acid—tells our cells which proteins to make. With human-edited mRNA, we could theoretically commandeer our cellular machinery to make just about any protein under the sun. You could mass-produce molecules that occur naturally in the body to repair organs or improve blood flow. Or you could request our cells to cook up an off-menu protein, which our immune system would learn to identify as an invader and destroy.

In the case of the coronavirus that causes COVID-19, mRNA vaccines send detailed instructions to our cells to make its distinctive "spike protein." Our immune system, seeing the foreign intruder, targets these proteins for destruction without disabling the mRNA. Later, if we confront the full virus, our bodies recognize the spike protein again and attack it with the precision of a well-trained military, reducing the risk of infection and blocking severe illness.

But mRNA's story likely will not end with COVID-19: Its potential stretches far beyond this pandemic. A team at Yale University patented a similar RNA-based technology to vaccinate against malaria, perhaps the world's most devastating disease. Because mRNA is so easy to edit, Pfizer says that it is planning to use it against seasonal flu, which mutates constantly and kills hundreds of thousands of people around the world every year. The company that partnered with Pfizer last year, BioNTech, is developing individualized therapies that would create on-demand proteins associated with specific

tumors to teach the body to fight off advanced cancer. In mouse trials, synthetic-mRNA therapies have been shown to slow and reverse the effects of multiple sclerosis.

mRNA's promise ranges from the expensive-yet-experimental to the glorious-yet-speculative. Scientific progress may happen suddenly, after long periods of gestation. In the world of science, RNA technology could be the biggest story of the year.

For more than 40 years, synthetic RNA couldn't do anything useful. In 1978, Katalin Karikó was a young scientist at the Biological Research Centre in Szeged, Hungary, when she started working on the idea that it could. She left Hungary for the USA in the 1980s. At the University of Pennsylvania, she still struggled to design mRNA that the body did not immediately reject. When her research failed to attract the support of government grants and university colleagues, she was demoted.

After a decade of fits and starts, Karikó and her research partner Drew Weissman finally broke through in the early 2000s. To sneak synthetic mRNA past the cell's defenses, they realized that they had to tweak one of its molecular building blocks, the nucleosides that comprise a strand of RNA. The solution, Karikó and Weissman discovered, was the biological equivalent of swapping out a tire.

They caught the attention of a brash group of postdoctoral researchers, professors, and venture capitalists. They started a company whose name smushed the words modified and RNA: Moderna. In Germany, Ugur Sahin and Özlem Türeci, a married couple with a background in immunotherapy research, also saw huge potential. They founded several companies, including one to research mRNA-based treatments for cancer: BioNTech.

BioNTech and Moderna pressed on for years without approved products, thanks to the support of philanthropists, investors, and other companies. Moderna partnered with the National Institute of Health, NIH and received tens of millions of dollars from DARPA, the Defense Advanced Research Projects Agency, to develop vaccines against viruses, including Zika. In 2018, Pfizer signed a deal with BioNTech to develop mRNA vaccines for the flu. You can edit mRNA very quickly. That is quite useful for a virus like the flu, which requires two updated vaccines each year, for the Northern and Southern Hemisphere.

By the time the coronavirus outbreak shut down the city of Wuhan, China, Moderna and BioNTech had spent years fine-tuning their technology. When the outbreak spread throughout the world, Pfizer and BioNTech were prepared to shift immediately and redirect their flu research toward SARS-CoV-2.

Armed with years of mRNA clinical work that built on decades of basic research, scientists solved the mystery of SARS-CoV-2 with astonishing speed. On January 11, 2020, Chinese researchers published the genetic sequence of the virus. Moderna's mRNA vaccine recipe was finalized in about 48 hours. By late February, 2020 batches of the vaccine had been shipped to Bethesda, Maryland, for clinical trials. Its development was accelerated by President Donald Trump administration's Operation Warp Speed, which invested billions of dollars in several vaccine candidates, including Moderna's. With the perfect timing of a Hollywood epic, mRNA entered the promised land after about 40 wandering years of research. Scientific progress had proceeded at its typical two-speed pace—slowly, slowly, then all at once.

Speed and nimbleness were the qualities that first interested both DARPA and Pfizer in mRNA. And if the technology unlocks more breakthroughs after this pandemic, speed and nimbleness will play starring roles.

It is estimated that in the USA 1 in 100 vaccine side effects is reported. A list compiled by the FDA, the Food and Drug Administration in the USA on possible side effects of vaccines administration (http://www.vernoncoleman.com/main.htm):

Death
Guillain-Barre syndrome
Acute disseminated encephalomyelitis
Transverse myelitis
Encephalitis
Myelitis
Encephalomyelitis
Meningoencephalitis
Meningitis
Encephalopathy
Convulsions
Seizures
Stroke
Narcolepsy
Cataplexy
Anaphylaxis
Acute myocardial infarction (heart attack)
Myocarditis
Pericarditis
Autoimmune disease
Pregnancy, Birth outcomes
Other acute demyelinating diseases
Non anaphylactic allergy reactions
Thromocytopenia
Disseminated intravascular coagulation
Venous thromboembolism
Arthritis
Arthralgia
Joint pain
Kawasaki disease
Multisystem inflammatory syndrome in children
Vaccine enhanced disease.

Some of the Injuries in the UK include strokes, heart attacks, miscarriages, Bell's Palsy, sepsis, paralysis, psychiatric disorders, blindness, deafness, shingles, alopecia and Covid-19.

Sweden offered 3 different Covid-19 injections: Moderna, Pfizer and AstraZeneca, with the latter being the most widely available. Other European states like Germany have sought to offer substitutes to younger patients, who are more vulnerable to dangerous cerebral blood clots, which are a rare - but not unheard of - side effect.

The number of suspected adverse reactions from the two shots seems relatively small when compared to the 19,961 reports linked to AstraZeneca’s Vaxzevria, while the

AstraZeneca shot only accounts for about 26 percent of the roughly 2.7MM vaccines that have been administered at some time in Sweden but makes up around 63 percent of the side effects reports. In March 2021, Sweden was one of several European nations to temporarily suspend the use of the AstraZeneca injection, following reports of abnormal blood clotting in recipients. AstraZeneca, as well as the European Medicines Agency, have insisted that the vaccine is safe after it came under scrutiny.

Vaccinations deaths as of May 18, 2021 in the USA is 4,191 - more than the combined deaths for all vaccinations in 20 years. In 1976, 25 people died of swine flu vaccine and they stopped it in its tracks. The side-effect reports make it to VAERS only if the adverse reaction or death occurs within 1-2 days of the administration of the vaccine.

SELF AMPLIFYING RNA saRNA, TAILORED MALARIA AND CANCER VACCINES

Malaria kills more than 400,000 people every year, mostly young children. It is not caused by a virus or bacteria, but rather by an organism belonging to a separate phylum, called plasmodium. Plasmodia have a host of shape-shifting strategies to evade our immune systems. With most diseases, you catch it once and develop some protection going forward. But malaria shakes off our cellular defenses, making it possible to catch the disease over and over again. That also makes malaria hard to inoculate against: The only existing vaccine does not work very well, even after a four-shot regimen.

A patent was approved for an RNA-based vaccine against malaria that showed promise in mice. The malaria vaccine uses self-amplifying RNA, or saRNA, which is subtly distinct from the mRNA technology used by Moderna and Pfizer. The vaccines against COVID-19 work by injecting up front all of the messenger RNA that you are going to get. But self-amplifying RNA is designed to replicate itself inside our cells. This copy-paste function means, in theory, that each person needs only a tiny dose of vaccine to have a large immune response.

The replication function of saRNA is critical, because it is not vaccines that prevent infection but vaccinations that prevent infection. A miracle drug that is not administered is no better than a worthless medicine that is never approved. The Pfizer and Moderna vaccines need a lot of mRNA, and it is expensive to make, which is why it has been slower to get to many countries outside the USA. With saRNA, we could inject one-hundredth of the material to have the same effect. That would make it easier to scale against a widespread disease.

Scientists may never devise a single vaccine for cancer because cancer is not a single disease but a constellation of more than 100 maladies, which we usually name for the place on the body where they originate. But what if we could respond to these hundreds of cancers with our own constellation of therapies that could train the body to attack a specific tumor? This is the idea behind BioNTech's cancer-immunotherapy research. It works something like this: For each cancer patient, BioNTech takes a tissue sample from a tumor to perform a genetic analysis. Based on that test, the company designs an individually tailored mRNA vaccine, which tells the patient's cells to produce proteins associated with that specific tumor's specific mutation. The immune system learns to search-and-destroy similar tumor cells throughout the body.

This cycle of analysis and design is not so different from the way BioNTech and Moderna swiftly analyzed Chinese scientists' sequencing of SARS-CoV-2, identified the spike protein for attack, and made an effective therapy. The company is currently in clinical trials for personalized vaccines in basically every solid cancer, including melanoma, breast cancer, and ovarian cancer. A 2021 analysis by University of North Carolina researchers in the journal Molecular Cancer pointed out that these cancer treatments have been slow to develop in recent years but that the COVID-19 breakthrough coincided with promising clinical trials in cancer vaccines.

MERCK VACCINES, MOLNUPIRAVIR,

In March 2020, Peter Hotez, a vaccine scientist at Baylor College of Medicine, did not think that mRNA technology would win the race against COVID-19. His bet was on the pharmaceutical company Merck, which had recently developed an astonishingly successful vaccine against Ebola using a modified livestock virus called vesicular stomatitis virus, or VSV. But Merck discontinued its COVID-19 vaccines when its promising new technology failed in clinical trials. Hotez sees Merck's failures as a critical lesson about science—and a cautionary tale about mRNA. The technology that works for one epidemic might not work for the next one, and you won't know what works until you try it. mRNA vaccines might not work against the next target. We are going to find that there are diseases where mRNA is surprisingly successful and diseases where it is not. We have to prove it for each and every infectious disease.

Some scientists became worried that a drug developed by Merck which purportedly cut hospitalizations in half during a study that was cut short - could cause cancer or birth defects. Merck and its partner Ridgeback Biotherapeutics will profit immensely by charging customers up to 40 times or $700 per treatment what it costs to make the drug, which Ridgeback originally licensed from Emory University for an "undisclosed sum". The drug was developed with funding from the federal government.

According to Barron's, some scientists who have studied the drug believe that its method of suppressing the virus could potentially run amok within the body:

> "Some scientists who have studied the drug warn, however, that the method it uses to kill the virus that causes Covid-19 carries potential dangers that could limit the drug's usefulness. Molnupiravir works by incorporating itself into the genetic material of the virus, and then causing a huge number of mutations as the virus replicates, effectively killing it. In some lab tests, the drug has also shown the ability to integrate into the genetic material of mammalian cells, causing mutations as those cells replicate.
>
> If that were to happen in the cells of a patient being treated with molnupiravir, it could theoretically lead to cancer or birth defects."

In particular, Raymond Schinazi, a professor of pediatrics and the director of biochemical pharmacology at Emory who studied the drug while it was being developed, and published a number of papers on NHC, the compound that's the active ingredient in the drug. He published a paper that showed the drug can produce a reaction like the one

described above and insisted it shouldn't be given to young people - especially pregnant women - without more data. Schinazi told Barron's that he did not believe that molnupiravir should be given to pregnant women, or to young people of reproductive age, until more data is available. Merck's trials of molnupiravir have excluded pregnant women; the scientists running the trial asked male participants to "abstain from heterosexual intercourse" while taking the drug, according to the federal government website that tracks clinical trials.

Barron's even shared a paper published in the Journal of Infectious Diseases in May 2021 by Schinazi and scientists at the University of North Carolina which reported that NHC can cause mutations in animal cell cultures in a lab test designed to detect such mutations - something Merck claims it has tested for. The paper's authors concluded that the risks for molnupiravir "may not be zero".

Merck told Barron's that it has run "extensive tests" on animals which it says show that this shouldn't be an issue. "The totality of the data from these studies indicates that molnupiravir is not mutagenic or genotoxic in in-vivo mammalian systems," a Merck spokesman said.

Still, scientists and doctors who have studied NHC say that Merck needs to "be careful," and it's not just Schinazi warning about the drug's potential risks. Dr. Shuntai Zhou, a scientist at the Swanstrom Lab at UNC, said "there is a concern that this will cause long-term mutation effects, even cancer." Zhou says that he is certain that the drug will integrate itself into the DNA of mammalian hosts. "Biochemistry won't lie," he says. "This drug will be incorporated in the DNA."

mRNA may not produce a great second act in the next decade, or ever. Perhaps the scientific establishment will conclude that the technology benefited in the pandemic from a uniquely simple nemesis: The coronavirus might be one of the easiest vaccine targets we have seen in modern times. Just about everything we have thrown at it has worked.

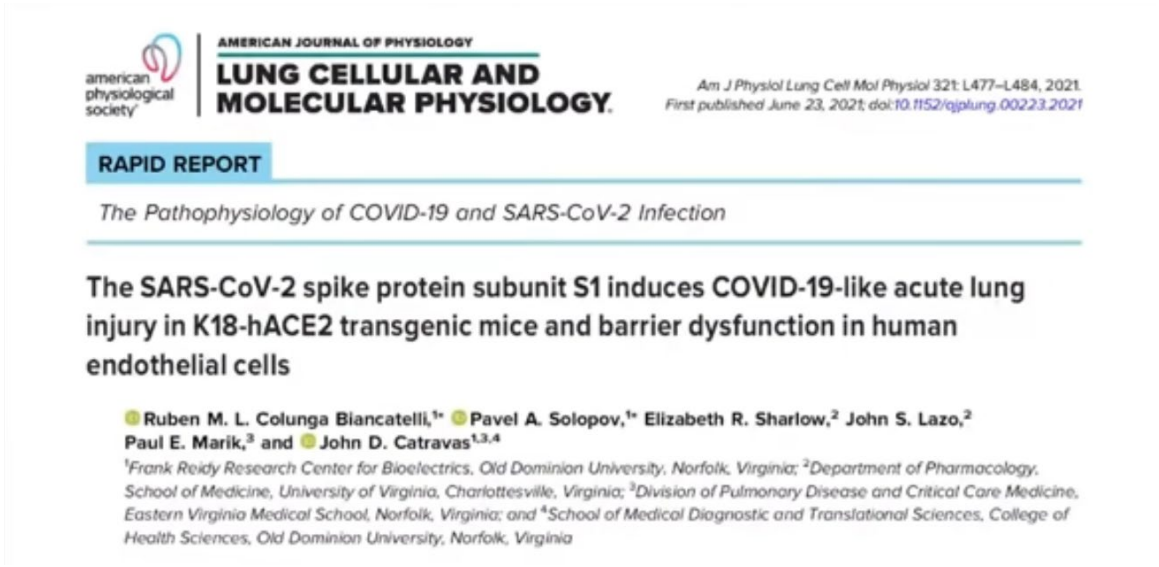
The coronavirus was an easy target only because science made it easy. Four years ago, following the outbreak of Middle East Respiratory Syndrome in the Arabian Peninsula and South Korea, 18 scientists from the NIH, Vanderbilt University, Dartmouth College, and other institutions published a detailed examination of the shape and behavior of the coronavirus's most notable feature: the spike protein. This paper decoded the mysteries and vulnerabilities of the virus long before anybody knew that this tiny pathogen would soon shut down the world. They concluded in their 2017 paper, that their study provides a foundation for the structure-based design of coronavirus vaccines. Without this detective work, the mRNA breakthrough might not have happened.

For decades, researchers have struggled to design a workable vaccine for HIV, and many observers considered this field a dead end. But a new paper argues that these repeated failures forced HIV-vaccine researchers to spend a lot of time and money on strange and unproven vaccine techniques—such as synthetic mRNA and the viral-vector technology that powers the Johnson & Johnson vaccine. Nearly 90 percent of COVID-19 vaccines that made it to clinical trials used technology that could be traced back to prototypes tested in HIV vaccine trials. The competitors in the vaccine field learned from collective failure and contributed to collective wisdom. The many false starts of HIV vaccination sired an explosion of new technologies and helped usher in a possible new golden age of vaccines.

The record-breaking vaccine-development process can be called a ringing endorsement for the essential role of science in the world. mRNA is such a beautiful

scientific story. So many researchers, philanthropists, government organizations, and companies took a huge risk on a technology whose initial responses were marginal. And together, they figured out how to make it work.

POSSIBLE S1SP, S1 SUBUNIT OF SPIKE PROTEIN SP THERAPY



AMERICAN JOURNAL OF PHYSIOLOGY
LUNG CELLULAR AND MOLECULAR PHYSIOLOGY

Am J Physiol Lung Cell Mol Physiol 321: L477–L484, 2021.
First published June 23, 2021; doi:10.1152/ajplung.00223.2021

RAPID REPORT

The Pathophysiology of COVID-19 and SARS-CoV-2 Infection

The SARS-CoV-2 spike protein subunit S1 induces COVID-19-like acute lung injury in K18-hACE2 transgenic mice and barrier dysfunction in human endothelial cells

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Abstract

Acute lung injury (ALI) leading to acute respiratory distress syndrome is the major cause of COVID-19 lethality. Cell entry of SARS-CoV-2 occurs via the interaction between its surface spike protein (SP) and angiotensin-converting enzyme-2 (ACE2). It is unknown if the viral spike protein alone is capable of altering lung vascular permeability in the lungs or producing lung injury in vivo. To that end, we intratracheally instilled the S1 subunit of SARS-CoV-2 spike protein (S1SP) in K18-hACE2 transgenic mice that overexpress human ACE2 and examined signs of COVID-19-associated lung injury 72 h later. Controls included K18-hACE2 mice that received saline or the intact SP and wild-type (WT) mice that received S1SP. K18-hACE2 mice instilled with S1SP exhibited a decline in body weight, dramatically increased white blood cells and protein concentrations in bronchoalveolar lavage fluid (BALF), upregulation of multiple inflammatory cytokines in BALF and serum, histological evidence of lung injury, and activation of signal transducer and activator of transcription 3 (STAT3) and nuclear factor kappa-light-chain-enhancer of activated B cells (NF-κB) pathways in the lung. K18-hACE2 mice that received either saline or SP exhibited little or no evidence of lung injury. WT mice that received S1SP exhibited a milder form of COVID-19 symptoms, compared with the K18-hACE2 mice. Furthermore, S1SP, but not SP, decreased cultured human pulmonary microvascular transendothelial resistance (TER) and barrier function. This is the first demonstration of a COVID-19-like response by an essential virus-encoded protein by SARS-CoV-2 in vivo. This model of COVID-19-induced ALI may assist in the investigation of new therapeutic approaches for the management of COVID-19 and other corona-viruses.

acute lung injury; COVID-19 murine model; endothelial permeability; SARS-CoV-2; spike protein

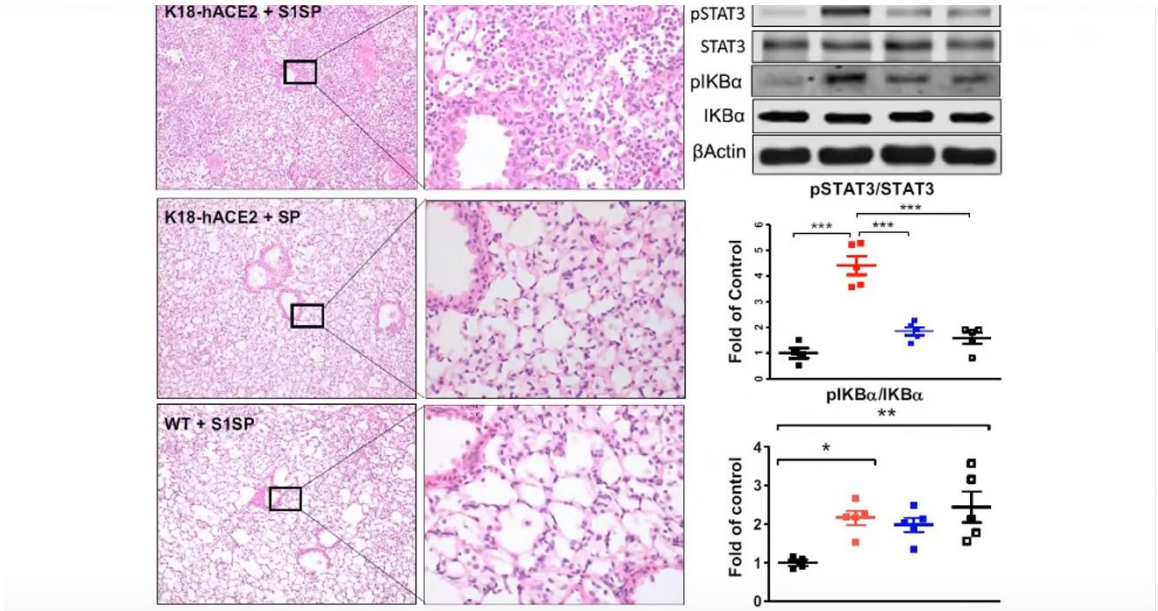


Figure 3. The S1 subunit of the SARS-CoV-2 spike protein (S1SP) causes acute lung injury and the activation of the STAT3 and NF-κB inflammatory pathways 72 h after exposure. *A*: H&E staining of lung sections demonstrates septal thickening, neutrophil infiltration, and edema in S1SP-instilled K18-hACE2 mice, minimal edema and leucocyte infiltration in S1SP-instilled WT, whereas SP-instilled K18-hACE2 display minimal changes compared with

GENE THERAPY, REAL AND FAKE mRNA VACCINES AND SERUMS, NATURAL KILLER NK CELLS, "ANTIBODY DEPENDENT ENHANCEMENT" ADE, "PATHOGENIC PRIMING" REACTIONS, IMMUNE AMNESIA

Stocks pump and dump fake vaccines and serums abound. An example is the mRNA vaccine touted by Moderna. In a phase one trial, involving 45 people, only 8 of them developed neutralizing antibodies. "Neutralizing antibodies" are the only antibodies that matter, because they "neutralize" the virus. So 8 out of 45, that is 17.8 percent. Even though a phase one trial is about safety, and apparently the vaccine was safe, but 17.8 percent effectiveness is not very promising. In preliminary animal trials in the 1960s, animals initially tolerated the mRNA vaccines. However, all of them reportedly died from Antibody-Dependent Enhancement ADE reactions not blood clots (thrombosis). People who are vaccinated now and do not get blood clots may face the risk from ADE in their next flu season different or mutated viruses' exposure.

ADE is where the antibodies assist the pathogen in infecting cells it previously could not. There is at least one strain of Dengue Fever that does this naturally. This is just regular old vaccine escape. The danger going forward (along this line, there are other issues) is that it produces a variant that is 100% unaffected by injection-induced antibodies and we are back to square one. If that happens in combination with a pathogenic enhancement (the disease becomes more dangerous) we have a nightmare on our hands.

Looking at the data, ADE has not hit yet. There is a really good chance that it will hit. People who have natural immunity or natural immunity before the vaccine will very likely be safe if it is going to hit. People who had the injection then caught the virus are a big unknown there, but the immunity they get after the injection and an infection is inferior to plain natural immunity. If it is going to hit, the people who get hit the hardest are those with no natural immunity, but who took the injection. If ADE is going to be a thing, anywhere from 5% to 30% infection fatality rate in that group would be expected. ADE

can take a couple of years to show up in many instances. To understand ADE with coronaviruses, one can access the paper:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7022351/

While not having yet won an FDA approval, the emergency use authorization of the Pfizer-BioNTech Covid-19 mRNA held the promise to alter the course of the pandemic in the USA.

The mRNA genetic treatments are alleged to insert a virus into the immune system, telling it to produce certain spike proteins, including one associated with the AIDS virus. Conveniently AIDS is a retrovirus, meaning it can change the DNA of each cell and potentially have unforeseen effects at some point.

Humanity had success over the past hundred years with some breakthroughs with specific vaccines for smallpox, measles, mumps, rubella, and polio. But it struggled with other vaccines such as for Ebola.

Geert Vanden Bossche, DMV, PhD, independent virologist formerly worked for Gavi, The Vaccine Alliance, and the Bill and Melinda Gates Foundation. Dr. Bossche says that the COVID vaccines approved so far have been developed by "just brilliant" people and he has no criticism of them. But as he tells Dr. Phillip McMillan in an interview, "please use the right vaccine at the right place. And don't use it in the heat of a pandemic on millions of millions of people." Bossche says that a mass vaccination campaign in the middle of a pandemic, with vaccines that ***do not prevent transmission***, is disastrous at an individual and at a global level:

> "We are going to pay a huge price for this. And I'm becoming emotional because I'm thinking of my children, of the younger generation. I mean, it's just impossible what we are doing. We don't understand the pandemic."

In an open letter to the World Health Organization (WHO), Bossche wrote that: "we are currently turning vaccinees into asymptomatic carriers shedding infectious variants." Scientists' for shedding is "transference." Vaccine shedding transmits through air that a vaccinated person breathes out and through substances that come out of their pores. Vaccinated people with conventional vaccines can shed the disease they were injected for, but it is not clear how exactly are mRNA-injected people shedding spike proteins. Some speculate that the mRNA from the vaccine webs itself in the skin tissue and can be passed from coughing and skin particles. That is how the covid-anal swabs worked.

It is alleged that the polio vaccine caused some people to continuously shed poliovirus for decades. It is a fact that one cannot inhale an autoimmune disorder, but you can inhale substances that can have an epigenetic effect which can trigger autoimmune disorder as well as other biological disorders.

We need to distinguish what we call acute self-limiting diseases. These are diseases that naturally come to an end in a sense that ultimately the individual will eliminate the pathogen. Some people may die. Those who survive will ultimately eliminate the pathogen.

That is the vast majority of the vaccines we have been developing so far. With other viruses we clearly see that they spread in a completely different way. They spread, for example, from cell to cell, they tend to be more intracellular. They tend to develop chronic infections where it is not self-limiting, it is not acute self-limiting, it is chronic. It is much

more difficult. And the reason primarily is that most of the vaccines we are developing are still antibody-based vaccines.

We need these antibodies in the blood, or we need these antibodies to translate to the mucosa, for example, in order to capture the pathogen and to neutralize it. In some of the other work they have a very insidious strategy in the sense that they hide in cells, that they can already at the mucosal barrier penetrate immediately into cells. And then the cells may migrate, for example, to the lymph nodes.

So they are shielded from the antibodies and that makes it very difficult because we know that we can catch them to some extent in the blood, but what they do all the time is that they insert mutations and they escape, they fully escape to our antibody responses. So that makes it way more difficult. It is also the reason why also against cancer, et cetera, we have not been extremely successful with vaccines as I would say, standalone therapy.

When a new virus gets into a population, it immediately gets to the folks that have weak immunity. And we know these people to a large majority are elderly that have underlying diseases or are otherwise immune suppressed.

Young people have quite decent innate immune response and therefore they are naturally protected and even more, if they get in contact with a coronavirus, it will boost their natural immunity.

So the youngsters can rely on good innate immunity. For elderly people the innate immunity is waning. It gets increasingly replaced by antigen-specific immunity as people get older. So these people needed to be protected, but it has taken a lot of time before we understood how exactly the immune response and the virus were interacting.

The used vaccines are prophylactic vaccines and should typically not be administered to people who are exposed to high infectious pressure. We are administering these vaccines in the heat of a pandemic. In other words, while we are preparing our weapon, we are fully under attack by the virus. The virus is everywhere. So that is a very different scenario from using such vaccines in a setting where the vaccine is barely or not exposed to the virus. If you have a high infectious pressure, it is so easy for the virus to jump from one person to another.

If your immune response is just mounting, as we see right now with the number of people who get a first dose, they get the first dose, the antibodies are not fully mature, the titers are maybe not very high. So their immune response is suboptimal, but they are in the midst of this war while they are mounting an immune response, they are fully attacked by the virus. Every single time you have an immune response that is suboptimal in the presence of an infection, you are at risk for immune escape. So that means that the virus can escape the immune response. And that is why these vaccines in their own right are excellent. But to use them in the midst of a pandemic and do mass vaccination, because then you provide within a very short period of time the population with high antibody titers, so the virus comes under enormous pressure.

That would not matter if you can eradicate a virus, if you can prevent infection, but these vaccines do not prevent infection. They protect against disease because we look no further than the end of our nose in the sense that hospitalization, that is all what counts, getting people away from the hospital. But in the meantime, we are not realizing that we give all the time during this pandemic, by our interventions, to the virus the opportunity to escape the immune system. And that is a dangerous situation if we realize that these viruses only need 10 hours to replicate.

If you think that by making new vaccines against the new infectious strains, we are going to catch up, it is impossible to catch up. The virus is not going to wait until we have those vaccines ready. These vaccines are excellent, but they are not made for administration to millions of people in the midst and in the heat of a pandemic. This is equivalent to using either a partial dose of antibiotics in anti-microbial or in a bacterial infection where you then produce super bugs. We need to have a very good match. Otherwise, there could be resistance.

At this point in time, we do not have a good match anymore because we have this kind of like almost heterologous variants. So the match is not very good anymore. And hence we see people are still protected, but they are already shedding the virus.

The other issue is the quantity. You tell people you take your antibiotics according to the prescription, please do not stop as soon as you feel well. It is clear that this is driving immune escape and will ultimately drive resistance to the vaccines.

This situation is now different because we are in the midst of a war, there is a high infectious pressure. So the likelihood that an immune escape immediately finds another living cell, that means another host is very, very high. It is per definition. It is the definition almost of a pandemic.

And so we immediately take action and jump on the beast with the tools we have instead of analyzing what is really going on. We know that the number of people or asymptomatically infected, so they are infected, but they don't develop severe symptoms. They can have some mild symptoms of respiratory disease. So the question is what exactly happens with those folks that they can eliminate the virus, they do not transmit it. They will shed it for like a week or so. And then they eliminate the virus.

Afterwards, a moderate and short-lived raise of antibodies occurs. The antibodies cannot be responsible for elimination of the virus. What is responsible for elimination of the virus? There is increasing evidence that what in fact is happening is that Natural Killer NK cells are taking care of virus. So it is the NK cells that the virus gets into, into these epithelial cells and starts to replicate, but NK cells get activated and they will kill, they will kill the cell, you know, in which the virus tries to replicate.

The virus needs to rely on a living cell. So if you kill that cell it is all over. So we have the solution in the pathogenesis because some people eliminate it.

Natural killer cells, NKs are a special group of white blood cells that go and take out the viral infected cell.

People do not understand how a natural pandemic develops and why we have this first wave, a second wave and then a third wave. These waves of disease and mortality and morbidity, they shift from one population to another.

The second wave was typically the case with influenza during the Spanish flu. In World War I more soldiers, young people died in the trenches of influenza than from injuries. So firstly, elderly with weak immune system, then it gets to the wave of morbidity and mortality to the younger people.

We do not understand that prophylactic vaccines should not be used in the midst of an epidemic. And we do not understand exactly what the virus is. So we go to a war and we do not know our enemy. We do not understand the strategy of our enemy. And we do not know how our weapon works.

Problem is that we induce a long-lived antibody response. Problem is that we fail to put the pieces of the puzzle together. Fact is that these long-lived antibodies, which have

high specificity, of course, for the virus out-compete our natural antibodies because they are natural antibodies, they have a very broad spectrum, but they have low affinity.

By doing this, even if your antibodies do not work anymore, because there is resistance or that the strains are too different from the original strain, these specific antibodies will still continue to out-compete your natural antibodies. And that is a huge problem because these natural antibodies provide you with broad protection.

This protection is variant nonspecific. It does not even matter what type of coronavirus is coming in. They will protect you. Unless, of course, you suppress this level of innate immunity, or it is out-competed by long lived specific antibodies.

Immunizing somebody is installing a new software on your computer. Do not forget that these antibodies will be recalled every single time you are encountering a coronavirus.

The research around the challenges that was faced with the initial SARS, called the first epidemic, and they tried to develop the vaccines. One of the things they found, certainly when they tested it on the ferrets, was that when they expose them to a coronavirus again, they got a very severe response to it. We are putting ourselves in a position where we can then have much more severe disease even to viruses that should normally be quite benign.

The vaccines would in some regard be unsafe because you would have even this exacerbation of disease due to antibodies that does not match very well with the coronavirus they are exposed to.

It is not going to be spontaneous mutations that all of a sudden would make this virus again harmless because such a virus would have a competitive disadvantage andcould not be dominant anymore, so that is not going to happen.

The situation is detrimental on a population level, as on an individual level. On the population level we are increasingly facing highly infectious strains that already we cannot control because basically what we are doing, when we vaccinate somebody, we are turning this person in a potential asymptomatic carrier that is shedding the virus. At an individual level, if you have these specific antibodies, we shall need new vaccines against the new strains, et cetera.

If one misses the a shot against a strain, you could say nothing has happened. No. You are at the same time losing the most precious part of your immune system that you could ever imagine. And that is your innate immune system, because the innate antibodies, the natural antibodies, will be out-competed by these antigen-specific antibodies for binding to the virus. And that will be long lived. That is a long-lived suppression of the natural immune response.

A person would lose every protection against any viral variant or coronavirus variant. So this means that your immunity has become nullified. The innate antibodies don’t work anymore. And your innate immunity has been completely bypassed and this while highly infectious strains are circulating.

We must use the right vaccine at the right place. And do not use it in the heat of a pandemic on millions of people. We are going to pay a huge price for this. We do not understand the pandemic.

We are facing an artificial pandemic. We have not seen this during previous natural pandemics. We have not been seeing because at every single time, the immunity was low enough so that the virus did not need to escape. So back at the end of the pandemic, when things calmed down and it was herd immunity, it was still the same virus circulating.

What we are now doing is that we are really chasing this virus as it becomes increasingly infectious. We are now getting plenty of asymptomatic shedders. People who shed the virus because if they are vaccinated or they have even antibodies from previous disease, they can no longer control these highly infectious variants.

The powerful antibodies will dominate the killer T cells, and will suppress the innate immune system, The net effect of the two is you are left with zero immunity to every virus on the planet. Meanwhile, there are 100 million people walking around with this condition right now. They are all virus mutating factories who are now the first real asymptomatic spreaders of a highly pathogenic viral monster.

Examples are the disastrous Polio and Smallpox vaccines and how both disease mutated and changed because of mass vaccination. Neither one of them eradicated the diseases despite the common myth. Polio has now taken on different names such GBS (which some people have experienced as a result of the COVID shot) AFP, meningitis, transverse myelitis just to name a few. Dr. Tom Mack one of the foremost authorities on endemic Smallpox told the government and CDC that the vaccine did not stop Smallpox, it was advance in all aspects of humanity, technology, personal and global high standards in hygiene, and living conditions. The USA dodged a bullet during the 2nd Gulf War because President Bush wanted to mandate the Smallpox vaccine for the entire country.

The problem with the polio vaccine was evidently not viral shedding, but poisoning by the toxic adjuvants in the vaccine. Poliomyelitis was evidently not infectious, but environmental, mainly due to pesticides such as arsenic compounds, lindane and DDT. Indigenous populations with 100% polio virus infection rates - nearly 100% of each of 3 strains, at that - were free of paralytic disease. This puzzled researchers, who had not considered those indigenous people did not use the pesticides used by "advanced" nations.

In essence mRNA vaccines could possibly create long lasting antibodies specific to to SARS-Cov-2 only, and by administering it to millions right in the middle of the "pandemic" it will cause an endless number of mutated viruses' "variants" that will not be destroyed by the vaccine. An interpretation is:

> "Those getting the vaccine will not only spread the virus more but they will also develop weakened immune systems to the other viruses that circulate therefore, they will become sick quicker because we know natural immunity is the best immunity, for us and for others. When those that get the vaccinations start getting sick with the other viruses, they will spread them out because their immune systems are no longer working. The vaccines will create a zero immunity. Also, since the virus is still circulating, while they are building up antibodies, when they come in contact with the same virus, their immune systems will not be able to tolerate the added exposure, creating them to become very sick, where if they didn't have a vaccine, they may have mild symptoms, but at least their natural immunity will be able to fight it off. Also, the people that are getting vaccinated, will be spreading the virus like wildfire, so they are much more dangerous to those that do not have immunity yet."

Moreover, the vaccine will damage the non-specific antibodies our own body makes such that they will not be able to go after the variants. This could lead to a massive

increase in illness and deaths in the next few months as a result. In other words, the CV-19 vaccine program if it continues could mutate into a genocidal killing device.

The allegation is that mass vaccination in a pandemic exerts selection pressure on the virus, forcing it to mutate in potentially more deadly ways. This is especially dangerous for the vaccinated, as their immune system has now been trained to fight predominately the original form of covid-19, leaving them profoundly vulnerable to mutations. But it is also dangerous to non-vaccinated as well, for individuals who may have only had previously mild or asymptomatic encounters with the virus will also now be vulnerable to the new, vaccine-caused mutations. Boosters tailored to the new strain would not work either, because the virus mutates much faster than vaccination can keep up with.

If the spike proteins are evolving as fast as is reported, and there are now variants with double or triple spike protein mutations, then persons who have been given the experimental gene therapies are generating both the spike proteins that the vaccines program their bodies to manufacture, as well as the mutant spike protein viruses. Their bodies would be fighting both the NCoV-19 infection and working to create what are useless if not detrimental proteins. Their bodies are being hijacked twice by spike protein and virus replication commands. The effectiveness of these gene therapies may be likely highly overstated and dangers dramatically underreported.

The ineffectiveness of the gene therapies may have to do with how the original immune system responds to the Corona spike proteins. It sort of sets it up to always respond in a limited way after the injection to only the original spike protein, and there is nothing that anyone can do about it. In the best case, you catch Covid-19 and recover. Your immune system will always give the best response.

If Covid-19 has many spikes, let us say 26 different spikes 1 through 26, (yes there are different spikes on a corona virus), and the injection looked at spike 10 because that is what they guessed was the best to choose. Your body's initial immune response was only to the 10 spike. On top of that, the injection would have suppressed your natural immune response for any other numbered spikes. So, every time you come in contact with Covid-19, which will be forever, your immune response will first produce only antibodies against the 10 spike and none others. As a result: you are going to need 25 more injections to help you fight off Covid-19, forever, but you may be dead by the 5th one.

On the contrary, if you caught Covid-19 the old fashioned way, your immune response looks at all the spikes (letters) and generated antibodies to counter them, and will always go back to that original response.

An effective SARS vaccine was never released, despite a much longer time available to develop one. In an mRNA approach animal testing on ferrets and cats, they did acquire initial immunity, but are reported that all died after they were later exposed to the wild version of the virus.

> "Maybe, in full sarcasm, just cutting a small piece of yellow onion and inhaling the fumes through the mouth and out through the nose, several times, or in fact eating onions, is claimed to cause the sulfides in yellow onions to prevent the virus from spreading by elevating the blood/tissue pH level in the nose and throat mucosa."

On February 20, 1905, the Supreme Court, by a 7-2 majority, said in *Jacobson v. Massachusetts* that the city of Cambridge, Massachusetts could fine residents who refused to receive smallpox injections. In 1901, a smallpox epidemic swept through the Northeast and Cambridge, and Massachusetts reacted by requiring all adults receive smallpox inoculations subject to a $5 fine. In 1902, Pastor Henning Jacobson, suggesting that he and his son both were injured by previous vaccines, refused to be vaccinated and to pay the fine. In state court, Jacobson argued the vaccine law violated the Massachusetts and federal constitutions. The state courts, including the Massachusetts Supreme Judicial Court, rejected his claims. Before the Supreme Court, Jacobson argued that, "compulsion to introduce disease into a healthy system is a violation of liberty."

On February 20, 1905, the Supreme Court rejected Jacobson's arguments. Justice John Marshall Harlan wrote about the police power of states to regulate for the protection of public health: "The good and welfare of the Commonwealth, of which the legislature is primarily the judge, is the basis on which the police power rests in Massachusetts," Harlan said "upon the principle of self-defense, of paramount necessity, a community has the right to protect itself against an epidemic of disease which threatens the safety of its members."

Figure 7. Supreme court imposed a $5 fine and may mandate obligatory vaccinations against smallpox for the common good consideration, 1901-1905. Perfectly healthy people may be forced to receive a genetic treatment in order to protect other hypothetical people, despite possible vaccine injuries, much like mandatory 72 vaccinations for admitted young children to schools.

5 WARNINGS AND PRECAUTIONS

5.1 Management of Acute Allergic Reactions

Epinephrine hydrochloride solution (1:1,000) and other appropriate agents and equipment must be available for immediate use in case an anaphylactic or acute hypersensitivity reaction occurs.

5.2 Adverse Reactions Following Prior Pertussis Vaccination

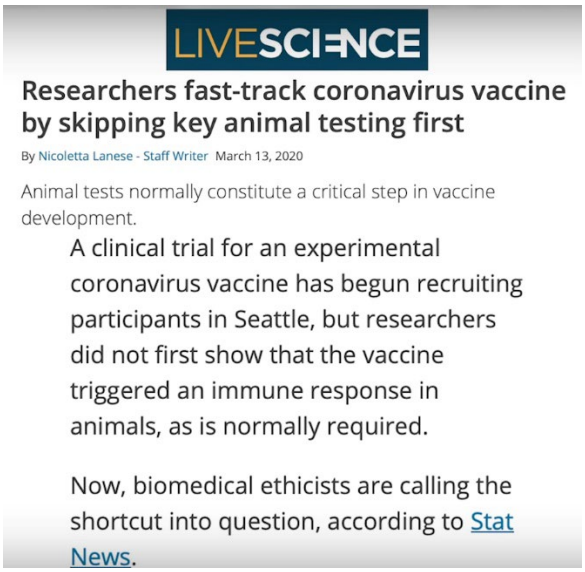
If any of the following events occur within the specified period after administration of a pertussis vaccine, the decision to administer Pentacel should be based on careful consideration of potential benefits and possible risks.

- Temperature of ≥40.5°C (≥105°F) within 48 hours, not attributable to another identifiable cause.
- Collapse or shock-like state (hypotonic-hyporesponsive episode (HHE)) within 48 hours.
- Persistent, inconsolable crying lasting ≥3 hours within 48 hours.
- Seizures with or without fever within 3 days.

5.3 Guillain-Barré Syndrome and Brachial Neuritis

A review by the Institute of Medicine (IOM) found evidence for a causal relation between tetanus toxoid and both brachial neuritis and Guillain-Barré syndrome. (3) If Guillain-Barré syndrome occurred within 6 weeks of receipt of a prior vaccine containing tetanus toxoid, the risk for Guillain-Barré syndrome may be increased following Pentacel.

Figure 8. Potential Risks and benefits of vaccine against Pertussis (Pentacel) Vaccine. reactions monitored over a 48 hours period. Source: Fact Sheet of vaccine.



LIVESCIENCE

Researchers fast-track coronavirus vaccine by skipping key animal testing first

By Nicoletta Lanese - Staff Writer March 13, 2020

Animal tests normally constitute a critical step in vaccine development.

A clinical trial for an experimental coronavirus vaccine has begun recruiting participants in Seattle, but researchers did not first show that the vaccine triggered an immune response in animals, as is normally required.

Now, biomedical ethicists are calling the shortcut into question, according to Stat News.

Although not independently verified by FDA, the post hoc analysis appears to indicate that the incidence of SARS-CoV-2 during the analysis period among 18,727 study participants originally randomized to BNT162b2 (mean of 9.8 months post-Dose 2 at the beginning of the analysis period) was 70.3 cases per 1,000 person-years, compared with an incidence of 51.6 cases per 1,000 person-years among 17,748 study participants originally randomized to placebo and crossed over to BNT162b2 (mean of 4.7 months post-Dose 2 at the beginning of the analysis period). An additional analysis appears to indicate that incidence of COVID-19 generally increased in each group of study participants with increasing time post-Dose 2 at the start of the analysis period. Only 3 severe COVID-19 cases were reported during the analysis period, all of which occurred among study participants originally randomized to BNT162b2.

Figure 9. Conventional animal testing bypassed in Covid-19 vaccines in favor of emergency-basis human testing. Ineffectiveness of second dose suggesting Antibody-Dependent Enhancement ADE reactions. If two doses do not work, this questions the need for a third dose.

There is an article about how researchers have learned how measles causes something called "immune amnesia", which wipes out the body's previous immunity to everything else, except measles. There is some speculation about whether this is how HIV acts as well: https://www.bbc.com/future/article/20211112-the-people-with-immune-amnesia

AFTER EFFECTS OF VACCINES

When it comes to the Pfizer Covid-19 vaccine, about 18 percent of people experience headaches after the first dose, while 43 percent have headaches after the second dose, according to the Centers for Disease Control. For comparison, about 20 percent of

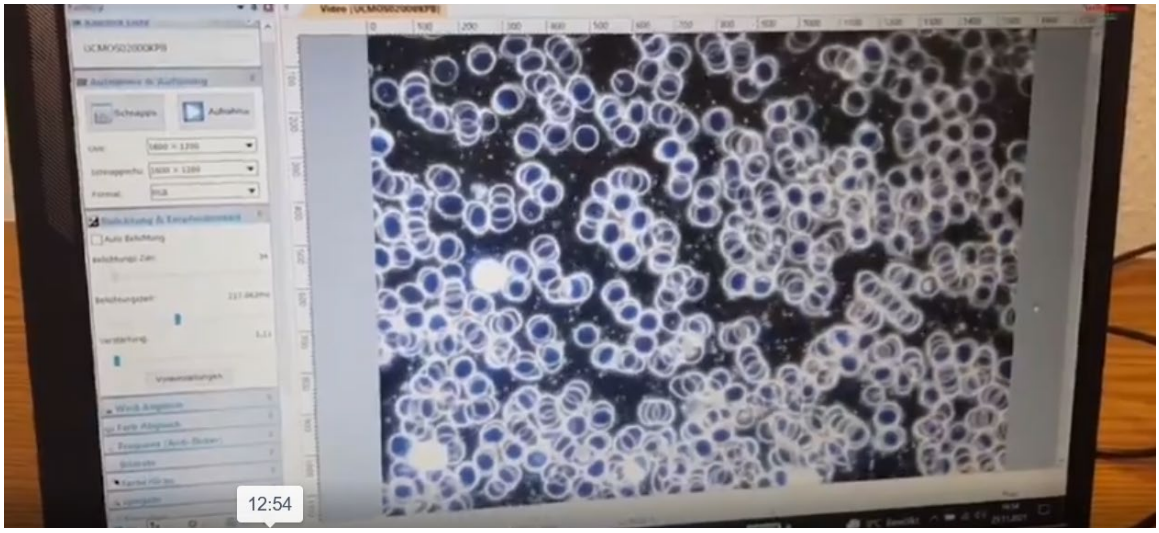
people who receive the Moderna vaccine also develop headaches, and about 39 percent of those who get the Johnson & Johnson vaccine developed headaches (via the FDA).

According to studies, after the first Pfizer vaccine, around 47 percent of people experienced fatigue, which jumped to 59 percent after the second shot. For those who had the first Moderna shot, 39 percent reported fatigue, which jumped to 68 percent after the second. For those who took the single-dose Johnson & Johnson vaccine, about 38 percent said they felt fatigued.

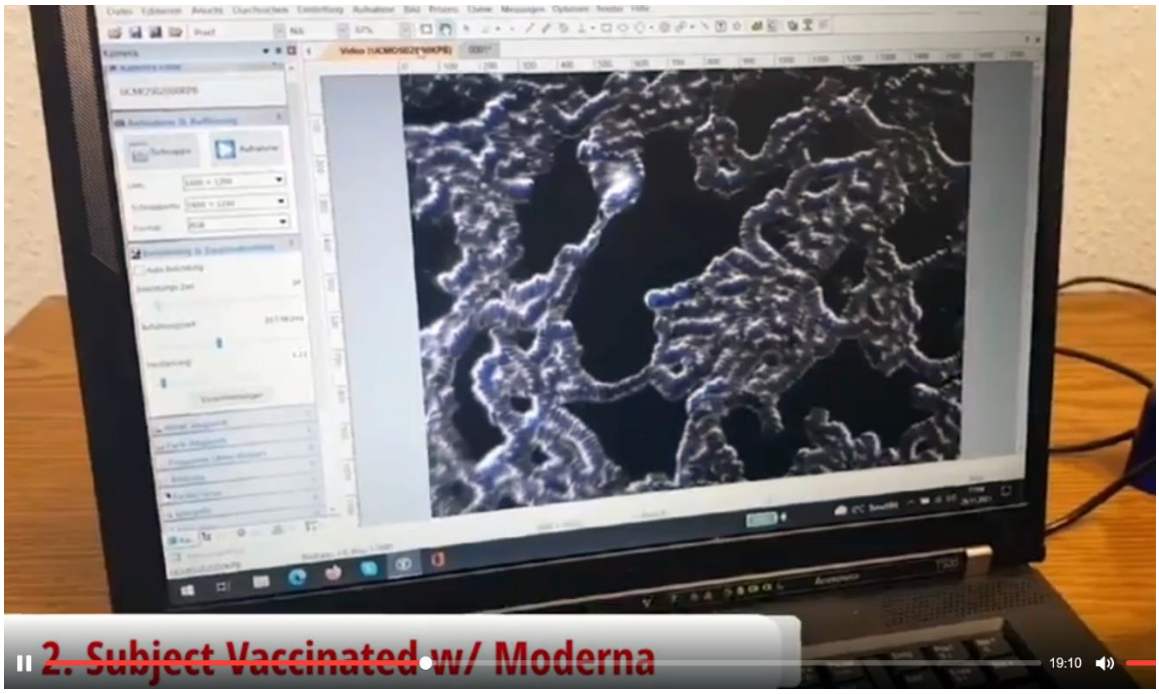
Almost 6 percent of people who got the first shot and 31 percent of those who received the second shot of Pfizer reported body chills. About 9 percent of people who received the first Moderna vaccine experienced chills, while 48 percent of people had chills after the second dose. A small percentage of Johnson & Johnson vaccine recipients also reported the side effect.

LONG-HAUL COVID-19 SYNDROME

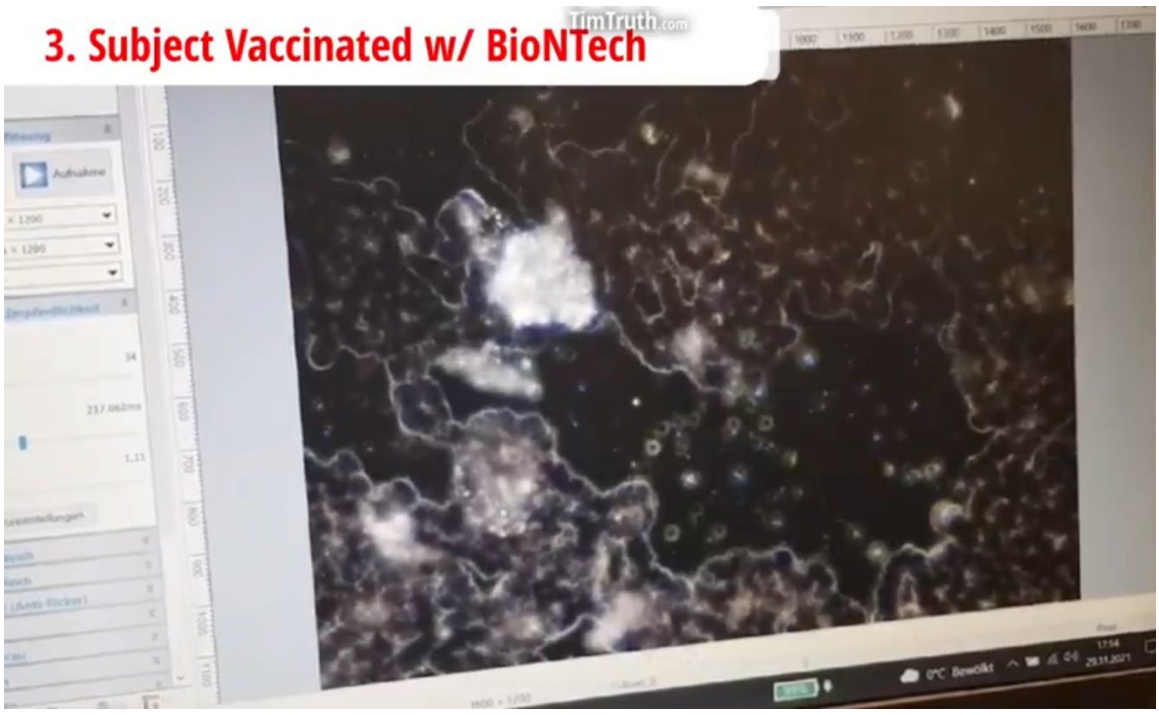
Across the USA, tens of thousands of people who were infected with SARS-CoV-2, the virus that causes COVID-19, have struggled with a buffet of debilitating symptoms that made it impossible for them to work or live normal lives. Many of those who were eligible sought disability as baffled scientists tried to determine the cause of the "long hauler" syndrome, as it has come to be known.



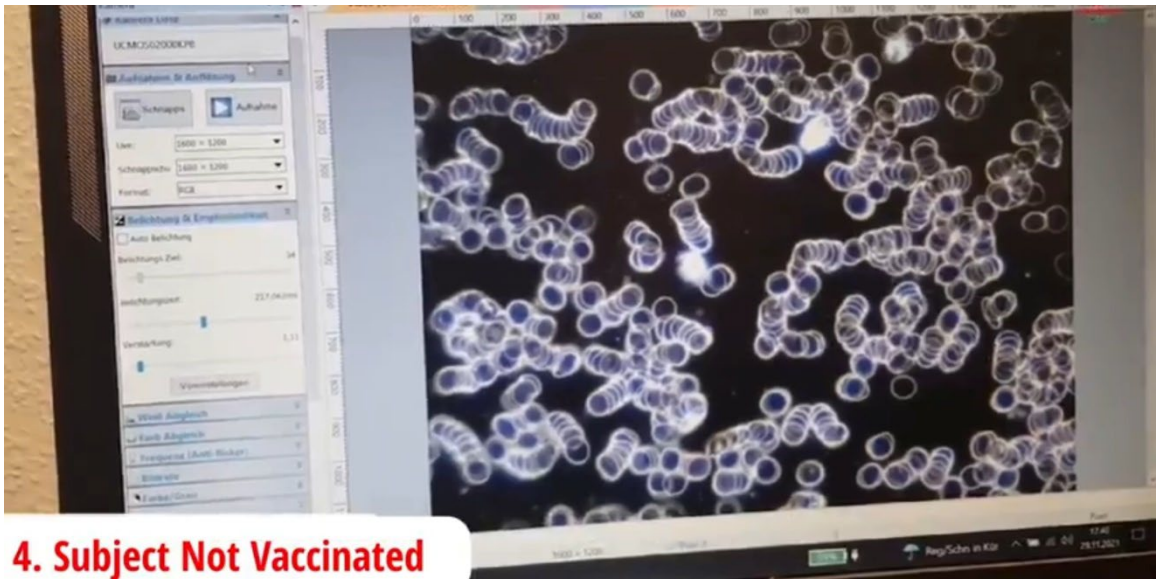
Subject 1: Red Blood platelets. Unvaccinated individual. November 21, 2021. Dark field microscope.



Subject 2: Red Blood platelets forming lumps and clusters, Moderna vaccinated individual. November 21, 2021.



Subject 3: Red Blood platelets forming lumps and clusters as well crystalline structures, BioNTech vaccinated individual. November 21, 2021.



Subject 4: Red Blood platelets. Unvaccinated individual. November 21, 2021. Lemon shaped platelets suggest a liver problem. Possible lack of Vitamin B12. Unhealthy unvaccinated looks better than vaccinated blood.

A suspicion is that long haul covid-19 is Beriberi or thiamine-B1 deficiency. According to Wikipedia:

> "Beriberi is usually caused by poor diet or alcoholism. Symptoms include loss of appetite, weakness, pain in the limbs, shortness of breath, and swollen feet or legs. Treatments include B-1 supplements and eating more B-1-rich foods, such as whole-grain cereals, beans, and beef."

Media outlets like the Washington Post and New York Times have chronicled the experiences of individuals struggling with "long hauler" syndrome months after they first contracted COVID-19. Some patients noted that, while they more or less felt fine, their sense of smell and taste had yet to return. Others complained that a persistent "brain fog" had settled over them. With doctors offering few answers, many sufferers turned to online communities to pool their experiences.

The latest research published in the journal Nature shows that "long haulers" are at much higher risk of dying from their protracted symptoms. The data showed survivors had a 59% increased risk of dying within six months after contracting the SARS-CoV-2 virus, researchers reported in the journal Nature. This excess mortality translates into about 8 extra deaths per 1,000 patients. That is worsening the pandemic's hidden toll amid growing recognition that many patients require readmission, and some die, weeks after the viral infection abates.

"When we are looking at the acute phase, we're only pretty much looking at the tip of the iceberg," said Ziyad Al-Aly, chief of the research and development service at the St. Louis VA Medical Center in Missouri, who led the study, and spoke to Bloomberg in an interview. "We're starting to see a little bit beneath that iceberg, and it's really alarming." Al-Aly and his colleagues documented the cascade of debilitating symptoms that plague

long haulers even months after their diagnosis: from blood clots, stroke, diabetes and breathing difficulties to heart, liver and kidney damage, depression, anxiety and memory loss.

Globally, more than 143 million people have tested positive for COVID-19, and more than 3 million have died from the disease. As for how many become long haulers, some other studies have put the number at roughly 10%, according to Bloomberg. But nobody really knows, and those who pass away months later from the condition typically are not counted among COVID-19 deaths.

Adding to the host of risk factors, long-haulers required increased use of various medications, including antidepressants and opioids. "We worry about potential spikes in suicide or potential spikes in overdose of opioids," Al-Aly told Bloomberg in an interview.

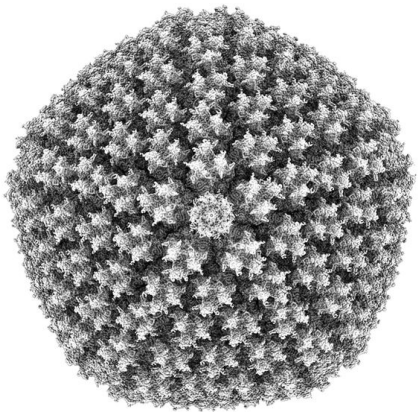
Look at the numbers from a broader perspective, the researchers found that patients with COVID-19 who survived hospitalization had a 51% higher risk of dying compared with 13,997 influenza patients who also had been hospitalized. Al-Aly, who is also an assistant professor of medicine at the Washington University School of Medicine, said he hoped the research would provide a roadmap to inform health-system planning and care strategies to mitigate chronic ill health among Covid-19 survivors, especially in the U.S. "Let's not act surprised two years down the road, when people start committing suicide," he said. "We did not do very well preparing and dealing with Covid. Let's not make that mistake a second time."

BLOOD CLOTS VACCINE-INDUCED IMMUNE THROMBOTIC THROMBOCYTOPENIA RISK

The UK's AstraZeneca vaccine was stopped/investigated in 24 countries worldwide as possibly causing blood clots.

The author had his d-dimer blood test, which is an indicator of blood clotting, double in its magnitude level. A Deep Vein Thrombosis, DVT ultra-sonic test was ordered to be performed on him.

ASTRA ZENECA ADENOVIRUS BLOOD CLOTTING RISK



Adenovirus, used in Astra-Zeneca Covid-19 vaccine is 100 nm across.

Scientists believe they have found "the trigger" that leads to extremely rare blood clots after the Oxford-AstraZeneca Covid vaccine. The team - in Cardiff and the USA - have shown in exquisite detail how a protein in the blood is attracted to a key component of the vaccine. They think this kicks off a chain reaction, involving the immune system, that can culminate in dangerous clots. Concerns about rare blood clots shaped how the vaccine has been used around the world including an alternative being offered to the under-40s in the UK.

There were two initial clues for the researchers investigating the rare blood clots:

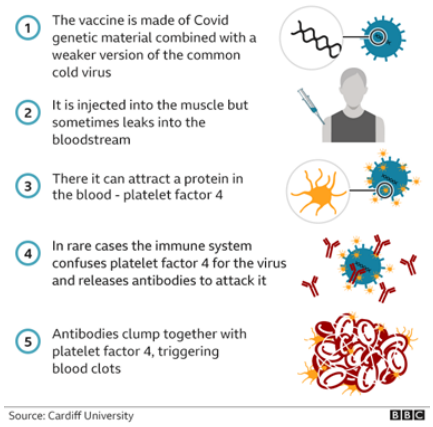
1. The greater risk of clots was seen only with some of the vaccine technologies.
2. People with clots had unusual antibodies that were attacking a protein in their blood called platelet factor four.

The vaccines used in the UK all try to deliver a snippet of the Covid-virus's genetic code into the body to train the immune system. Some package that code up inside spheres of fat, while the AstraZeneca one used an adenovirus (specifically a common cold virus from chimpanzees) as its microscopic postman.

The researchers thought the adenovirus might be linked to the rare clots occurring in some people. So they used a technique called cryo-electron microscopy to take images of the adenovirus in molecular-level detail. Their study, published in the journal Science Advances, reveals the outer surface of the adenovirus attracts the platelet factor four protein to it like a magnet. The adenovirus has an extremely negative surface, and platelet factor four is extremely positive and the two things fit together quite well.

The researchers think the next stage is "misplaced immunity", but this needs to be confirmed in further research. It is thought the body starts to attack platelet factor four after confusing it for part of the foreign adenovirus to which it is stuck. So antibodies are released into the blood, which clump together with platelet factor four and trigger the formation of dangerous blood clots. These clots, known as vaccine-induced immune thrombotic thrombocytopenia, have been linked to 73 deaths out of nearly 50 million doses of AstraZeneca given in the UK. AstraZeneca said the vaccine is thought to have saved more than a million lives around the world and prevented 50 million cases of Covid.

Many questions still remain unanswered, including whether some people may be more susceptible than others and why the thrombosis (clotting) is most commonly in the veins of the brain and liver, but this may come with time and further research.



Role of clotting factor four in Astra Zeneca vaccine.

There are several blood cancers that either lower or raise platelet counts and cause blood clots and with most of them, you do not even know you have a problem until something like a blood clot occurs. With blood cancers, your platelets can either rise or fall, depending on the cancer, and in either case, you can develop blood clots. And yes, immune responses can be triggers which bring the cancers to light.

The problem is, there are several blood cancers that all look very similar and it can take months or years of constant scans and tests to figure out which one a person has. It takes a year before there are enough changes in the bone marrow that the hematologist could make a diagnosis. The clots may occur due to an immune response.

Professor Pål Andre Holme is very likely correct. It could be that there is a cross reaction from this particular vaccine producing either Platelet Factor 4 auto-antibodies or a similarly functioning anti-platelet antibody. The attachment of the antibody to the platelet then activates the platelet to release pro-coagulant factors leading to both venous and arterial blood clots. As that happens, platelets either get consumed in new clots and/or are swept out of circulation by the spleen.

So you get both a cascade of emboli and microemboli as well as a significant drop in total platelets that then paradoxically lead to hemorrhagic events. You clot and you bleed.

Solution: Reformulate the vaccine. Either the SARS-CoV-2 components or the carrier/ancillary components or a combination of both are causing an unexpected and unfortunate cross reactivity. The epitopes of this Covid-19 virus are complex and numerous as you would expect from any virus so you never know with certainty whether or not your vaccine formulation is going to cause an auto-immune type response.

If they had thalassemia it would have been known and they would have been under treatment.

Association of Sociodemographic Factors and Blood Group Type With Risk of COVID-19 in a US Population

Jeffrey L. Anderson, MD[1,2]; Heidi T. May, PhD, MSPH[1]; Stacey Knight, PhD, MStat[1,2]; et al

» Author Affiliations | Article Information

JAMA Netw Open. 2021;4(4):e217429. doi:10.1001/jamanetworkopen.2021.7429

COVID-19 Resource Center

Introduction

The observed variability in susceptibility to SARS-CoV-2 and severity of the ensuing COVID-19 have raised intense interest in their environmental and genetic risk factors. An early report from China[1] suggested that blood group A was associated with increased susceptibility and blood group O was associated with reduced susceptibility to SARS-CoV-2 infection. These reports motivated widespread interest in examining ABO blood groups as potential COVID-19 risk factors. Subsequent studies from Italy and Spain[2] reported that blood group A was associated with an increased risk of severe COVID-19 and blood group O was associated with a reduced risk. In contrast, a large Danish study[3] implicated disease susceptibility but not severity. However, observations from Boston, Massachussets,[4] and New York, New York,[5] did not confirm any specific associations between ABO blood group and disease. The controversy raised by these contrasting reports led to this case-control study.

Characteristic	Individuals, No. (%)		*P* value
Tested for SARS-CoV-2			
	Negative results	Positive results	
No.	96 328	11 468	
Age, mean (SD), y	45.1 (17.9)	44.6 (16.8)	.003
Sex			
Women	74 439 (77.3)	8436 (73.6)	<.001
Men	21 889 (22.7)	3032 (26.4)	
White race[a]	89 718 (93.1)	9876 (86.1)	<.001
Blood type[b]			
A	38 872 (40.4)	4545 (39.6)	.24
B	8912 (9.3)	1037 (9.0)	
AB	3145 (3.3)	365 (3.2)	
O	45 399 (47.1)	5521 (48.1)	

Effect of socio demographics and blood types on Covid-19 infection.

TAMIFLU (OSELTAMIVIR) AND RELENZA (ZANAMIVIR) RISKS

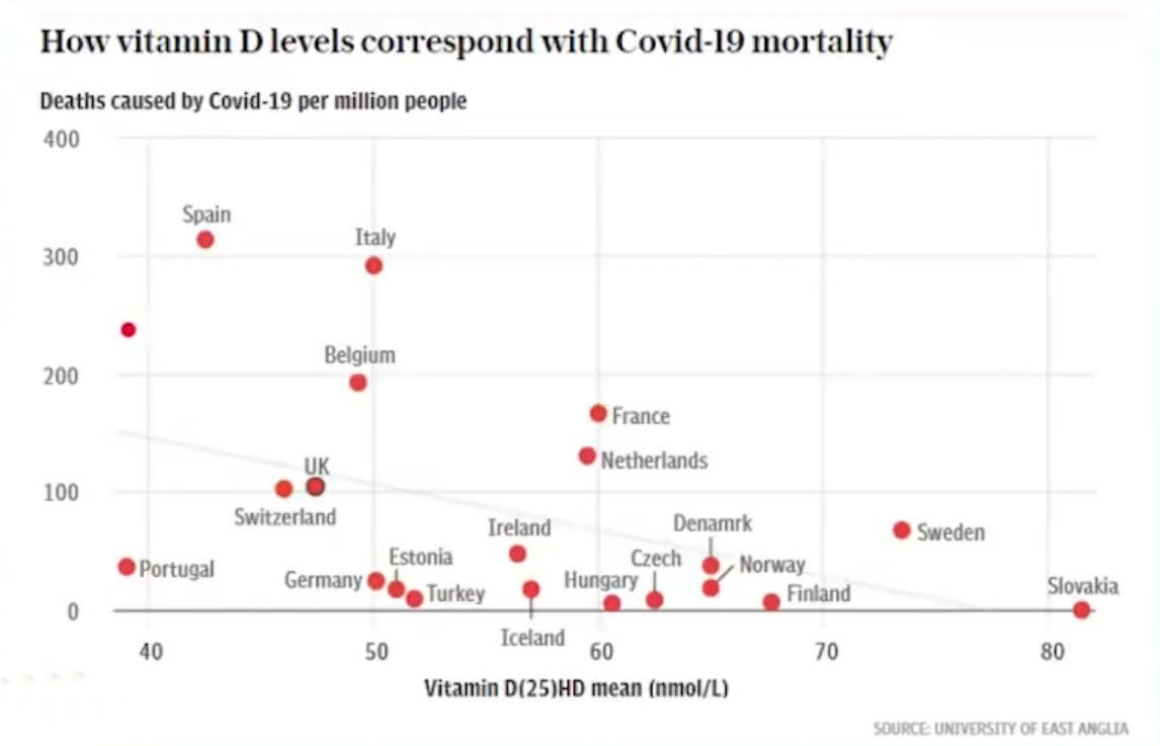
Tamiflu shortened the duration of flu symptoms by less than a day, specifically, by just 16.8 hours, and did not affect the number of hospitalizations. In exchange for this modest benefit, Tamiflu caused nausea and vomiting and increased the risk of headaches and renal and psychiatric syndromes. The proposed mechanism of action suggests the drugs work via a multisystem and central action that does not fit with the clinical evidence. Any beneficial effects of the drug may occur due to lowering levels of pro-inflammatory cytokines or via depressing the central nervous system, not by really inhibiting the replication of the influenza virus.

Tamiflu and Relenza are part of a group of anti-influenza drugs called neuraminidase inhibitors, which work by blocking a viral enzyme that helps the influenza virus to invade cells in your respiratory tract.

The problem is that your nervous system also contains neuraminidase enzymes essential for proper brain functioning, and when blocked with these perilous drugs, severe neurotoxicity may ensue, especially in the infants and children whose blood-brain barrier has not yet developed sufficiently. Serious side effects include convulsions, delirium or delusions and suicidal behavior.

While drug company Roche manufactured Tamiflu, it was developed by Gilead Sciences decades ago, and they gave Roche the exclusive rights to market and sell the drug in 1996; an agreement they attempted to terminate in 2005.

Vitamin D levels is one of the absolute best respiratory illness prevention and optimal health strategies available. Influenza has also been treated with high-dose vitamin C, and taking zinc lozenges at the first sign of respiratory illness can also be helpful.



ROLE OF RETROVIRUSES, DORMANT XMRV (XENOTROPIC MURINE LEUKEMIA VIRUS-RELATED VIRUS) INFECTIONS RISK

Judy Mikovits is a cellular and molecular biologist researcher and was the founding research director of the Whittemore Peterson Institute that researches and treats chronic fatigue syndrome (CFS) in Reno, Nevada. Mikovits doesn't Believe SARS-CoV-2 Is the Cause of COVID-19. She does not believe SARS-CoV-2 is the cause of COVID-19 but merely serves to activate or wake up a dormant XMRV infection. To support her assertion, she states that COVID-19 patients have the same cytokine signature as the gammaretrovirus XMRV, which she published many years ago. XMRV stands for "xenotropic murine leukemia virus-related virus." Xenotrophic refers to viruses that only replicate in cells other than those of the host species. So, XMRVs are viruses that infect human cells yet are not human viruses.

The XMRV retrovirus is really the virus that has the same cytokine storm signature as COVID-19, not coronaviruses, which are far more benign. Additionally, there may be other infections that also are contributing to the infection, such as Borelia and Babesia or parasites, which may be why some of the antiparasitic drugs like Ivermectin and hydroxychloroquine are working. Mikovits research showed that many of our vaccines are contaminated with them. Vaccine viruses were replicated and grown in animal cell cultures that were already contaminated with retroviruses. In other words, the root of the problem stems from the use of contaminated cell culture lines.

Vaccine manufacturing frequently involves the use of animal tissues and many vaccines are grown animal culture cell lines. As noted in a 2010 paper, "Of Mice and Men: On the Origin of XMRV," published in Frontiers in Microbiology:

> "The novel human retrovirus xenotropic murine leukemia virus-related virus (XMRV) is arguably the most controversial virus of this moment. After its original discovery in prostate cancer tissue from North American patients, it was subsequently detected in individuals with chronic fatigue syndrome from the same continent …
>
> The detection of integrated XMRV proviruses in prostate cancer tissue proves it to be a genuine virus that replicates in human cells, leaving the question: how did XMRV enter the human population?
>
> We will discuss two possible routes: either via direct virus transmission from mouse to human … or via the use of mouse-related products by humans, including vaccines. We hypothesize that mouse cells or human cell lines used for vaccine production could have been contaminated with a replicating variant of the XMRV precursors encoded by the mouse genome."

Mikovits explains that: "It became clear in 2011 that these [gammaretro]viruses had adapted to become aerosolized." This is what allows the gamma retroviruses to spread in laboratories from one cell line to another.

This could be related to research catalyzed by Charles Lieber, the former head of Harvard's chemistry department, who is a nanoscience expert and was arrested by federal authorities (FBI) in 2020 for working with the Wuhan Virology Institute.

Lab workers may also be inadvertently spreading them as they are using cell lines contaminated with retroviruses in vaccine production that could result in the spread of these retroviruses via the finished vaccine. Mikovits suspects COVID-19 may in fact be a type of vaccine-derived or vaccine-induced retroviral infection: "I don't believe [COVID-19] is infection from without," she says. "I believe the spread across 210 countries is from injection, and there's enough evidence to support that."

Another of her theories is that SARS-CoV-2 is unlikely to have had a zoonotic origin but is likely synthetically produced. She believes it originated in and escaped or leaked from a biosafety laboratory. Mikovits believes both scenarios might be at play, where a lab-made virus, SARS-CoV-2, is causing serious infection and/or death only in those who have underlying retroviruses in their bodies.

Mikovits suspects that people who do not have retroviral infections, SARS-CoV-2 causes no or only mild symptoms. Another possibility is that the SARS-CoV-2 virus is the result of growing coronaviruses in retrovirus-contaminated cell lines, producing a gammaretrovirus-carrying virus. According to Mikovits, her 2009 through 2011 work suggested 25 million to 30 million Americans were carriers of XMRVs and other gammaretroviruses: "There is a family of gammaretroviruses, most likely [in] contaminated blood supply and vaccines that are still to this day, nearly 10 years later, being injected. We do not need an infectious virus if you inject the blueprint, if you inject the provirus. And … there are a lot of data to support COVID-19 is not SARS-CoV-2 alone, that it is SARS-CoV-2 and XMRVs (human gamma retroviruses) and HIV."

IVERMECTIN ANTI-FUNGAL, ANTI-PARASITIC, PAXLOVID, RESVERATROL

JAPAN EXPERIENCE

Japanese pharmaceutical company, Kowa Co, reported that the drug ivermectin has an "antiviral effect" against Omicron and other Covid-19 variants.

The finding was made with Tokyo's Kitasato University on a joint non-clinical research project, which has been testing the drug as a potential treatment for the disease. Kowa says that ivermectin showed the "same antiviral effect" on all "mutant strains," including Alpha, Delta and Omicron. The company also noted that ivermectin suppresses invasion of the virus and inhibits its replication. "[Ivermectin] is expected to be applied as a therapeutic drug (tablet) for all new coronavirus infectious diseases," reads the report.

Reuters changed their original headline from "effective" against Omicron to having an "antiviral effect," and corrected a statement that the finding occurred during "Phase III clinical trials."

According to ivmmeta.com, Ivermectin showed an average 64% improvement as an early treatment, a 39% improvement as a late treatment and an 83% improvement as a prophylaxis, across 77 studies.

	Studies	Prophylaxis	Early treatment	Late treatment	Patients	Authors
All studies	77	**83%** [74-89%]	**64%** [54-72%]	**39%** [23-52%]	85,695	728
Peer-reviewed	56	**83%** [73-90%]	**67%** [53-76%]	**41%** [17-58%]	53,276	568
After exclusions	52	**82%** [68-89%]	**71%** [63-77%]	**53%** [29-69%]	72,789	555
Randomized Controlled Trials	32	**84%** [25-96%]	**62%** [45-74%]	**23%** [-1-41%]	7,032	361
RCTs after exclusions	25	**84%** [25-96%]	**69%** [56-77%]	**26%** [-2-46%]	4,423	299

Table 2. *Results by treatment stage for all studies and with different exclusions.*

Ivermectin has been used by the World Health Organization for over 30 years to treat parasitic infections. Volunteers have distributed the drug in African countries where it has been found to be extremely effective, said the Kowa report. However, the treatment has been mired in controversy during recent times as the USA Food and Drug Administration (FDA) has not approved the use of ivermectin as a treatment for COVID-19, even though the drug is used in humans to treat a variety of conditions.

The FDA has refused to respond to a Freedom of Information Act request (FOIA) asking for details about any reports of side effects related to the use of ivermectin in treating COVID-19 while publicly denouncing its usage.

The federal government pays hospitals across the country to treat COVID-19 patients, but the payment is tied to approved methods, and ivermectin is not part of the protocol. However, families desperate to save their loved ones are resorting to secretly sneaking the drug into hospitals as a last-ditch effort that often ends up helping the infected person recover.

All or part of 22 countries around the globe have approved the use of ivermectin in the treatment of COVID-19, based on multiple studies. Japan has not yet approved ivermectin for the treatment of COVID-19.

A bill has been presented to make New Hampshire the first state in the country to make ivermectin part of the approved COVID-19 treatments and offer it as an over-the-counter medication.

BRAZIL EXPERIENCE

Researchers in Brazil found that regular use of ivermectin as a prophylactic agent was associated with significantly reduced COVID-19 infection, hospitalization, and mortality rates.

The study was conducted in Itajaí, a port city in the state of Santa Catarina, between July and December 2020. Study authors include FLCCC physicians Dr. Flavio Cadegiani and Dr. Pierre Kory. Lead author Dr. Lucy Kerr was approached by the mayor of Itajaí, after the city began to experience a severe outbreak of COVID.

The entire population of Itajaí was invited to participate in the program, which involved a medical visit to compile baseline, personal, demographic, and medical information. In the absence of contraindications, ivermectin was offered as a preventative treatment, to be taken for two consecutive days every 15 days at a dose of 0.2 mg/kg/day.

Of the 223,128 citizens of Itajaí considered for the study, a total of 159,561 subjects elected to participate: over 70% opted to take ivermectin, and 23% chose not to.

Reduced infection and hospitalization rates

The study found a 44% reduction in COVID-19 infection rate in favor of the group that took ivermectin (3.5% versus 8.2%).

In cases where a participating citizen of Itajaí became ill with COVID-19, they were recommended not to use ivermectin or any other medication in early outpatient treatment. Of those who did become infected, two equal-sized, highly matched groups (one that used ivermectin as a prophylaxis and one that did not) were compared. The regular use of preventative ivermectin led to a 68% reduction in COVID-19 mortality (0.8% versus 2.6%), and a 56% reduction in hospitalization rate (1.6% versus 3.3%).

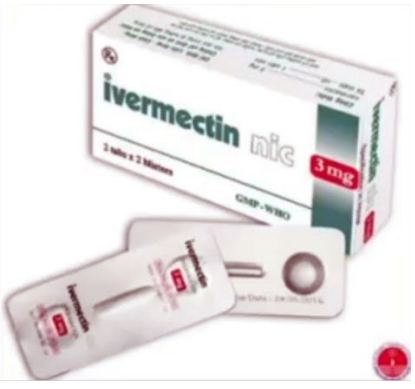
Ivermectin has been shown to inhibit the 3CL protease, but the amount of ivermectin one needs to sufficiently block the enzyme are unattainable with a normal dose and would result in significant toxicity if one took enough ivermectin to achieve this. Ivermectin's inability to sufficiently block the 3CL protease could explain why various studies fail to conclusively prove its clinical benefits, and so ivermectin users should be looking for more powerful and proven 3CL protease inhibitors. As of now, there are only two pills available: Paxlovid, a Pfizer's prescription drug and Tollovid, which is a 3CL protease inhibitor nutraceutical.

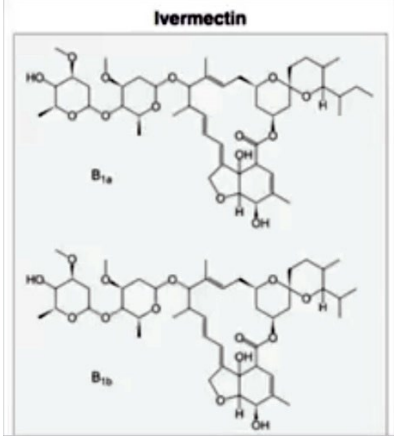
An internationally prescribed medicine for Covid-19 is the anti-fungal drug and the usual default medication for any fungal infection: Ivermectin. Ivermectin is a poison to treat heart worm in dogs and other animals. It was tried to treat viral infections too, including Covid-19. It also is claimed to require zinc to be effective against viral infections, just like hydroxychloroquine.

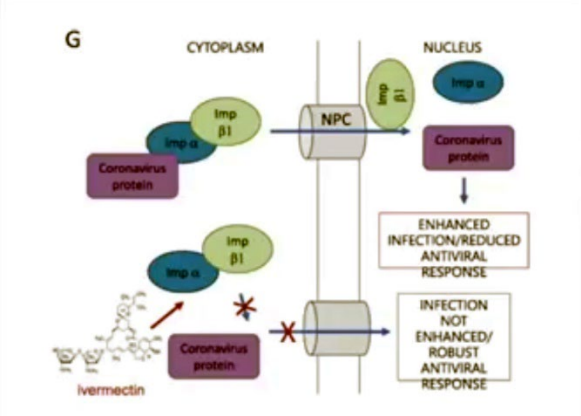
Ivermectin is generally considered a safe drug, though there have been reports of side effects. Calls over suspected Ivermectin poisonings in the USA have occurred, but most of these cases were not serious. Patients had vomiting, diarrhea, hallucinations, confusion, drowsiness, and tremors. Indirect harm can come from giving people a false sense of security, especially if they choose Ivermectin instead of seeking hospital treatment for Covid-19 or getting vaccinated in the first place.

More than a third of 26 major trials of the drug for use on Covid-19 have serious errors or signs of potential fraud. None of the rest show convincing evidence of Ivermectin's effectiveness. Dr. Kyle Sheldrick, one of a group investigating the Ivermectin studies, said they had not found "a single clinical trial" claiming to show that Ivermectin prevented Covid-19 deaths that did not contain "either obvious signs of fabrication or errors so critical they invalidate the study". Major identified problems are listed as:
The same patient data being used multiple times for supposedly different people,
Evidence that selection of patients for test groups was not random,
Numbers unlikely to occur naturally,
Percentages calculated incorrectly,
Local health bodies unaware of the studies.

Ivermectin is in a group of treatments which all work in a similar way. They permitted\enabled a larger than normal quantity of zinc to be permeate the cell wall, with zinc being one of the elements used heavily in immune defense. Resveratrol is commonly cited alongside Ivermectin. Resveratrol is concentrated red grape skin.







Contents lists available at ScienceDirect

Antiviral Research

journal homepage: www.elsevier.com/locate/antiviral

The FDA-approved drug ivermectin inhibits the replication of SARS-CoV-2 *in vitro*

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ABSTRACT

Although several clinical trials are now underway to test possible therapies, the worldwide response to the COVID-19 outbreak has been largely limited to monitoring/containment. We report here that Ivermectin, an FDA-approved anti-parasitic previously shown to have broad spectrum anti-viral activity *in vitro*, is an inhibitor of the causative virus (SARS-CoV-2), with a single addition to Vero-hSLAM cells 2 h post infection with SARS-CoV-2 able to effect ~5000-fold reduction in viral RNA at 48 h. Ivermectin therefore warrants further investigation for possible benefits in humans.

Ivermectin is an anthelmintic, meaning it cures parasitic infections. In the world of ophthalmology, it is used on occasion for rare parasitic or worm infections in the eye.

Ivermectin was FDA approved in 1998 under the brand name Stromectol, produced by pharmaceutical giant Merck, approved for several parasitic infections. The product label described it as having a "unique mode of action," which "leads to an increase in the permeability of the cell membrane to chloride ions." This suggests that ivermectin acts as an ionophore, making cell membranes permeable to ions that enter the cell for therapeutic effect.

Ivermectin is one of several ionophores, others including hydroxychloroquine, quercetin, and resveratrol, the latter two available over the counter at pharmacies. These ionophores simply open a cellular door, allowing zinc to enter the cell, where it then interferes with viral replication, providing potential therapeutic benefit in viral and other infections.

A study published in the American Journal of Therapeutics concluded:

> “Meta-analyses based on 18 randomized controlled treatment trials of ivermectin in Covid-19 have found large, statistically significant reductions in mortality, time to clinical recovery, and time to viral clearance. Furthermore, results from numerous controlled prophylaxis trials report significantly reduced risks of contracting Covid-19 with the regular use of ivermectin. Finally, the many examples of ivermectin distribution campaigns leading to rapid population-wide decreases in morbidity and mortality indicate that an oral agent effective in all phases of Covid-19 has been identified.”

The story of Ivermectin is similar to that of Penicillin. Penicillin has saved almost 200 million lives. In addition, three men shared a Nobel Prize in 1945 for its discovery. The avermectin family of compounds was discovered by Satoshi Ōmura of Kitasato University and William Campbell of Merck. Ivermectin does not just cure early infections with Covid19/20/21, it seems it works on most viruses. There has never been a "cure" for any virus - just palliative care until the body does its thing and recovers or dies.

The 2015 Nobel Prize in Physiology and Medicine was awarded to William C. Campbell and Satoshi Ömura for their discoveries leading to ivermectin. In addition to its extraordinary efficacy against parasitic diseases, ivermectin continues to offer new clinical applications due to its ability to be repurposed to treat new classes of diseases. Beyond its invaluable therapeutic role in onchocerciasis and strongyloidiasis, an increasing body of evidence points to the potential of ivermectin as an antiviral agent.

While Remdesivir which is used to treat hospitalized patients can cause some serious health issues, like decreased liver function leading to organ failure and death.

Ivermectin's discoverers won the 2015 Noble Prize in Medicine, and it has proven to be a life-saving drug in parasitic disease, especially in Africa. Over the past four decades, Ivermectin has saved millions from parasites like strongyloidiasis and onchocerciasis - river blindness.

Taking Ivermectin orally is made more effective by eating it with a meal that contains a higher than usual amount of fat. Since Ivermectin is fat soluble, this both protects the Ivermectin from the stomach acid and increases its uptake. An issue is that Ivermectin has small dosages that most people overshoot and, in many cases, and also mixed with around 14% Praziquantel. a question of OD with injectable 1% solutions that is 10mg/m. A 140lb person who is not being treated for active Covid-2 infection would only require like 1.35mL/week. It would be comparatively easy for people to Overdose, OD on that if they are not paying attention and do not have the appropriate syringes.

Randomized Controlled Trial > Int J Infect Dis. 2021 Feb;103:214-216.
doi: 10.1016/j.ijid.2020.11.191. Epub 2020 Dec 2.

A five-day course of ivermectin for the treatment of COVID-19 may reduce the duration of illness

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Affiliations + expand

PMID: 33278625 PMCID: PMC7709596 DOI: 10.1016/j.ijid.2020.11.191
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Abstract

Ivermectin, a US Food and Drug Administration-approved anti-parasitic agent, was found to inhibit severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) replication in vitro. A randomized, double-blind, placebo-controlled trial was conducted to determine the rapidity of viral clearance and safety of ivermectin among adult SARS-CoV-2 patients. The trial included 72 hospitalized patients in Dhaka, Bangladesh, who were assigned to one of three groups: oral ivermectin alone (12 mg once daily for 5 days), oral ivermectin in combination with doxycycline (12 mg ivermectin single dose and 200 mg doxycycline on day 1, followed by 100 mg every 12 h for the next 4 days), and a placebo control group. Clinical symptoms of fever, cough, and sore throat were comparable among the three groups. Virological clearance was earlier in the 5-day ivermectin treatment arm when compared to the placebo group (9.7 days vs 12.7 days; p = 0.02), but this was not the case for the ivermectin + doxycycline arm (11.5 days; p = 0.27). There were no severe adverse drug events recorded in the study. A 5-day course of ivermectin was found to be safe and effective in treating adult patients with mild COVID-19. Larger trials will be needed to confirm these preliminary findings.

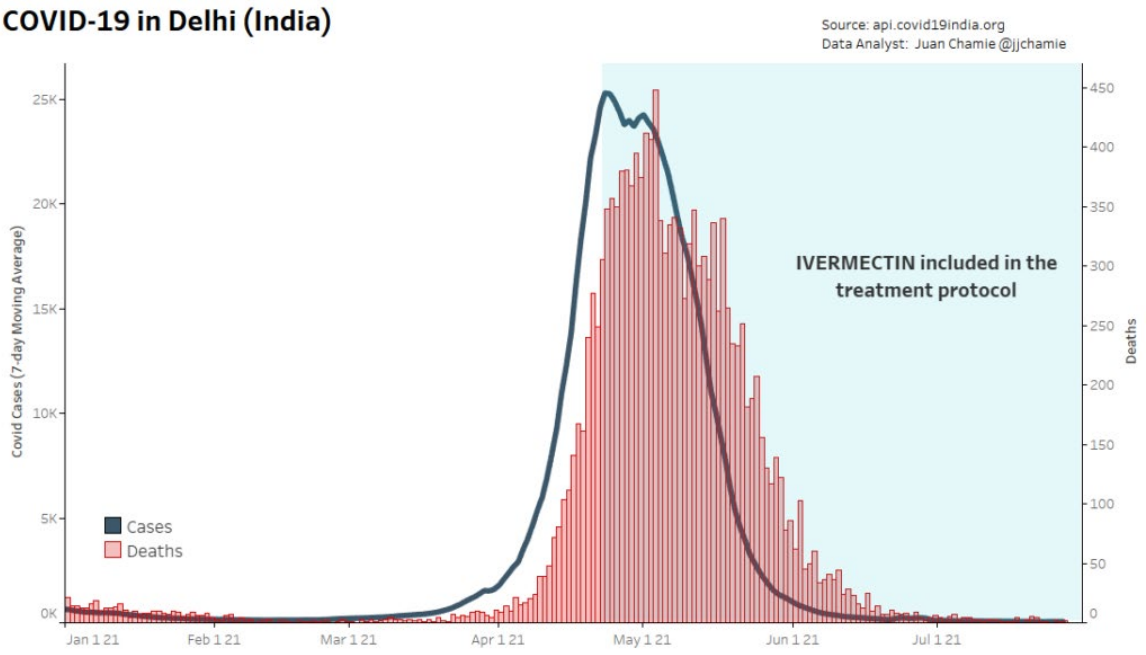
Keywords: Bangladesh; COVID-19; Doxycycline; Ivermectin; SARS-CoV-2.

The normal Covid-19 dosage is 12mg per day for 5 days. The 1.86% paste has 6.03 grams of paste. At 1.86% Ivermectin; you get a total of 112 mg (6030 x 0.0186 = 112mg) in each tube. Therefore, in a standard tube you get 112mg divided by 12 g per day = 9.3 doses per tube. Reports of overdosing sent people to emergency rooms. Since it accumulates in the body, the CDC says: "Depending on [scabies] infection severity, ivermectin should be taken in three doses (approximately days 1, 2, and 8), five doses (approximately days 1, 2, 8, 9, and 15), or seven doses (approximately days 1, 2, 8, 9, 15, 22, and 29)." It takes about 3 days for ivermectin to work its way through the body. If you take it too often it will build up to too high a dose. Merck's data sheet does specifically say "Stromectol should be taken on an empty stomach with water." but if you do you will be absorbing the minimum amount. If you took it after a meal that might be like taking 500 mcg/kg or 2.5 times as much.

One of the major uses for ivermectin is to treat scabies. Nursing home residents are given ivermectin prophylactically for both lice and scabies prevention. Your dog gets it in his heartworm meds, it was also used by the CDC to treat afghani refugees.

INDIA EXPERIENCE

Prophylactic role of ivermectin in SARS-CoV-2 infection among healthcare workers



Review > New Microbes New Infect. 2021 Aug 3;43:100924. doi: 10.1016/j.nmni.2021.100924. eCollection 2021 Sep.

Ivermectin: a multifaceted drug of Nobel prize–honoured distinction with indicated efficacy against a new global scourge, COVID–19

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Affiliations + expand

PMID: 34466270 PMCID: PMC8383101 DOI: 10.1016/j.nmni.2021.100924

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Abstract

In 2015, the Nobel Committee for Physiology or Medicine, in its only award for treatments of infectious diseases since six decades prior, honoured the discovery of ivermectin (IVM), a multifaceted drug deployed against some of the world's most devastating tropical diseases. Since March 2020, when IVM was first used against a new global scourge, COVID-19, more than 20 randomized clinical trials (RCTs) have tracked such inpatient and outpatient treatments. Six of seven meta-analyses of IVM treatment RCTs reporting in 2021 found notable reductions in COVID-19 fatalities, with a mean 31% relative risk of mortality vs. controls. During mass IVM treatments in Peru, excess deaths fell by a mean of 74% over 30 days in its ten states with the most extensive treatments. Reductions in deaths correlated with the extent of IVM distributions in all 25 states with $p < 0.002$. Sharp reductions in morbidity using IVM were also observed in two animal models, of SARS-CoV-2 and a related betacoronavirus. The indicated biological mechanism of IVM, competitive binding with SARS-CoV-2 spike protein, is likely non-epitope specific, possibly yielding full efficacy against emerging viral mutant strains.

Keywords: COVID-19; H. pylori; SARS-CoV-2; ivermectin; spike protein.

Infect Dis Poverty. 2015; 4: 58.
Published online 2015 Dec 28. doi: 10.1186/s40249-015-0091-8
PMCID: PMC4692067
PMID: 26708575

Nobel prize for the artemisinin and ivermectin discoveries: a great boost towards elimination of the global infectious diseases of poverty

Ernest Tambo,[✉] Emad I. M. Khater, Jun-Hu Chen, Robert Bergquist, and Xiao-Nong Zhou[✉]

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Abstract

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The Millennium Development Goals (MDGs) made a marked transformation for neglected and vulnerable communities in the developing countries from the start, but infectious diseases of poverty (IDoPs) continue to inflict a disproportionate global public health burden with associated consequences, thereby contributing to the vicious cycle of poverty and inequity. However, the effectiveness and large-scale coverage of artemisinin combination therapy (ACT) have revolutionized malaria treatment just as the control of lymphatic filariasis (LF) and onchocerciasis have benefitted from harnessing the broad-spectrum effect of avermectin-based derivatives. The paradigm shift in therapeutic approach, effected by these two drugs and their impact on community-based interventions of parasitic diseases plaguing the endemic low- and middle-income countries (LIMCs), led to the Nobel Prize in Physiology or Medicine in 2015. However, the story would not be complete without mentioning praziquantel. The huge contribution of this drug in modernizing the control of schistosomiasis and also some intestinal helminth infections had already shifted the focus from control to potential elimination of this disease. Together, these new drugs have provided humankind with powerful new tools for the alleviation of infectious diseases that humans have lived with since time immemorial. These drugs all have broad-spectrum effects, yet they are very safe and can even be packaged together in various combinations. The strong effect on so many of the great infectious scourges in the developing countries has not only had a remarkable influence on many endemic diseases, but also contributed to improving the cost structure of healthcare. Significant benefits include improved quality of preventive and curative medicine, promotion of community-based interventions, universal health coverage and the fostering of global partnerships. The laudable progress and benefits achieved are indispensable in championing, strengthening and moving forward elimination of the IDoPs. However, there is an urgent need for further innovative, contextual and integrated approaches along with the advent of the Sustainable Development Goals (SDGs), replacing the MDGs in ensuring global health security, well-being and economic prosperity for all.

Keywords: Nobel Prize, Artemisinin, Avermectin, Ivermectin, Praziquantel, Schistosomiasis, Intestinal helminths, Lymphatic filariasis, River blindness, Malaria, Discovery, Poverty

Dr. George Fareed and his associate, Dr. Brian Tyson, have treated some 6,000 patients with nearly 100 percent success using a combination of HCQ, Ivermectin, Fluvoxamine, and various nutraceuticals, including zinc Vitamin D.

Its use in India is noticeable. Cases in Delhi, where Ivermectin was begun on April 20, 2021 dropped from 28,395 to just 2,260 on May 22, 2021. This represents an astounding 92% drop. Likewise, cases in Uttar Pradesh have dropped from 37,944 on April 24 to 5,964 on May 22, 2021 - a decline of 84%.

Delhi and Uttar Pradesh followed the All India Institute of Medical Sciences (AIIMS) guidance published April 20, 2021, which called for dosing of .2 mg per kg of Ivermectin per body weight for three days cycle. This amounts to 15 mg per day for a 150-pound person or 18 mg per day for a 200-pound individual. A PCR testing of the employees at AIIMS showed a 2 percent infection among Ivermectin takers, whereas it was 11.7 percent for non takers. Single dose had no significance. They recommend for health Care Workers, HCWs 2 doses of oral Ivermectin of 300 µgm/kg of body weight given 72 hours apart as chemoprophylaxis. A reduction of the risk of Covid-19 by 83 percent in the following month can be estimated alongside vaccine. Earlier at least 20-25 HCWs were getting infected by the virus daily. After the workers started taking Ivermectin, the number of infections came down to one or two per day.

The other three Indian states that adopted it are all down as well. Goa is down from 4,195 to 1,647, Uttarakhand is down from 9,624 to 2,903, and Karnataka is down from 50,112 to 31,183. Goa adopted a pre-emptive policy of mass Ivermectin prevention for the entire adult population over age 18 at a dose of 12 mg daily for five days. Meanwhile, Tamil Nadu announced on May 14 they were outlawing Ivermectin in favor of the politically correct Remdesivir. Tamil Nadu's cases are up in the same time frame from April 20 to May 22 - 10,986 to 35,873 - more than a tripling.

In the USA, people purchased the Durvet Ivermectin paste on Amazon. Merck is the maker of ivermectin and call it Stromectol used for scabies in animals. Its dose is 200 mcg/kg of body weight. The Usual Adult Dose for Scabies is 0.2 mg/kg orally once, and repeated in 2 weeks. Ivermectin therapy may be combined with a topical scabicide.

Merck's data sheet does specifically say "Stromectol should be taken on an empty stomach with water." If you do, you will be absorbing the minimum amount. If you took it after a meal that might be like taking 500 mcg/kg (2.5 times as much). It should not be taken more than twice a week because it takes about 3 days for ivermectin to work its way through the body. If it is taken it too often it will build up to too high a dose. Symptoms of an overdose are tunnel vision, dizziness.

Review of the Emerging Evidence Supporting the Use of Ivermectin in the Prophylaxis and Treatment of COVID-19, and a brief summary of the studies at that time can be found in the accompanying One-page summary of the scientific review on ivermectin:

Update: The FLCCC Alliance's "Review of the Emerging Evidence Demonstrating the Efficacy of Ivermectin in the Prophylaxis and Treatment of COVID-19" has been peer-reviewed, accepted, and published on May 1, 2021, in the American Journal of Therapeutic: Review of the Emerging Evidence Demonstrating the Efficacy of Ivermectin in the Prophylaxis and Treatment of COVID-19

Conclusions: Meta-analyses based on 18 randomized controlled treatment trials of ivermectin in COVID-19 have found large, statistically significant reductions in mortality,

time to clinical recovery, and time to viral clearance. Furthermore, results from numerous controlled prophylaxis trials report significantly reduced risks of contracting COVID-19 with the regular use of ivermectin. Finally, the many examples of ivermectin distribution campaigns leading to rapid population-wide decreases in morbidity and mortality indicate that an oral agent effective in all phases of COVID-19 has been identified.

Originating solely from a single microorganism isolated at the Kitasato Institute, Tokyo, Japan from Japanese soil—Ivermectin has had an immeasurably beneficial impact in improving the lives and welfare of billions of people throughout the world. It was approved for human use in 1987 under the brand name Mectizan.

No treatment resistance has been noted over the many years of experience with ivermectin along with the absence of severe side effects. Ivermectin has spared many of the loss of their eyesight from a parasitic infection called onchocerciasis. Ivermectin is sold at agriculture supply stores. It is used topically to treat scabies.

Ivermectin appears to be a safe and effective antiviral, beyond the effectiveness of presently approved anti-viral drugs such as ribavirin and interferon. Ivermectin has a history of anti-viral properties against a broad number of viruses (West Nile Virus, Zika virus, HIV, Dengue fever virus, SARS). Why it goes unused as an antiviral agent goes unexplained.

A report in Frontiers in Pharmacology explains how ivermectin and the trace mineral zinc achieve a similar effect via different mechanisms. The zinc ionophore drug chloroquine has recently come into public view as an effective Covid-19 remedy. Now ivermectin joins chloroquine, with both either enhancing or mimicking the effect of zinc. The definition of an Ionophore is: "a substance which is able to transport particular ions, like zinc, across a lipid membrane in a cell".

In the process of investigating Ivermectin, an extract from Panax red ginseng is reported to be as effective as Ivermectin at enhancing ATP, by two-fold in the P2X4 cell receptor. A similar effect has been observed in the P2X7 receptor:

> "Two single residue replacements were observed among the P2XRs. W46 in P2X4R was replaced by Y46 (P2X2R) and F46 (P2X7R), while W50 in P2X4R was replaced by V50 (P2X27R)."

To understand how ivermectin works it is essential to learn about cell energy (ATP, adeno triphosphate) and cell receptors (gateways on the surface of cells through which ATP travels). Cell surface receptors are doorways that are embedded in the plasma membrane of cells. They act in cell signaling by receiving (binding to) extracellular molecules. They are specialized integral membrane proteins that allow communication between the cell and the extracellular space. ATP (adenosine triphosphate) is the main source of energy in cells and must bind to a magnesium ion in order to be biologically active. What is called ATP is often actually magnesium/ATP.

Ivermectin works by opening a channel or gate (receptor) for ATP to move from inside living cells to outside living cells (from intracellular to the extracellular space). Most viruses spread extracellularly, though herpes, paramyxoviruses and poxviruses may spread through intracellular and extracellular routes.

Ivermectin increases ATP (adeno triphosphate), the cellular energy currency, by 4.9-fold in the extracellular space. Zinc plus ivermectin exhibits additive anti-viral effect, a 7.1-fold increase in ATP.

The combination of zinc plus ATP induces a sustained increase in calcium within the watery cytoplasm of living cells. A virus initiates infection by attachment to its specific receptor on the surface of susceptible host cells. The receptor is a major determinant of the route of entry into host cells and resulting severity of illness. For example, the "spike" coronavirus protein is the major protein that binds to invade human cells. For example, P2XR is a cell receptor where ivermectin or zinc or both are bound to, but by different mechanisms.

ATP induces die-off of bacteria via P2X4R receptors on macrophages. Macrophages facilitate clearance of killed cells. It is the lack of cell clearance that exacerbates inflammation. ATP itself is anti-inflammatory. Ivermectin preferentially selects the P2X4R receptor. P2X4 receptors are now considered a target for treatment of sepsis and infection. Ivermectin has been proven to be an activator of P2X4R which in turn increases bacterial killing of bacteria. It does so without increasing inflammatory cytokines. This is critical as lung doctors lament over the lung damage caused by ventilators and the inflammatory storm that is not being addressed by current Covid-19 coronavirus therapy.

A report in Journal of Clinical Investigation Insight suggests that ATP is rapidly released into the extra-cellular space where ATP exerts an immunostimulatory effect. ATP acts by binding to specific cell membrane receptors. These are called P2 cell membrane receptors that create pores and serve as gates to allow calcium and sodium to flood (influx) into cells.

Mice genetically altered without P2X4R receptors have a higher bacterial burden than normal animals. Pharmacological activation of P2X4R with ivermectin improves survival and decreases bacterial burden following sepsis (blood poisoning).

Another prominent extracellular cell receptor is P2X7 that ATP binds to. The P2X7R receptor is abundant on the surface of macrophages to induce killing of bacteria. ATP via P2X7 enhances bacterial cell killing by macrophages, a class of white blood cells that literally engulf and digest bacteria and virally infected cells. P2X7 activation also kills germs without induction of inflammation. Macrophages are far more sensitive to P2X7 than B-cells, T-cells and natural killer cells.

If cell energy (ATP) is beneficial in activating the immune system to halt viral replication and/or eradicate virally-infected cells, then it follows that anything that increases cell energy (ATP) should be protective against infectious diseases.

The American Medical Association, AMA is threatening doctors with losing their medical licenses if they prescribe Ivermectin to treat Covid. CVS has ordered their Pharmacists to deny Ivermectin prescriptions written for Covid. The FDA and NIH refuse to approve Ivermectin for treatment against Covid, even with the peer reviewed studies.

It seems to be about the zinc ionophores, of which there are many, including ivermectin, such as HCQ, Quercetin, and green tea extract. Ivermectin is standard treatment for Covid-19 in Japan. Japan's medical association recommendation to use Ivermectin is hard to dispute. Japan already has the lowest rate of infection and death in the industrialized world. Recommended human dosage is 0.15mg/kg body weight. Ivermectin is a protease inhibitor, and Pfizer is developing a protease inhibitor pill.

The targets of activity of Ivermectin can be divided into the following four groups:

A. Direct action on SARS-CoV-2

Level 1: Action on SARS-CoV-2 cell entry
Level 2: Action on Importin (IMP) superfamily
Level 3: Action as an Ionophore

B. Action on host targets important for viral replication

Level 4: Action as an antiviral
Level 5: Action on viral replication and assembly
Level 6: Action on post-translational processing of viral polyproteins
Level 7: Action on Karyopherin (KPNA/KPNB) receptors

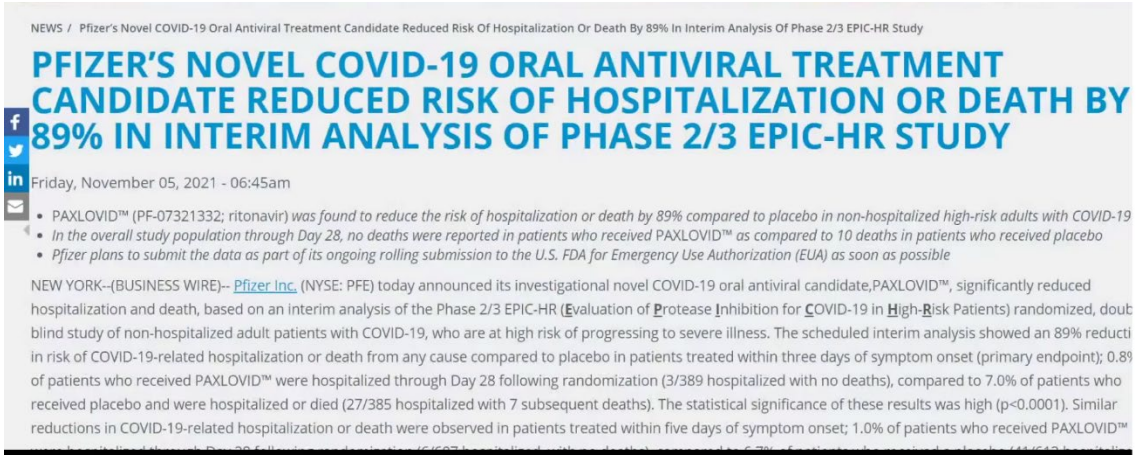
C. Action on host targets important for inflammation

Level 8: Action on Interferon (INF) levels
Level 9: Action on Toll- like-Receptors (TLRs)
Level 10: Action on Nuclear Factor-κB (NF-κB) pathway
Level 11: Action on the JAK-STAT pathway, PAI-1 and COVID-19 sequalae
Level 12: Action on P21 activated Kinase 1 (PAK-1)
Level 13: Action on Interleukin-6 (IL-6) levels
Level 14: Action on allosteric modulation of P2X4 receptor
Level 15: Action on high mobility group box 1 (HMGB1),
Level 16: Action as an immunomodulator on Lung tissue and olfaction
Level 17: Action as an anti-inflammatory

D. Action on other host targets

Level 18: Action on Plasmin and Annexin A2
Level 19: Action on CD147 on the RBC
Level 20: Action on mitochondrial ATP under hypoxia on cardiac function

The direct "antiviral targets" may be useful in the early stages while the anti-inflammatory targets might be addressed in the later stages of the disease



NEWS / Pfizer's Novel COVID-19 Oral Antiviral Treatment Candidate Reduced Risk Of Hospitalization Or Death By 89% In Interim Analysis Of Phase 2/3 EPIC-HR Study

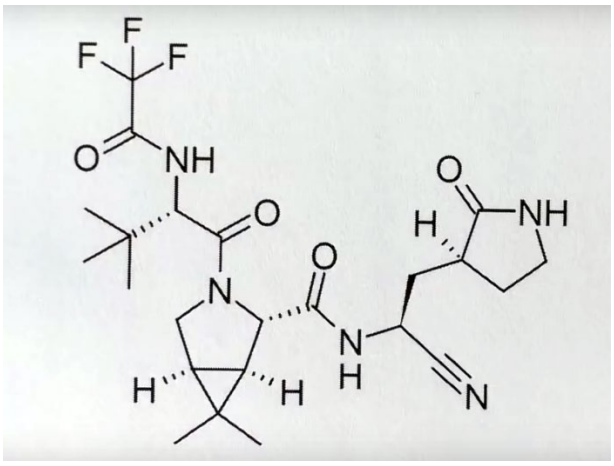
PFIZER'S NOVEL COVID-19 ORAL ANTIVIRAL TREATMENT CANDIDATE REDUCED RISK OF HOSPITALIZATION OR DEATH BY 89% IN INTERIM ANALYSIS OF PHASE 2/3 EPIC-HR STUDY

Friday, November 05, 2021 - 06:45am

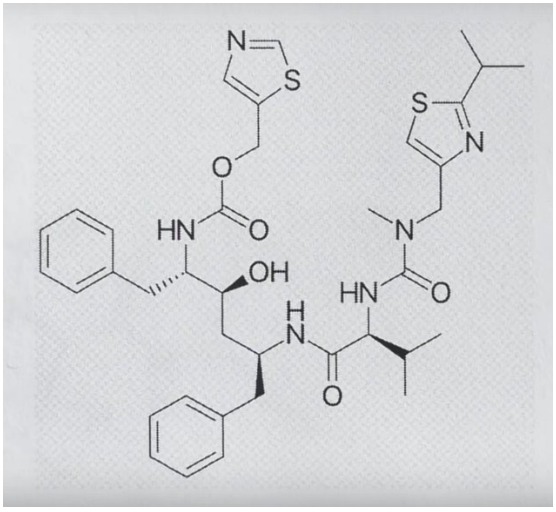
- PAXLOVID™ (PF-07321332; ritonavir) *was found to reduce the risk of hospitalization or death by 89% compared to placebo in non-hospitalized high-risk adults with COVID-19*
- *In the overall study population through Day 28, no deaths were reported in patients who received* PAXLOVID™ *as compared to 10 deaths in patients who received placebo*
- *Pfizer plans to submit the data as part of its ongoing rolling submission to the U.S. FDA for Emergency Use Authorization (EUA) as soon as possible*

NEW YORK--(BUSINESS WIRE)-- Pfizer Inc. (NYSE: PFE) today announced its investigational novel COVID-19 oral antiviral candidate,PAXLOVID™, significantly reduced hospitalization and death, based on an interim analysis of the Phase 2/3 EPIC-HR (Evaluation of Protease Inhibition for COVID-19 in High-Risk Patients) randomized, doub blind study of non-hospitalized adult patients with COVID-19, who are at high risk of progressing to severe illness. The scheduled interim analysis showed an 89% reducti in risk of COVID-19-related hospitalization or death from any cause compared to placebo in patients treated within three days of symptom onset (primary endpoint); 0.8 of patients who received PAXLOVID™ were hospitalized through Day 28 following randomization (3/389 hospitalized with no deaths), compared to 7.0% of patients who received placebo and were hospitalized or died (27/385 hospitalized with 7 subsequent deaths). The statistical significance of these results was high (p<0.0001). Similar reductions in COVID-19-related hospitalization or death were observed in patients treated within five days of symptom onset; 1.0% of patients who received PAXLOVID™

Pfizer's new PAXLOVID antiviral PF-07321332, $C_{23}H_{32}F_3N_5O_5$, protease inhibitor using 3 CL Protease enzyme drug inhibits breaking long protein chains made of hundreds of amino-acids and hence viral replication that needs short chain proteins. Drug binds down the active site of the 2 CL Protease and prevents it from splitting the long protein chains into shorter chains suitable for viral replication.



Pfizer's new PAXLOVID antiviral PF-07321332, $C_{23}H_{32}F_3N_5O_5$, protease inhibitor using 3 CL Protease enzyme molecule contains 3 fluorine atoms. It is designed to block the activity of the SARS-CoV-2-3CL protease. This drug has a single target that the virus could avoid in its mutations. In contrast, Ivermectin has multiple modes of action that the virus could not develop resistance against all of them in its mutations.



Ritonavir antiviral $C_{32}H_{48}N_6O_5S_2$ molecule containing 2 sulphur atoms to be used in conjunction with new Pfizer protease inhibitor.

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DOI: 10.1039/D1CP02967C (Paper) *Phys. Chem. Chem. Phys.*, 2021, **23**, 22957-22971

Microscopic interactions between ivermectin and key human and viral proteins involved in SARS-CoV-2 infection†

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First published on 5th October 2021

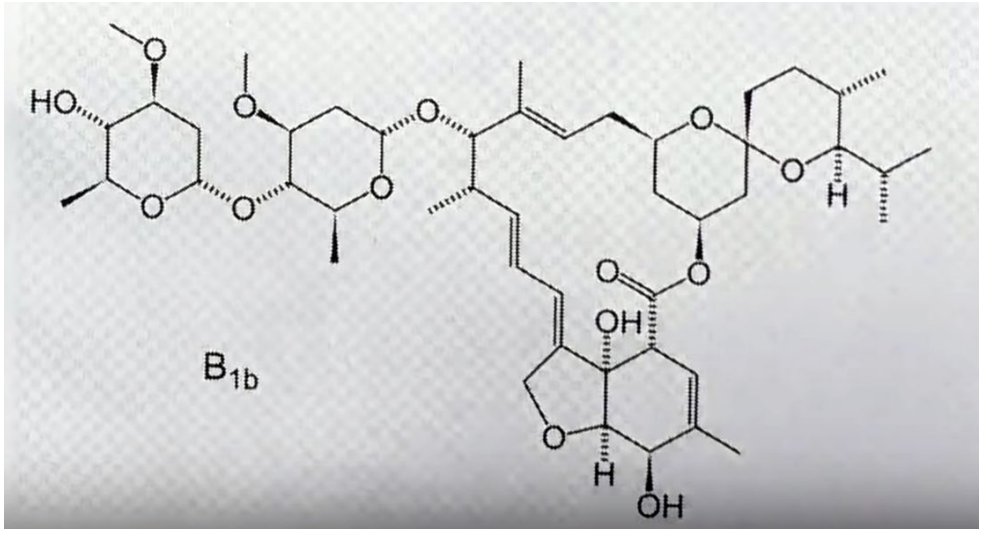
Abstract

The identification of chemical compounds able to bind specific sites of the human/viral proteins involved in the SARS-CoV-2 infection cycle is a prerequisite to design effective antiviral drugs. Here we conduct a molecular dynamics study with the aim to assess the interactions of ivermectin, an antiparasitic drug with broad-spectrum antiviral activity, with the human Angiotensin-Converting Enzyme 2 (ACE2), the viral $3CL^{pro}$ and PL^{pro} proteases, and the viral SARS Unique Domain (SUD). The drug/target interactions have been characterized *in silico* by describing the nature of the non-covalent interactions found and by measuring the extent of their time duration along the MD simulation. Results reveal that the ACE2 protein and the ACE2/RBD aggregates form the most persistent interactions with ivermectin, while the binding with the remaining viral proteins is more limited and unspecific.

Introduction

The coronavirus disease (COVID-19) global pandemic, caused by the severe-and-acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has largely spread worldwide in 2020 and 2021, constituting a major public health threath.[1–4] The occurrence of severe respiratory syndromes and major inflammatory responses is at the base of the pressure imposed by SARS-CoV-2 infections on the public health

"The strength and persistency of the interaction between IVE (Ivermectin) and the binding site of $3CL^{pro}$ (protease) indicate that a partial inhibition of the catalytic activity could have place as the drug interacts with the main subdomains that define the enzyme binding pocket."



Ivermectin molecule $C_{48}H_{74}O_{14}$.

The following information has been posted at the NIH.gov website about Remdisivir, Ivermection and Nitazoxanide:
https://www.covid19treatmentguidelines.nih.gov/tables/table-2e/

Table 2e. Characteristics of Antiviral Agents That Are Approved or Under Evaluation for the Treatment of COVID-19

Last Updated: July 8, 2021

Dosing Regimens *The doses listed here are for approved indications or from reported experiences or clinical trials.*	**Adverse Events**	**Monitoring Parameters**	**Drug-Drug Interaction Potential**	**Comments and Links to Clinical Trials**
Remdesivir				
The doses and indications listed below come from the FDA product information. Please see Therapeutic Management of Hospitalized Adults With COVID-19 for the Panel's recommendations on when to use RDV. **For Hospitalized Adults and Children (Aged ≥12 Years and Weighing ≥40 kg)**	• Nausea • ALT and AST elevations • Hypersensitivity • Increases in prothrombin time • Drug vehicle is SBECD, which has been associated with renal and liver toxicity. SBECD accumulation may occur in patients with moderate or	• Infusion reactions • Renal function and hepatic function should be monitored before and during treatment as clinically indicated. • In the FDA product information, RDV **is not recommended** when eGFR is	• Clinical drug-drug interaction studies of RDV have not been conducted. • In vitro, RDV is a substrate of CYP3A4, OATP1B1, and P-gp and an inhibitor of CYP3A4, OATP1B1, OATP1B3, and MATE1.[1] • Minimal to no reduction in RDV exposure is	• RDV should be administered in a hospital or a health care setting that can provide a similar level of care to an inpatient hospital. • RDV is approved by the FDA for the treatment of COVID-19 in hospitalized adult and pediatric patients (aged ≥12 years and weighing ≥40 kg). • An EUA[b] is available for hospitalized pediatric patients weighing 3.5 kg to <40 kg or aged <12 years and weighing ≥3.5 kg. • A list of clinical trials is available here: Remdesivir

Dosing Regimens ***The doses listed here are for approved indications or from reported experiences or clinical trials.***	Adverse Events	Monitoring Parameters	Drug-Drug Interaction Potential	Comments and Links to Clinical Trials
For Patients Who Are Not Mechanically Ventilated and/or on ECMO: • RDV 200 mg IV[a] on Day 1, then RDV 100 mg IV on Days 2–5 • For patients who do not show clinical improvement after 5 days of therapy, treatment may be extended to up to 10 days. *For Mechanically Ventilated Patients and/or Patients on ECMO:* • RDV 200 mg IV[a] on Day 1, then RDV 100 mg IV on Days 2–10 **Suggested Dose in EUA[b] for Hospitalized Children** *For Patients Weighing 3.5 kg to <40 kg:* • RDV 5 mg/kg IV[a] on Day 1, then RDV 2.5 mg/kg IV once daily starting on Day 2 • For patients who are not mechanically ventilated and/or on ECMO, the duration is 5 days. If patients have not shown clinical improvement after 5 days, treatment may be extended to up to 10 days. • For mechanically ventilated patients and/or patients on ECMO, the	severe renal impairment. • Each 100 mg vial of RDV lyophilized powder contains 3 g of SBECD, and each 100 mg/20 mL vial of RDV solution contains 6 g of SBECD. • Clinicians may consider preferentially using the lyophilized powder formulation (which contains less SBECD) in patients with renal impairment.	<30 mL/min. See the Remdesivir section for a discussion on using RDV in people with renal insufficiency. • RDV may need to be discontinued if ALT level increases to >10 times ULN and should be discontinued if there is an increase in ALT level and signs or symptoms of liver inflammation are observed.[1]	expected when RDV is coadministered with dexamethasone (Gilead Sciences, written communication, July 2020). • CQ or HCQ may decrease the antiviral activity of RDV; coadministration of these drugs **is not recommended**.[1] • No significant interaction is expected between RDV and oseltamivir or baloxavir (Gilead Sciences, personal and written communications, August and September 2020).	

Dosing Regimens *The doses listed here are for approved indications or from reported experiences or clinical trials.*	Adverse Events	Monitoring Parameters	Drug-Drug Interaction Potential	Comments and Links to Clinical Trials
recommended treatment duration is 10 days. *For Patients Aged <12 Years and Weighing ≥40 kg:* • Same dose as for adults				

Ivermectin

Adults: • The dose most commonly used in clinical trials is IVM 0.2–0.6 mg/kg PO given as a single dose or as a once-daily dose for up to 5 days.	• Generally well tolerated • Dizziness • Pruritis • GI effects (e.g., nausea, diarrhea) • Neurological AEs have been reported when IVM has been used to treat parasitic diseases, but it is not clear whether these AEs were caused by IVM or the underlying conditions.	• Monitor for potential AEs.	• Minor CYP3A4 substrate • P-gp substrate	• Generally given on an empty stomach with water; however, administering IVM with food increases its bioavailability.[2] • A list of clinical trials is available here: Ivermectin

Nitazoxanide

Adults: • Doses reported in COVID-19 studies range from NTZ 500 mg PO 3 times daily to 4 times daily.[3,4] Higher doses are being studied (*ClinicalTrials.gov* Identifier NCT04746183). • Doses used for antiprotozoal indications range	• Generally well tolerated • Abdominal pain • Diarrhea • Headache • Nausea • Vomiting • Urine discoloration • Ocular discoloration (rare)	• Monitor for potential AEs.	• Drug-drug interactions may occur if NTZ is administered concurrently with other highly plasma protein-bound drugs due to competition for binding sites.[5] • If NTZ is coadministered with other highly protein-bound drugs with	• NTZ should be taken with food. • The oral suspension is not bioequivalent to the tablet formulation. • A list of clinical trials is available here: Nitazoxanide

Dosing Regimens *The doses listed here are for approved indications or from reported experiences or clinical trials.*	Adverse Events	Monitoring Parameters	Drug-Drug Interaction Potential	Comments and Links to Clinical Trials
from NTZ 500 mg to 1 g PO twice daily.			narrow therapeutic indices, monitor the patient for AEs.	

[a] Infuse over 30–120 minutes.

[b] The FDA EUA permits the emergency use of RDV for the treatment of suspected COVID-19 or laboratory-confirmed SARS-CoV-2 infection in hospitalized ped kg to <40 kg or aged <12 years and weighing ≥3.5 kg.[6]

Key: AE = adverse event; ALT = alanine transaminase; AST = aspartate aminotransferase; CQ = chloroquine; CYP = cytochrome P450; ECMO = extracorpor eGFR = estimated glomerular filtration rate; EUA = Emergency Use Authorization; FDA = Food and Drug Administration; GI = gastrointestinal; HCQ = hydroxychl IVM = ivermectin; LPV/RTV = lopinavir/ritonavir; MATE = multidrug and toxin extrusion protein; NTZ = nitazoxanide; OATP = organic anion transporter p COVID-19 Treatment Guidelines Panel; P-gp = P-glycoprotein; PO = orally; RDV = remdesivir; SBECD = sulfobutylether-beta-cyclodextrin; ULN = upper limit o

References

1. Remdesivir (Veklury) [package insert]. Food and Drug Administration. 2020. Available at: https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/214787Orig1s000lbl.pdf.
2. Ivermectin (Stromectol) [package insert]. Food and Drug Administration. 2009. Available at: https://www.accessdata.fda.gov/drugsatfda_docs/label/2009/050742s024s025lbl.pdf.
3. Rocco PRM, Silvia PL, Cruz FF, et al. Early use of nitazoxanide in mild COVID-19 disease: randomised, placebo-controlled trial. *Eur Respir J*. 2021;Published online ahead of print. Available at: https://pubmed.ncbi.nlm.nih.gov/33361100/.
4. Silva M, Espejo A, Pereyra ML, et al. Efficacy of Nitazoxanide in reducing the viral load in COVID-19 patients: randomized, placebo-controlled, single-blinded, parallel-group, pilot study. *medRxiv*. 2021;Preprint. Available at: https://www.medrxiv.org/content/10.1101/2021.03.03.21252509v1.full.pdf.
5. Nitazoxanide (Alinia) [package insert]. Food and Drug Administration. 2017. Available at: https://www.alinia.com/wp-content/uploads/2017/08/prescribing-information.pdf.
6. Food and Drug Administration. Fact sheet for health care providers emergency use authorization (EUA) of remdesivir (GS-5734™). 2020. Available at: https://www.fda.gov/media/137566/download.

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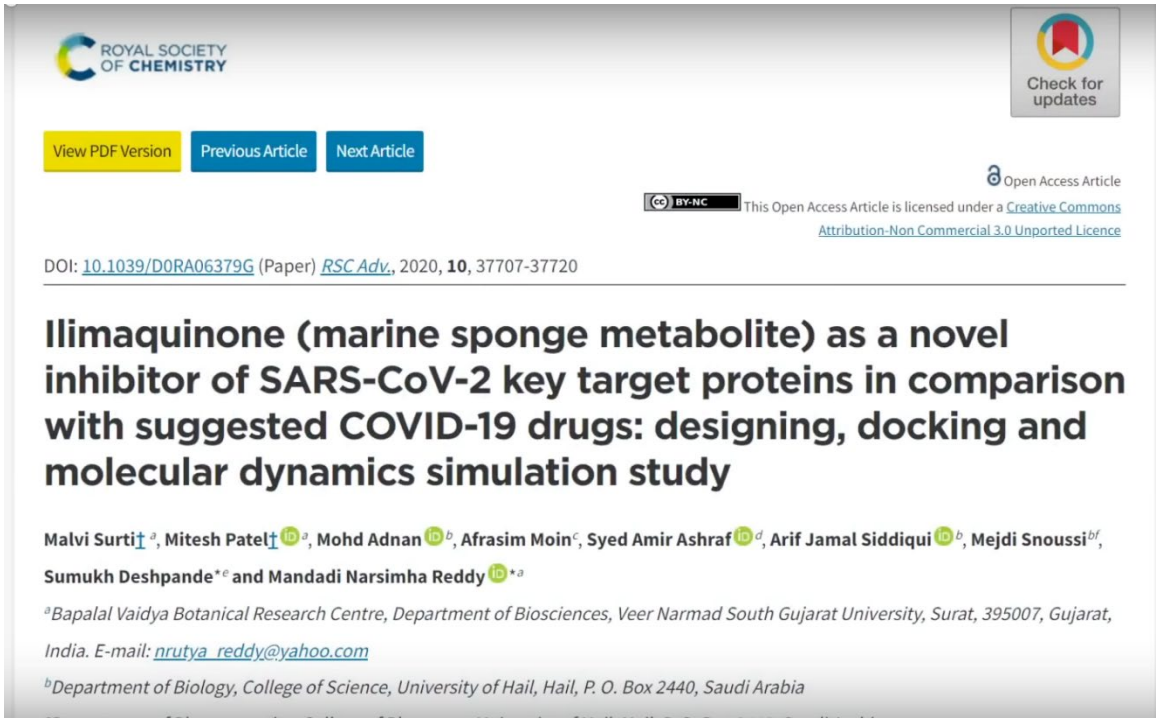
Identification of 3-chymotrypsin like protease (3CLPro) inhibitors as potential anti-SARS-CoV-2 agents

Vicky Mody, Joanna Ho, Savannah Wills, Ahmed Mawri, Latasha Lawson, Maximilian C. C. J. C. Eb
Guillaume M. Fortin, Srujana Rayalam & Shashidharamurthy Taval ✉

Communications Biology **4**, Article number: 93 (2021) | Cite this article

Pancreas enzyme chymotrypsin as a protease inhibitors anti-SARS-CoV-2 agents. “Out of 13 OTDs (Off Target Drugs) only Ivermectin completely blocked (80%) the 3CLpro (protease) activity at 50 µM concentration (of Ivermectin),” suggesting a possible “repurposing” or “repositioning” of Ivermectin.



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DOI: 10.1039/D0RA06379G (Paper) *RSC Adv.*, 2020, **10**, 37707-37720

Ilimaquinone (marine sponge metabolite) as a novel inhibitor of SARS-CoV-2 key target proteins in comparison with suggested COVID-19 drugs: designing, docking and molecular dynamics simulation study

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Abstract

The outbreak of novel coronavirus, SARS-CoV-2, has infected more than 36 million people and caused approximately 1 million deaths around the globe as of 9 October 2020. The escalating outspread of the virus and rapid rise in the number of cases require the instantaneous development of effectual drugs and vaccines. Presently, there are no approved drugs or vaccine available to treat the infection. In such scenario, one of the propitious therapeutic approaches against viral infection is to explore enzyme inhibitors amidst natural compounds, utilizing computational approaches aiming to get products with negligible side effects. In the present study, the inhibitory prospects of ilimaquinone (marine sponge metabolite) were assessed in comparison with hydroxychloroquine, azithromycin, favipiravir, ivermectin and remdesivir at the active binding pockets of nine different vital SARS-CoV-2 target proteins (spike receptor binding domain, RNA-dependent RNA polymerase, Nsp10, Nsp13, Nsp14, Nsp15, Nsp16, main protease, and papain-like-protease), employing an *in silico* molecular interaction based approach. In addition, molecular dynamics (MD) simulations of the SARS-CoV-2 papain-like protease (PLpro)–ilimaquinone complex were also carried out to calculate various structural parameters including root mean square fluctuation (RMSF), root mean square deviation (RMSD), radius of gyration (R_g) and hydrogen bond interactions. PLpro is a promising drug target, due to its imperative role in viral replication and additional function of stripping ubiquitin and interferon-stimulated gene 15 (ISG15) from host-cell proteins. In light of the possible inhibition of all vital SARS-CoV-2 target proteins, our study has emphasized the importance to study in depth ilimaquinone actions *in vivo*.

Ilimaquinone as a protease inhibitor. “From the docking analysis, Ivermectin showed the highest docking score with an average energy of -8.5 kcal mol^{-1} among all the compounds. Remdisivir showed the lowest binding energy and highest docking score of -9.9 kcal mol^{-1}.”

Future Virol. 2021 Mar : 10.2217/fvl-2020-0342. PMCID: PMC7996102
Published online 2021 Mar 25. doi: 10.2217/fvl-2020-0342

Exploring the binding efficacy of ivermectin against the key proteins of SARS-CoV-2 pathogenesis: an *in silico* approach

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Associated Data

▸ Supplementary Materials

Abstract

Go to:

Aim: COVID-19 is currently the biggest threat to mankind. Recently, ivermectin (a US FDA-approved antiparasitic drug) has been explored as an anti-SARS-CoV-2 agent. Herein, we have studied the possible mechanism of action of ivermectin using *in silico* approaches. **Materials & methods:** Interaction of ivermectin against the key proteins involved in SARS-CoV-2 pathogenesis were investigated through molecular docking and molecular dynamic simulation. **Results:** Ivermectin was found as a blocker of viral replicase, protease and human TMPRSS2, which could be the biophysical basis behind its antiviral

Binding efficacy of Ivermectin as a blocker of viral replicase, protease and human TMPRSS2 which could be the biophysical basis of its antiviral efficiency. In silico: computer modeling.

ORIGINAL RESEARCH article
Front. Microbiol., 25 January 2021 | https://doi.org/10.3389/fmicb.2020.592908

Molecular Docking Reveals Ivermectin and Remdesivir as Potential Repurposed Drugs Against SARS-CoV-2

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Ivermectin and Remdesivir as potential repurposed drugs. “Ivermectin showed high binding affinity to the viral S (Spike) protein as well as the human cell surface receptors

ACE-2 and TMPRSS2.” “ In agreement to our findings, Ivermectin was found to be docked between the viral spike and the ACE2 receptor.”

Fenbendazole is a first-class broad-spectrum dog dewormer. Advantage is it treats both worms that feed on the food stream in the gut and those that get nutrition from the bloodstream/tissues. It is used in pregnant bitches to nuke the round/hookworms that activate under influence of hormones to infect the puppies via the placenta and then later for the mammary glands intending to get to them via the milk. One gets nearly worm-free puppies.

“People are going into a hospital and essentially told: "Yes you have COVID, go home. Do nothing. Come back when you are sick enough to be admitted to the ICU and put on a ventilator. And please don't tell us if you have been vaccinated!". “These are sad times in the history of mankind.” Covid is with us permanently, better be prepared to deal with it going forward forever: https://aapsonline.org/CovidPatientTreatmentGuide.pdf

AFRICAN COUNTRIES EXPERIENCE

Countries in Africa using Ivermectin against river blindness parasitic disease spread by black flies have exhibited lower Covid-19 deaths than non-Ivermectin countries. These countries are likely using HCQ for malaria as well. Ivermectin was approved for human use in 1988. Apparently it is unlawful for the Federal Drug Administration, FDA to issue an Emergency Use Authorization, EUA for the gene therapy vaccines if another treatment exists.

Contents lists available at ScienceDirect

International Journal of Antimicrobial Agents

journal homepage: www.elsevier.com/locate/ijantimicag

ELSEVIER

A COVID-19 prophylaxis? Lower incidence associated with prophylactic administration of ivermectin

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ARTICLE INFO

Article history:
Received 20 June 2020
Accepted 22 November 2020
Available online xxx

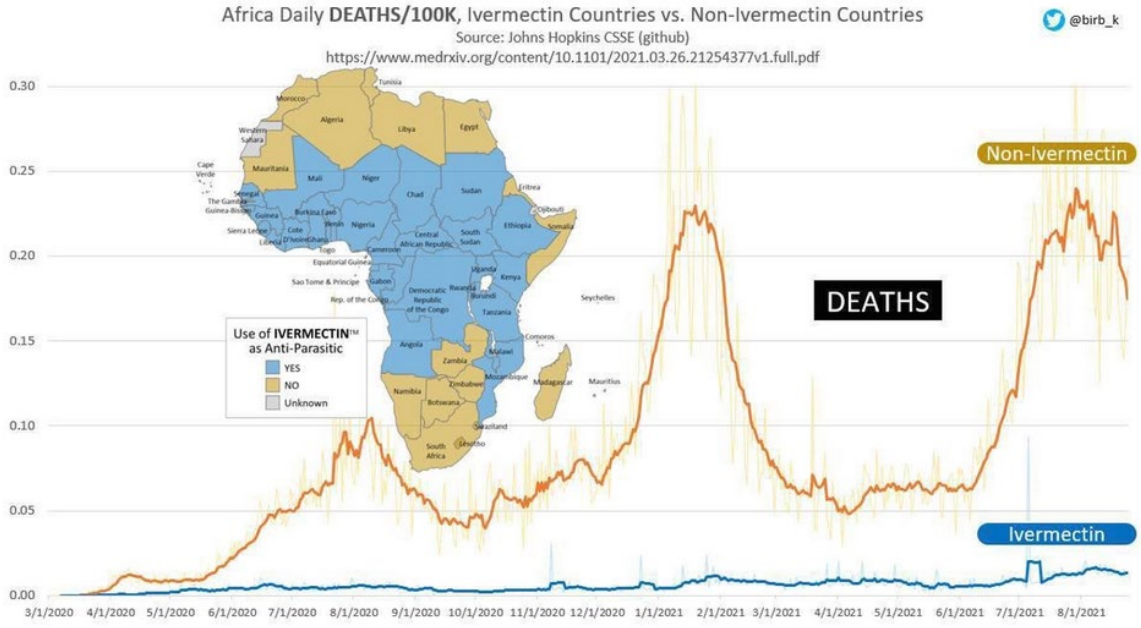
Keywords:

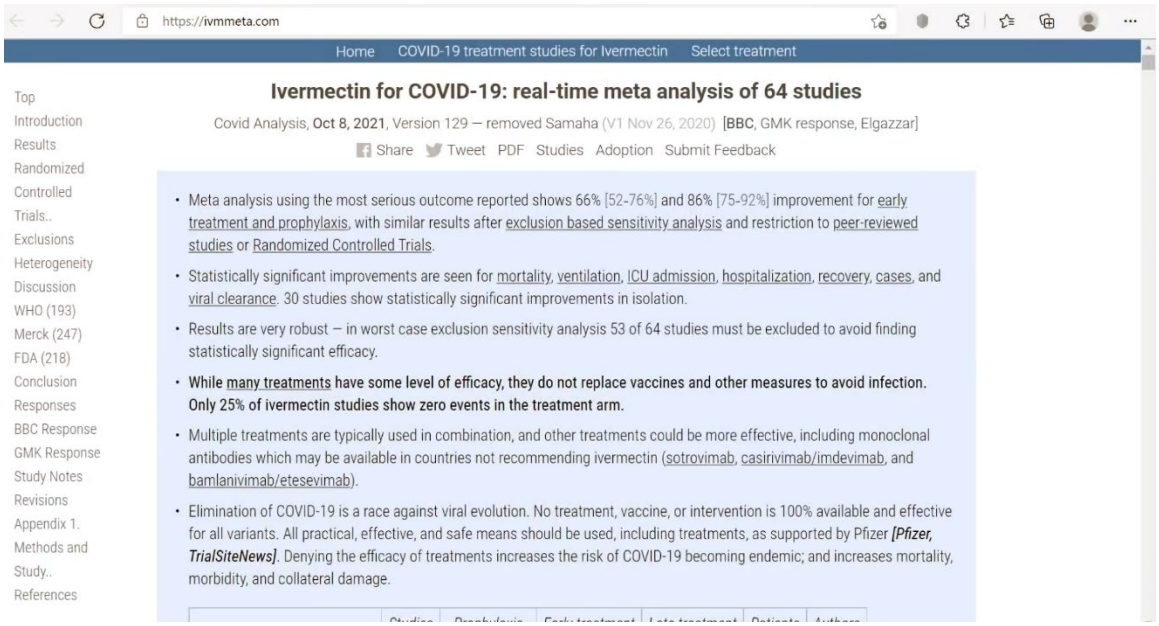
ABSTRACT

As COVID-19 (coronavirus disease 2019) continues to rapidly spread throughout the world, the incidence varies greatly among different countries. These differences raise the question whether nations with a lower incidence share any medical commonalities that could be used not only to explain that lower incidence but also to provide guidance for potential treatments elsewhere. Such a treatment would be particularly valuable if it could be used as a prophylactic against SARS-CoV-2 [severe acute respiratory syn-

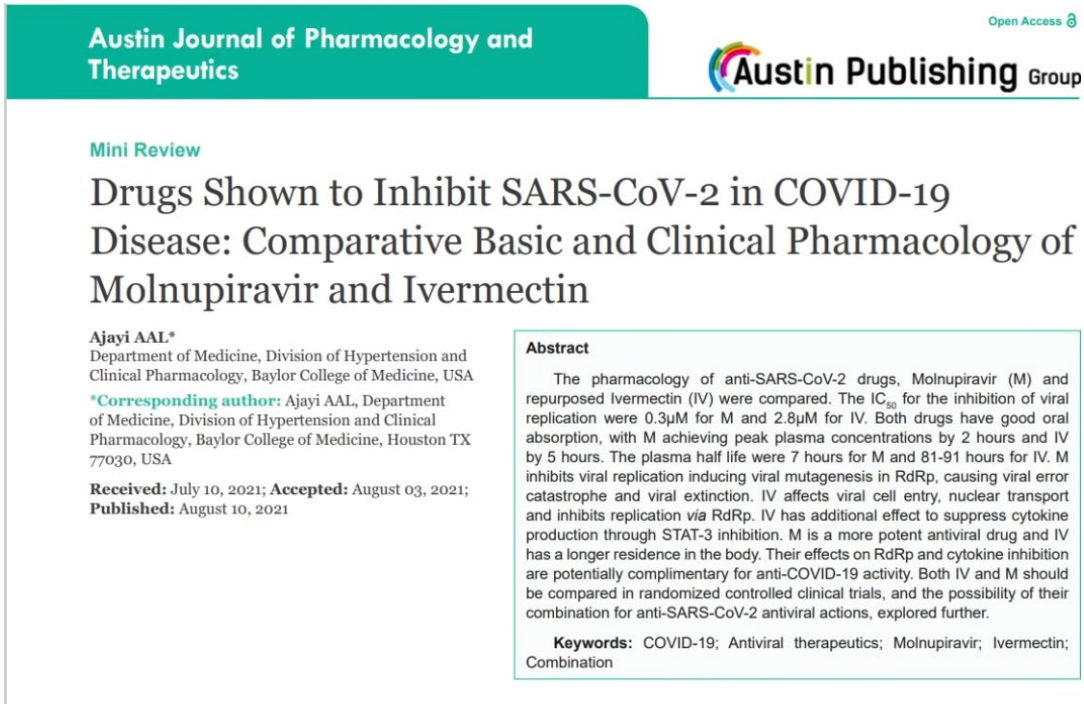
ABSTRACT

As COVID-19 (coronavirus disease 2019) continues to rapidly spread throughout the world, the incidence varies greatly among different countries. These differences raise the question whether nations with a lower incidence share any medical commonalities that could be used not only to explain that lower incidence but also to provide guidance for potential treatments elsewhere. Such a treatment would be particularly valuable if it could be used as a prophylactic against SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) transmission, thereby effectively slowing the spread of the disease while we await the wide availability of safe and effective vaccines. Here, we show that countries with routine mass drug administration of prophylactic chemotherapy including ivermectin have a significantly lower incidence of COVID-19. Prophylactic use of ivermectin against parasitic infections is most common in Africa and we hence show that the reported correlation is highly significant both when compared among African nations as well as in a worldwide context. We surmise that this may be connected to ivermectin's ability to inhibit SARS-CoV-2 replication, which likely leads to lower infection rates. However, other pathways must exist to explain the persistence of such an inhibitory effect after serum levels of ivermectin have declined. It is suggested that ivermectin be evaluated for potential off-label prophylactic use in certain cases to help bridge the time until a safe and effective vaccine becomes available.





MOLNUPIRAVIR AND IVERMECTIN



A combination of Molnupiravir, used against influenza and Ivermectin is recommended for investigation as they are both produced by the Merck company. Both antivirals and vaccines are needed. Repurposing of drugs such as aspirin or salicylic acid has been common in the history of medicine. Ivermectin may eventually also be repurposed.

ROLE OF Q10 COENZYME

The Merck Manual instructs that coenzyme Q10 is a co-factor in the production of ATP in the mitochondria of living cells. Coenzyme-Q10 is an antioxidant produced naturally in the body and is widely sold as a dietary supplement. Coenzyme Q10 supplements are usually consumed to supply energy to weakened heart muscle tissue and does indeed exhibit effectiveness against infectious diseases. CoQ10 levels may be decreased in those with acute influenza infection.

In 1988 CoQ10 researcher Karl Folkers reported that as coenzyme Q10 deficiency increases so does the severity of HIV infection. Coenzyme Q10 therapy was initiated on 7 HIV and AIDs infected patients, with six of the patients completing the trial, one expired after ceasing CoQ10 and the other 5 patients strikingly survived.

Magnesium is required to produce ATP cell energy. Low magnesium levels are associated with acute viral infections. A gene mutation in the transport molecule for magnesium results in an immune deficiency disease.

Vaccination may prove to be a “dead-end” street. With 16 approved vaccines and 240 more under development, we are we going to vaccinate school children with a universal vaccine that protects against 200 diseases all at once.

OTHER DRUG OPTIONS

Zinc therapy produces antibodies against all pathogenic bacteria and viruses and results in life-long immunity with no booster shots. Nobody is dying of Covid-19 coronavirus, but everybody who dies does so because of weak immunity.

Some "traditional" vaccines can use a booster after many years to fortify immunity in the face of widespread outbreaks such as pertussis and measles, but not within just a couple months of original vaccination.

Compared to Gilead's Remdesivir, this drug is possibly safer. It may have been prescribed 3.7 billion times since 1987. At worst , it get rids of potential round worms that could be acquired from food served at some Mexican or Chinese restaurants.

“If people are treated early if their oxygen requirements are less than 50%, a nearly a 100% response rate, they improve. If they are on more oxygen than that, then it becomes a little more varied, some people, they don’t respond anymore because they are too far advanced. Ivermectin is added to the cocktail of drugs used to treat Covid-19: hydroxychloraquine, azithromycin, and zinc sulfate.

Another life-saving drug, tocilizumab, have exponentially gone up. The drug, sold as Actemra, has shown positive results in critically ill patients around the world. Experts say more research is needed to fully understand its effectiveness, but many hospitals have reported positive results. The drug was originally meant for patients of rheumatoid arthritis and supply has always has been limited. Cipla sells the medicine in India on behalf of Switzerland-based Roche and it is entirely imported and hard to locate.

DEWORMER DRUGS, IVERMECTIN

The 2015 Nobel Prize was awarded to William Campbell and Satoshi Ōmura for the discovery of Ivermectin. The 'base source' was a fungus found in a Japanese forest and

like all good holistic medicines, the chemists messed with it and turned it into a more 'chemical' product to that the manufacture could be controlled like Quinine. A tiny area outside Tokyo near a golf course is where Ivermectin (a derivative of avermectin) was found and is the only source, worldwide, where it has ever been found.

If the masses start taking Ivermectin they may discover a lot of their non covid illness disappear. Parasites cause the majority of human illness. All health begins and ends in the gut. Ivermectin is also an anti-inflammatory.

Australian research showed Ivermectin destroys the virus in the lab, in vitro, but it has not been studied for this purpose in people. The FDA issued a warning, saying while Ivermectin is approved for use in humans to fight parasites, more studies need to be done to prove its worth in fighting Covid-19. The FDA's statement also warns everyone not to self-medicate with the veterinary version of Ivermectin. Another de-wormer, Fenbendazole, was tried as a cure for cancer.

One theory for why Ivermectin might appear to be effective in patients with coronavirus is that it could actually be treating any parasites they are carrying and so make them stronger, without actually tackling the virus which causes Covid-19.

Ivermectin does not kill the virus at dosages humans can tolerate. The amount of drug needed to kill the virus is toxic to humans. Whatever it is doing, it is not killing the virus.

Ivermectin in COVID-19 Related Critical Illness

4 Pages • Posted: 13 Apr 2020

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University of Utah - Department of Biomedical Engineering

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Date Written: April 6, 2020

Abstract

As the quest to define an anti-viral therapy for treatment of COVID-19 illness continues with little success, a new potential candidate has emerged. A pre-clinical study, demonstrated that ivermectin, FDA approved as an anti-parasitic agent with an established safety profile, was able to reduce SARS-CoV-2 viral RNA by 5000-fold within 48 hours. Importin (IMP) α/β1 30 is a heterodimer that binds to the SARS-CoV-2 cargo protein and moves it into the nucleus which reduces the host cell antiviral response. Ivermectin destabilizes the Impα/β1 heterodimer, prevents it from binding to the viral protein and thus, entering the nucleus. Based on these promising in-vitro findings, we sought to evaluate the clinical usefulness of ivermectin in critically ill patients with COVID-19.

In an observational registry-based study from 169 hospitals across Asia (AS), Europe (EU), Africa (AF), North (NA) and South America (SA), we evaluated critically ill hospitalized patients diagnosed with COVID-19 with lung injury requiring mechanical ventilation, between January 1st 2020 and March 1st 2020. In this series of 1,970 patients, 1,609 survived hospitalization to discharge and 361 died (18.3%). We recorded 52 patients (AS-7, EU-21, AF-3, NA-14, SA-7) who received Ivermectin (150 mcg/Kg) once after mechanical ventilation was instituted. The indications for use of the drug were related to clinician preference and based on prior data on the broad antimicrobial and specifically antiviral effects of this agent. Compared to 1,918 conventionally treated patients we observed a survival benefit for ivermectin (mortality rate 18.6% vs 7.7%; HR 0.18, 95% CI (0.07-0.48), log rank (Mantel-Cox) p<0.001). The hospital length of stay was 15.7 +/- 8.1 days vs 10.9 +/- 6.1 days, p<0.001 and intensive care unit length of stay 8.2 +/- 6.2 days vs 6.0 +/- 3.9 days, p<0.001 respectively.

In COVID-19 illness, critically ill patients with lung injury requiring mechanical ventilation may benefit from administration of Ivermectin. We noted a lower mortality and reduced healthcare resource use in those treated with ivermectin. These observations should not be considered definitive and allow for translation of a hypothesis from bench to bedside which will require confirmation in a controlled clinical trial setting.

Keywords: COVID-19, ivermectin

Suggested Citation:

Patel, Amit and Desai, Sapan, Ivermectin in COVID-19 Related Critical Illness (April 6, 2020).
Available at SSRN: https://ssrn.com/abstract=3570270 or http://dx.doi.org/10.2139/ssrn.3570270

Figure 10. Use of Ivermectin antiparasitic against Covid-19. Ivermectin has a few counter-indications like alcohol and Warfarin.

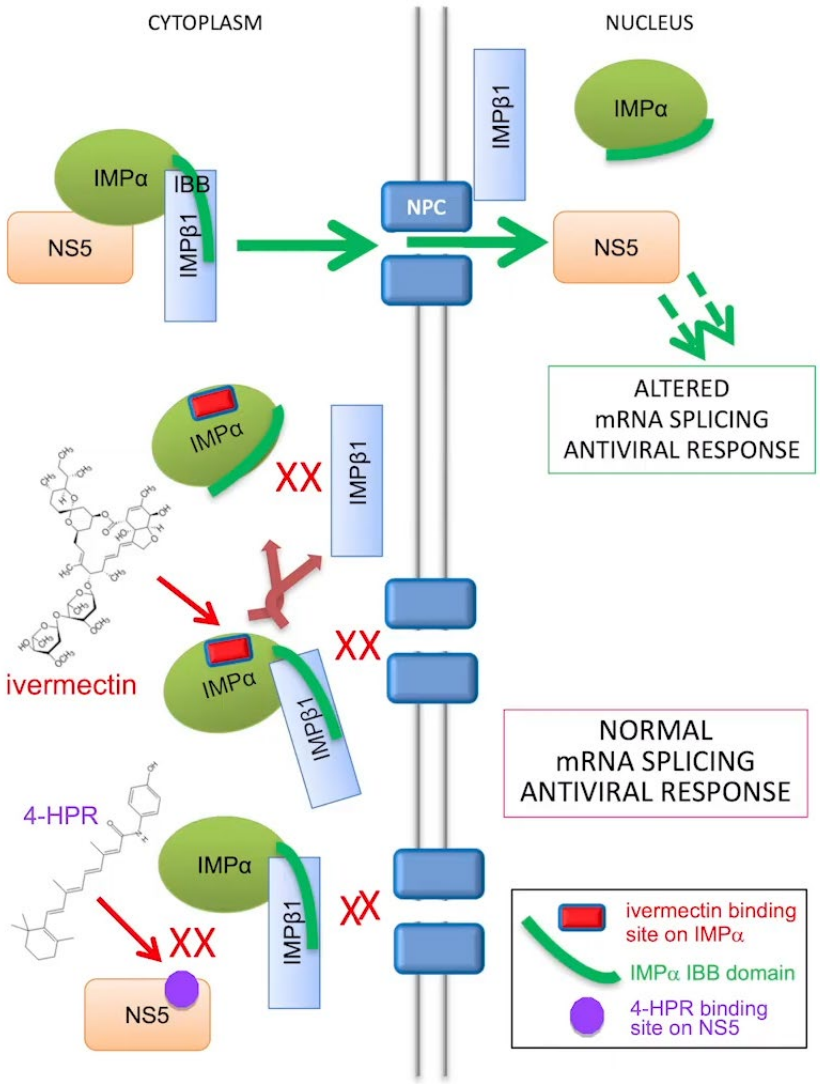


Figure 11. Ivermectin anti-parasitic drug function. A dimer composed of two proteins prevents the virus from replicating after penetrating the cell's nucleus. Hydroxy-Chloroquine as an ionophore would help zinc penetrate the nucleus to then kill the virus. Azithromycin would ward off bacterial infections.

The Journal of
Antibiotics

Published: 15 February 2017

Review Article

Ivermectin: enigmatic multifaceted 'wonder' drug continues to surprise and exceed expectations

Andy Crump ✉

The Journal of Antibiotics **70**, 495–505 (2017) | Cite this article

Abstract

Over the past decade, the global scientific community have begun to recognize the unmatched value of an extraordinary drug, ivermectin, that originates from a single microbe unearthed from soil in Japan. Work on ivermectin has seen its discoverer, Satoshi Ōmura, of Tokyo's prestigious Kitasato Institute, receive the 2014 Gairdner Global Health Award and the 2015 Nobel Prize in Physiology or Medicine, which he shared with a collaborating partner in the discovery and development of the drug, William Campbell of Merck & Co. Incorporated. Today, ivermectin is continuing to surprise and excite scientists, offering more and more promise to help improve global public health by treating a diverse range of diseases, with its unexpected potential as an antibacterial, antiviral and anti-cancer agent being particularly extraordinary.

LIFE TABLES STATISTICS

The life tables provided by the Office For National Statistics in the UK provide annual 'hazards' that is the proportion of people of each year of age, who do not reach their next birthday. These are plotted on a logarithmic scale, showing an early peak due to congenital diseases and birth trauma, then a minimum around age 9 or 10, and then a steady increase which is remarkably linear, apart from a bump in late teens and early 20's. This linearity on a logarithmic scale corresponds to exponential increase the proportion of

people dying each year increases at about 9%, regardless of age. So average risk of death doubles in 8 years.

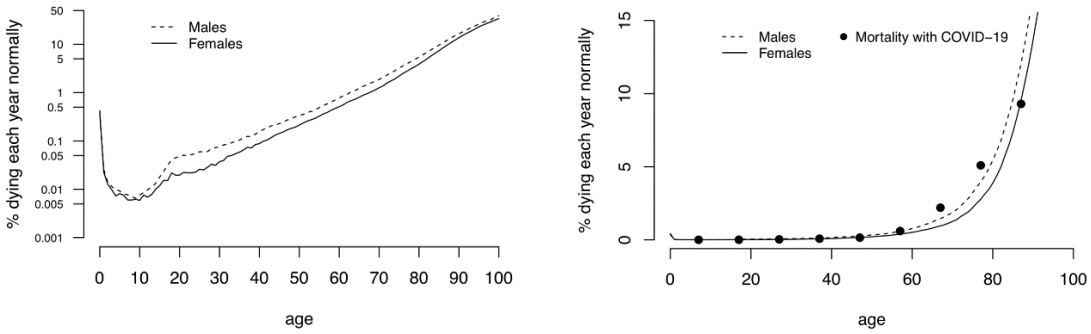


Figure 12. Logarithmic and linear age curves in the UK. Deaths from the Covid-19 virus correlate with the age-dependent deaths statistics and exceeds it only marginally.

Table 12. Deaths statistics for Covid-19, UK, April 2020.

Age-group (years)	% symptomatic cases requiring hospitalisation	% hospitalised cases requiring critical care	Infection Fatality Ratio
0 to 9	0.1%	5.0%	0.002%
10 to 19	0.3%	5.0%	0.006%
20 to 29	1.2%	5.0%	0.03%
30 to 39	3.2%	5.0%	0.08%
40 to 49	4.9%	6.3%	0.15%
50 to 59	10.2%	12.2%	0.60%
60 to 69	16.6%	27.4%	2.2%
70 to 79	24.3%	43.2%	5.1%
80+	27.3%	70.9%	9.3%

DEEP VEIN THROMBOSIS, DVT RISK, USE OF ANTICOAGULANTS

Clinicians from around the country have shared anecdotal reports that Covid-19 patients in the ICU are experiencing a high number of blood clots. A number of severely ill ICU patients are getting deep vein thrombosis at a much higher rate than we see in other ICU patients. Covid-19 is in many ways is acting more like a cardiovascular condition than purely a respiratory disease, likely because of the extreme inflammatory effect the virus can have on the immune system.

Blood clots might be occurring and offering ways doctors could safely treat them. Physicians have long known about a connection between inflammatory viral infections and blood clotting. Clotting in response to an injury that causes bleeding is a good thing, but

clotting for no reason can lead to tissue damage and death. As a result, there is a balance between pro-coagulant and anti-coagulant proteins in the body, plus a system that helps dissolve clots when they form. Inflammation can throw off this balance and result in more pro-coagulant factors and fewer anti-coagulant ones.

Doctors saw similar evidence of blood clotting during the 2003 SARS outbreak — a sister virus to the novel coronavirus — because the virus inhibited proteins that break down blood clots.

Up to 30 percent of patients who are seriously ill with coronavirus are developing dangerous blood clots, according to medical experts. The clots, also known as thrombosis, could be contributing to the number of people dying. Hundreds of micro-clots in the lungs of some patients were noticed. The virus has also increased cases of Deep Vein Thrombosis DVT- blood clots usually found in the leg - which can be life-threatening when fragments break off and move up the body into the lungs, blocking blood vessels.

STROKES AND HEART ATTACKS RISK

Micro-strokes have been observed in some infected individuals prior to the onset of serious symptoms, suggesting low doses of anti-clotting agents such as aspirin for prophylaxis. An increase in the d-dimer anti-clotting enzyme is detected in patients affected by Covid-19.

Particularly, in severely affected Covid-19 patients in critical care, some of the studies show that nearly half the patients have pulmonary embolism or blood clots in the lungs. The coronavirus is changing the blood making it much more sticky. And sticky blood can lead to blood clots. Sticky blood is having wider repercussions than just blood clots – it is also leading to higher rates of strokes and heart attacks. Studies are showing that the blood thinners currently being used to treat the blood clots are not always working. And ramping up doses to much higher levels risks patients suffering major bleeding which can be fatal.

Some experts believe there could be another solution: finding a way to reduce the acute inflammation in the lungs which leads to the creation of sticky blood, the source of the problem.

HUMAN TO ANIMALS TRANSMISSION

A four-year-old female Malayan tiger at the Bronx Zoo has tested positive for the Covid-19 virus in April 2020. The tiger, named Nadia, is believed to be the first known case of an animal infected with Covid-19 in the USA. The Bronx Zoo, in New York City, says the test result was confirmed by the National Veterinary Services Laboratory in Iowa.

Nadia, along with six other big cats, is thought to have been infected by a presymptomatic zookeeper. The cats started showing symptoms, including a dry cough after exposure to the employee, who has not been identified.

There have been isolated instances of pets testing positive for the coronavirus elsewhere in the world. Nadia, her sister Azul, as well as two Amur tigers and three African lions who showed symptoms, are all expected to make a full recovery.

Conservation experts have warned that the virus could pose a threat to some wildlife like the great apes - and have said measures are needed to reduce the risk of wild gorillas, chimps and orangutans.

IMMUNE SYSTEM SUPPRESSION, THYMUS GLAND ROLE

Over the past 160 years, life expectancy (from birth) in the USA has risen from 39.4 years in 1860, to 78.9 years in 2020.

The New York Times reported that Dr. John Wherry, an immunologist at the University of Pennsylvania, said that research now points to "very complex immunological signatures of the virus":

> "Dr. Wherry and his colleagues posted online a paper showing a range of immune system defects in severely ill patients, including a loss of virus-fighting T cells in parts of the body.
>
> In a separate study, the investigators identified three patterns of immune defects, and concluded that T cells and B cells, which help orchestrate the immune response, were inactive in roughly 30 percent of the 71 Covid-19 patients they examined.
>
> Researchers in China have reported a similar depletion of T cells in critically ill patients, Dr. Wherry noted. But the emerging data could be difficult to interpret, he said — "like a Rorschach test." "It is hard to separate the effects of simply being critically ill and in an ICU, which can cause havoc on your immune system."
>
> The researchers found that the immune system could actually become impaired because it overreacts to the virus, as happens in sepsis patients. They found that in Covid-19 patients, there was a marked increase in a molecule called IP10, which sends T cells to where they are needed in the body. Patients with coronavirus, as well as SARS and MERS, see a level of IP10 molecules that go up and stay up, which can create "chaotic signaling" in the body."

Dr. Adrian Hayday, an immunologist at King's College London said: "It's like Usain Bolt hearing the starting gun and starting to run. Then someone keeps firing the starting gun over and over. What would he do? He'd stop, confused and disoriented." This causes some T-cells, usually prepared to destroy the virus, to become confused and act "abberrantly". Recovery becomes tougher for those over 40 because the thymus gland, which is responsible for creating new T-cells, becomes less efficient. In kids, the thymus gland works much better.

An overreaction of the immune system, causing things like a cytokine storm, may also be able to be treated by blocking a molecule called ID6, which helps organize immune cells. "There clearly are some patients where IL-6 is elevated, and so suppressing it may help. But the core goal should be to restore and resurrect the immune system, not suppress it," Hayday said. Hayday believes an antiviral treatment may make the most sense, given the newfound information: "I have not lost one ounce of my optimism. A vaccine would

be great. But with the logistics of its global rollout being so challenging, it's comforting to think we may not depend on one."

The South China Morning Post, SCMP reported a study by Chinese scientists who found that the novel coronavirus uses the same strategy to evade attack from the human immune system as HIV. Specifically, both viruses remove marker molecules on the surface of an infected cell that are used by the immune system to identify invaders. The researchers warned that this commonality could mean Sars-CoV-2, the clinical name for the virus, could be around for some time, like HIV. The South China Morning Post, SCMP writes that "earlier studies found the spike protein of the new coronavirus had a structure that allowed it to enter many types of human cells and bind with them. The same structure was also found in HIV, but not in other coronaviruses found in animals such as bats and pangolins."

The New York Times in the USA and the South China Morning Post, SCMP in Hong Kong appear to point out that the coronavirus not only shares genetic material with HIV, but also evades and cripples the immune system in a similar way to HIV.

According to Wikipedia on HIV:

> "The human immunodeficiency viruses are two species of Lentivirus that infect humans. Over time, they cause acquired immunodeficiency syndrome, a condition in which progressive failure of the immune system allows life-threatening opportunistic infections and cancers to thrive.
>
> "HIV is a member of the genus Lentivirus, part of the family Retroviridae. Lentiviruses have many morphologies and biological properties in common. Many species are infected by lentiviruses, which are characteristically responsible for long-duration illnesses with a long incubation period. Lentiviruses are transmitted as single-stranded, positive-sense, enveloped RNA viruses."

According to Mayo Clinic, USA:

> "HIV is a sexually transmitted infection (STI). It can also be spread by contact with infected blood or from mother to child during pregnancy, child-birth or breast-feeding. Without medication, it may take years before HIV weakens your immune system to the point that you have AIDS. There's no cure for HIV/AIDS, but medications can dramatically slow the progression of the disease."

HIV SYMPTOMS FROM AUSTRALIAN VACCINE

A promising Australian candidate for a coronavirus vaccine has been abandoned after trial participants returned false HIV positive results. Australia had previously agreed to buy 51 million doses of the vaccine being developed by Australian firm CSL and the University of Queensland (UQ). The government said orders of other vaccines would now fill the shortfall.

A permanent incorporation of the viral genome into the patients' genome is possible in HIV.

CSL and UQ stressed that the positive results were false - meaning trial participants' health was not at risk. The Australian government entered an agreement for the Novavax vaccine and upped its existing order of the Oxford/AstraZeneca vaccine.

The vaccine had been in stage one of trials and proving to be effective in making antibodies. But it also generated HIV antibodies in some recipients, which meant it showed false positives for HIV. Further testing proved the HIV was not there. CSL and UQ said fixing the flaw would take about a year, prompting a decision to abandon the trial.

LONG TERM RISKS

About 90 percent of vaccines never make it to market. An unanswered question about the Covid-19 virus is its long-term effects. Syphilis can hide out in a person's body for years or even decades before suddenly taking its toll. Congenital syphilis is passed on from mothers to children and manifests in when they grow up. The same thing is true of HIV and Epstein-Barr infections. These facts are unknown to the general public.

Two full doses of the Oxford / Astra Zeneca vaccine gave 62 percent protection, a half dose followed by a full dose was 90 percent efficient and overall first stage trial showed 70 percent protection.

A number of countries, including Denmark and Norway, suspended the use of the Astra-Zeneca option. Of around 5 million Europeans who have already received the AstraZeneca vaccine, about 30 cases had reported "thromboembolic events" - or developing blood clots. The European Medicines Agency (EMA) said that there was no indication the injection was causing the blood clots, adding that its "benefits continue to outweigh its risks".

Vaccines may be produced in one place but "filled and finished" - put into vials and prepared for export - in another. Some components used in making the vaccine may be made at yet another location. For example, a UK company called Croda is supplying a component to Pfizer to make its vaccine. The lipid components - fat molecules used to encase the virus's fragile genetic material and transport it into the body - are in relatively short supply, according to science data company Airfinity.

Pfizer released their own funded study stating their treatment efficacy has dropped to 47 percent warranting them to recommend a third treatment,

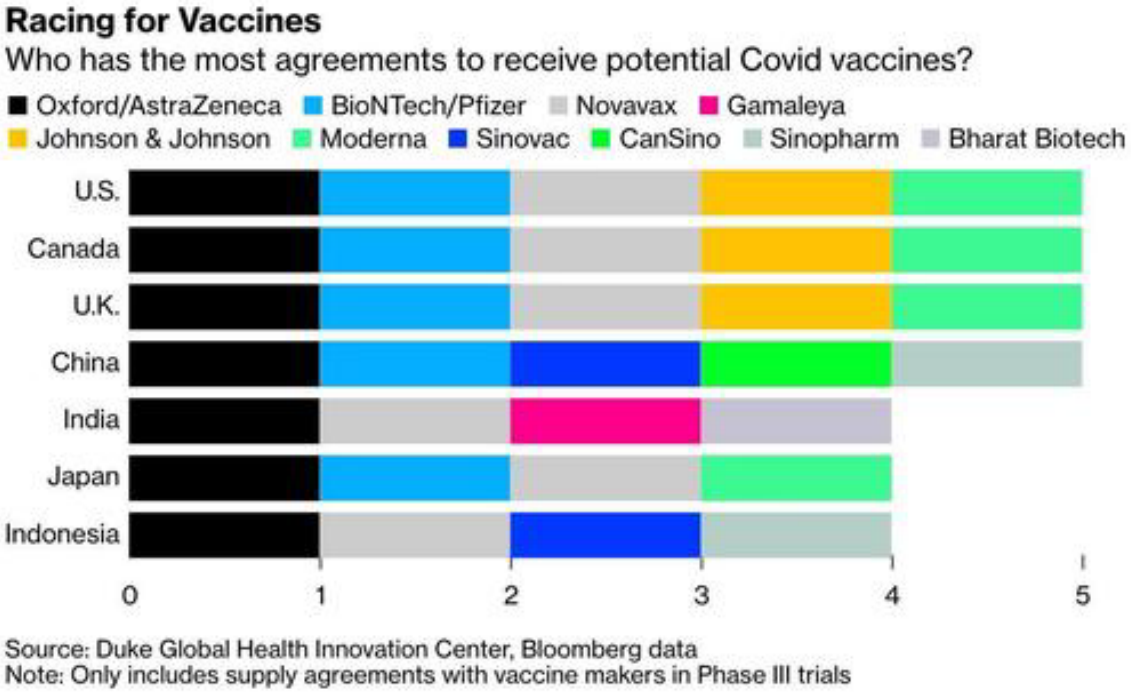
Table 13. Comparison of main vaccines. Unlike Pfizer and Moderna vaccines, which use new mRNA gene therapy technology and require two shots, the Johnson & Johnson vaccine uses a common cold virus that has been engineered to make it harmless.

Vaccine	Nature	Number of doses, shots	Effectiveness percent	Delivery/Storage temperature	Manufacturing sites
ChAdOx1 nCoV-2019	Viral vector, genetically	2	62-90 %? 70%?	Regular refrigeration	Oxford Biomedica Oxford, Cobra

Oxford University/Astra Zeneca	modified adenovirus vector Uses double stranded DNA		Blood clots observations		Biologics Keele, Wockhardt facility Wrexham, UK, Seneffe, Belgium Leiden, Netherlands Serum Institute, India
mRNA-1273 Moderna	mRNA coding for a form of the spike protein of SARS-CoV-2	2	94 %	Regular at -20C Up to 6 months	Switzerland, Spain
BNT162b2 BioNTech / Pfizer	mRNA coding for a form of the spike protein of SARS-CoV-2	2	95 %	-70C	Pfizer production plant Puurs, Belgium Marburg, Germany
Gam-COVID-Vac Sputnik V, Gamaleya Scientific Research Institute Russia	Viral Vector	2	91.6 %	Regular refrigeration	Russia
JNJ-78436735 Johnson & Johnson and Janssen Pharmaceuticals	Recombinant, replication-incompetent adenovirus type 26 expressing the SARS-CoV-2 spike protein. Viral Vector Common cold Adenovirus	1	66 % (severe symptoms) 100 % (hospitalization and death)	Regular refrigeration	Netherlands
Sanofi-Pasteur	Antigen vaccine with no heavy metal adjuvants. Uses insect protein like the Shingle vaccine.				
Novavax, protein based vaccine.	Conventional approach Proteins from the	1		Regular refrigeration	

Moth produced spike protein.	virus and a chemical to prime the immune system.				
Coronavac Sinovac, CanSino and Sinopharm, China	Killed viruses	2	Coronavac 50 % Sinopharm: 79 percent effectiveness	Regular refrigeration	
Serum, India					Serum Institute, India
Valvena, inactivated whole virus particle. Generalized antigens polyclonal B and T cells generation immune response.					
CureVac, mRNA vaccine					

- 97 % effective. 3% of the vaccinated people may get infected and those are suffering a mild form of disease.



All vaccines are not equal. The Pfizer and Moderna vaccine use a lipid that never disintegrates in the body to inject a peptide of the COVID virus depicting the crown peptides. These can be produced in large quantities fast because they are not based on a virus pool. The only downside is vaccines like this have never been used before. The test subjects' bodies are reacting to a genetic recode.

The vaccine is essentially a virus that takes over the normal functions of healthy cells and reprograms them to produce synthetic spike proteins. Once those cells are reprogrammed, they cannot ever go back to the way they were before. The cells are now spike protein factories, constantly causing the immune system to neutralize these particles.

The other vaccines are attenuated using a weakened virus injected into the body with a human adenovirus. The Oxford uses a chimpanzee's Adenovirus to avoid an immune response that may make the vaccine ineffective.

One company is using a cold virus from a monkey to deliver DNA (Astra Zeneca) while another is using a human cold virus (Johnson and Johnson). Each company kind of develops its own system, but the rationale is the same: Find a virus that not a lot of people have been exposed to before. By using a monkey adenovirus, a human would not have been exposed to it. In humans, there are a lot of different types of adenoviruses, some a lot more common than others. The vaccine is likely made from a rare one. If you use a common virus, there is always a chance someone will have been infected naturally and their immune system will attack the vaccine before it can work.

Human fetal tissue in used in most vaccines. It is a cheaper medium and more plentiful than using rhesus monkeys. When school children are vaccinated, there is fetal tissue in those shots, as well as that the yearly flu shot some people get.

The human adenovirus carrier is well established technology with many years of history. It is slower to produce due to the fact COVID grows slowly in the lab and relies on a pool of infectious subjects.

The Oxford vaccine will eventually prevail as the global first choice since refrigeration requirements are far less limiting than Pfizer or Moderna.

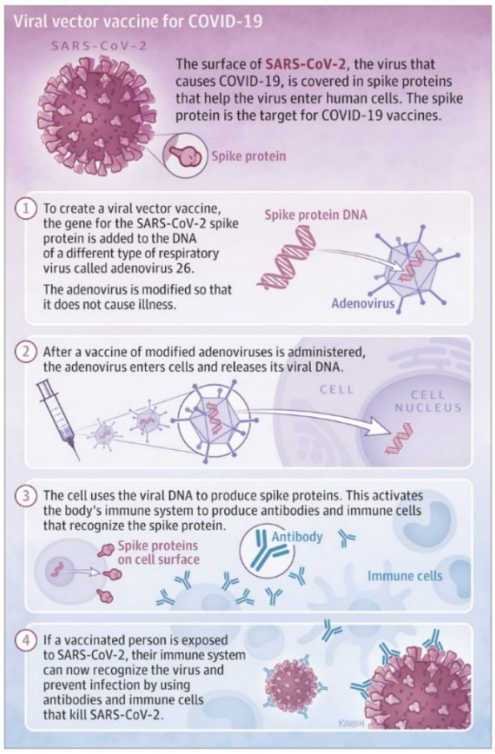
The Russian vaccine has been around for a while, they developed it for SARS, which is very similar to Covid, so they tweaked the SARS vaccine to immunize against Covid. The early Chinese vaccines are probably the same. The west never developed any vaccines for SARS as it made no profit, so has to start from scratch.

JOHNSON & JOHNSON, JANSSEN VIRUS VECTOR VACCINE

The Johnson & Johnson vaccine is different. It is an adenovirus vector vaccine. Adenovirus is the virus that causes the common cold. The virus in this vaccine has been changed so that it does not cause illness. With this type of vaccine, a carrier, in this case adenovirus, acts as a delivery vehicle.

The adenovirus has had the coronavirus spike protein added to its DNA. The adenovirus carries that genetic material into your body, delivering its modified DNA to your cells. Your cells will then make the spike protein, activating your immune system. Once activated, your immune system creates antibodies to fight off the spike protein.

Janssen Pharmaceutica, a Belgium-based division of Johnson & Johnson, is developing the vaccine in collaboration with Beth Israel Deaconess Medical Center.



The adenovirus that delivers the SARS-CoV-2 DNA particle cannot multiply, so it does not cause infection. Because this system is based on stable DNA molecules, it does not require ultracold storage, making it easier to distribute.

The Pfizer and Moderna COVID-19 vaccine technology uses genetic material (mRNA) that code for parts of the SARS-CoV-2 virus protein. This mRNA is protected by lipid nanoparticles (fat bubbles) that, when injected, cause a person's own cells to make pieces of viral particles to which the body develops immunity. Because the genetic material is broken down quickly, it stays in a person's cells for only a short period of time. For this reason, these vaccines must be kept in very cold environments until they are ready to be given.

Initially, the Johnson & Johnson vaccine was shown to produce antibodies against SARS-CoV-2 in 90 percent of people who received it after the first dose. The amount of antibodies was greater for those who received 2 doses of the vaccine. Data released by Johnson & Johnson suggest that a single dose of the vaccine was 66 percent effective in preventing moderate to severe COVID-19 and 100 percent effective in preventing COVID-19–related hospitalization and death.

In the studies of this vaccine, no one developed a severe allergic reaction, and side effects of the vaccine were similar to those of other vaccines, including fever experienced by 9 percent of volunteers. The vaccine did not appear to cause any excess serious complications.

Adenovirus-based vaccines for Covid-19 are more rugged than mRNA vaccines from Pfizer and Moderna. DNA is not as fragile as RNA, and the adenovirus's tough protein coat helps protect the genetic material inside. As a result, the Johnson & Johnson vaccine can be refrigerated for up to three months at 36–46°F (2–8°C).

To make their virus vector vaccine, Johnson & Johnson infects PER.C6 fetal cell line cells with adenovirus. All PER.C6 cells used to manufacture the Johnson & Johnson vaccine are descended from tissue taken from a 1985 elective abortion that took place in the Netherlands. The fetal cell line HEK 293 was used in the Moderna and Pfizer vaccines in the confirmation phase to ensure the vaccines work. All HEK 293 cells are descended from tissue taken from a 1973 elective abortion that took place in the Netherlands.

Fetal cell lines are not the same as fetal tissue. Fetal cell lines are cells that grow in a laboratory. They descend from cells taken from elective abortions in the 1970s and 1980s. Those individual cells from the 1970s and 1980s have since multiplied into many new cells over the past four or five decades, creating fetal cell lines. Current fetal cell lines are thousands of generations removed from the original fetal tissue. They do not contain any tissue from a fetus. The Vatican has issued clear guidance that permits Roman Catholics in good faith to receive COVID-19 vaccines that use fetal cell lines in development or production.

NOVAVAX PROTEIN BASED VACCINE

Novavax vaccine is using a different, old-school, approach to vaccines - proteins from the virus and a chemical to prime the immune system are injected into the body.

SINOVAC, CANSINO, SINOPHARM VACCINES

China has been developing Covid-19 vaccines since the very beginning of the pandemic. It was the first country in the world to give a vaccine to some of its population in summer 2020. It currently has 16 different vaccines at various stages of development, but the current front-runners are from Sinovac and Sinopharm.

China has agreed deals with more than 20 countries and has plans to export vaccines all over the world. The Sinovac, CanSino and Sinopharm vaccines have been developed by scientists in China and deals have been signed with other countries in Asia and South America. Around one million people in China are reported to have been given the Sinopharm injection.

Figure 13. Arrival of Chinese vaccine into Egypt.

SPUTNIK V VACCINE

The Sputnik V vaccine, developed by Russia's Gamaleya Research Centre, is also effective according to late-stage trial results published in The Lancet.

VIRUS-VIRUS INTERACTIONS, COMPETITION AMONG VIRUSES: RHINOVIRUS TRUMPS CORONAVIRUS.

The virus that causes the common cold can effectively boot the Covid virus out of the body's cells, say researchers. Some viruses are known to compete in order to be the one that causes an infection. The results have been published in the Journal of Infectious Diseases.

The benefits might be short-lived but common cold rhinovirus is so widespread, it could still help to suppress Covid. Think of the cells in your nose, throat and lungs as being like a row of houses. Once a virus gets inside, it can either hold the door open to let in other viruses, or it can nail the door shut and keep its new home to itself.

Influenza is one of the most selfish viruses around, and nearly always infects alone. Others, such as adenoviruses, seem to be more up for a houseshare. There has been much speculation about how the virus that causes Covid, known as Sars-CoV-2, would fit into the mysterious world of "virus-virus interactions".

The team at the Centre for Virus Research in Glasgow used a replica of the lining of our airways, made out of the same types of cells, and infected it with Sars-CoV-2 and rhinovirus, which is one of the most widespread infections in people, and a cause of the common cold. Rhinovirus is the most common common-cold causing virus. Coronavirus is number two.

If rhinovirus and Sars-CoV-2 were released at the same time, only rhinovirus is successful. If rhinovirus had a 24-hour head-start then Sars-CoV-2 does not get a look in. And even when Sars-CoV-2 had 24-hours to get started, rhinovirus boots it out. Sars-CoV-2 never takes off, it is heavily inhibited by rhinovirus. This is exciting because if you have a high prevalence of rhinovirus, it could stop new Sars-CoV-2 infections.

Similar effects have been seen before. A large rhinovirus outbreak may have delayed the 2009 swine flu pandemic in parts of Europe. Further experiments showed rhinovirus was triggering an immune response inside the infected cells, which blocked the ability of Sars-CoV-2 to make copies of itself. When scientists blocked the immune response, then levels of the Covid virus were the same as if rhinovirus was not there.

However, Covid would be able to cause an infection again once the cold had passed and the immune response calmed down. Vaccination, plus hygiene measures, plus the interactions between viruses could lower the incidence of Sars-CoV-2 heavily, but the maximum effect will come from vaccination."

Human rhinoviruses, the most frequent cause of the common cold, are "highly transmissible". This common infection could impact the burden of Covid-19 and influence the spread of SarsCoV2, particularly over the autumn and winter months when seasonal colds are more frequent. Coronavirus is likely to remain around, and all the other infections

that have been suppressed during the pandemic could bounce back as immunity to them wanes.

"GENE THERAPIES," "TRANSFORMATIVE MEDICINE" OR "VACCINES"?

The Center for Disease Control, CDC changed the definition of vaccination on September 1st 2021.

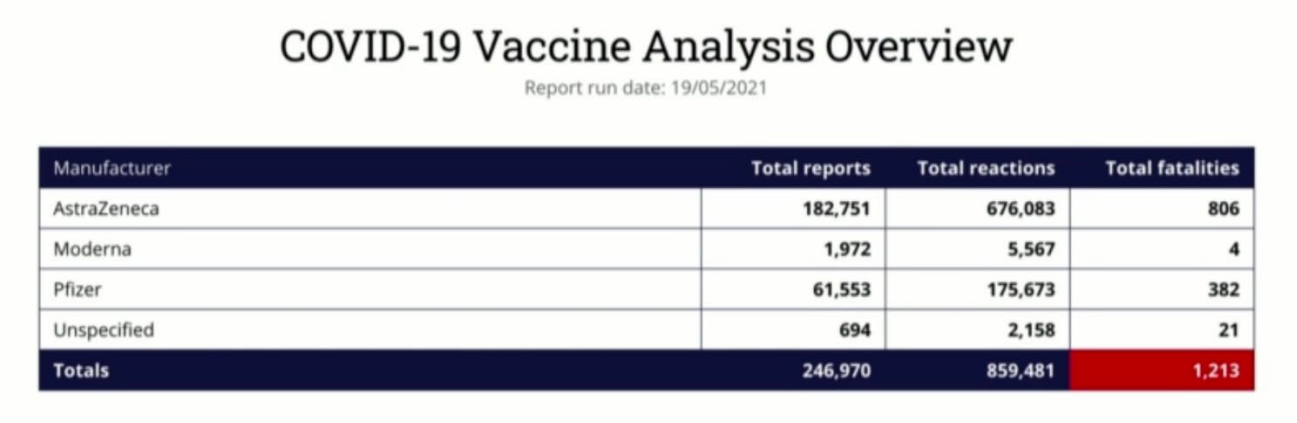
On August 26th 2021,

"Vaccination: The act of introducing a vaccine into the body to produce **immunity** to a specific disease."

On September 1st 2021,

"Vaccination: The act of introducing a vaccine into the body to produce **protection** from a specific disease."

In a controlled study that showed that mRNA vaccines were effective (vaccinated group, control group, both about 20,000 people), the following results were reported: Only 8 people out of 20,033 who received two full doses of the vaccine ended up testing positive for Covid-19. Meanwhile, out of 20,000 people who did not receive the vaccine, 162 of them expressed symptoms of acute respiratory illness and tested positive for Covid-19.



COVID-19 Vaccine Analysis Overview

Report run date: 19/05/2021

Manufacturer	Total reports	Total reactions	Total fatalities
AstraZeneca	182,751	676,083	806
Moderna	1,972	5,567	4
Pfizer	61,553	175,673	382
Unspecified	694	2,158	21
Totals	246,970	859,481	1,213

Figure 14. Vaccines side effects risks. Tree areas of concern are adverse reactions as: clotting disorders, neurological damage, abnormal menses and the possibility of spike proteins vaccine materials shedding by injected individuals.

Thus, the mRNA vaccine was shown to greatly reduce infection by COVID on this basis. They kept careful track of all the participants, including the 162 who tested positive for Covid-19 in the control group.

Out of those 162 in the placebo group who tested positive for Covid-19, 3 of them had 'severe' Covid. And only one of them was hospitalized.

The study clearly defines 'severe' Covid-19 by a quantitative measurement of oxygen saturation. So there was no subjectivity involved.

If we can rely on the available science, then if you do not take the vaccine your chances of getting hospitalized are under 1%. The chance of suffering a severe Covid-19 case are low to begin with.

It must be admitted that Pfizer and Moderna 'Vaccines' Do Not Meet Any Conventional Definition of the Term 'Vaccine". Moderna and Pfizer's "vaccines" utilize new mRNA technology. They are not actually "vaccines" according to the conventional definition of the term.

Pfizer and Moderna vaccines gene therapy were tested for reducing symptoms. They were not tested for creating immunity or stopping transmission. They cannot provide herd immunity if they do not stop infections. They allow the immune system to develop the immunity while not having to endure the extreme symptoms of the virus. So, the vaccines would only eliminate the severe consequences of gaining herd immunity. Those who do not take the vaccine probability of getting hospitalized is under 1 percent.

According to Pfizer's public relations page:

> "Unlike a traditional vaccine that uses inactivated, dead, or portions of actual virus to spur an immune response, mRNA delivers a message to your body's cells via a lipid nanoparticle envelope that instructs the cells to generate the spike protein found on the surface of a coronavirus that initiates infection."

In Moderna's 2018 SEC filing, they offer a clearer, more legally precise explanation of their work, correctly referring to them therein as "gene therapies" and "transformative medicine":

> "Currently, mRNA is considered a gene therapy product by the FDA… We are creating a new category of transformative medicines based on messenger RNA, or mRNA, to improve the lives of patients. From the beginning, we designed our strategy and operations to realize the full potential value and impact of mRNA over a long time horizon across a broad array of human diseases."

A "patient," practically speaking is a person who is sick and needs medical care. Messenger RNA shots are given to people who are not sick and are not "patients" by any normal definition.

The mRNA vaccines target the spike proteins, whereas natural immunity targets several aspects of the virus, which makes natural immunity, the real immunity. After the vaccine, the body only attacks the spike proteins, and when the spike proteins change as a result of mutations in nature, the vaccine becomes worthless, but the natural antibodies have more points of identity and attack then the vaccine. It is considered as a political calculated bet that the vaccine is better than no vaccine. A question are what else the mRNA vaccines are doing inside the body, and how the antibodies will react when faced with a new variant. Will there be any pathogen priming or will the antibodies then attack the body's own cells? It seems that severe symptoms occur when the spike protein gets into the blood.

The problem with the Covid-19 vaccines is that they stimulate immunity only against a few artificially selected antigens. So, if these antigens mutate and change, then the immunity produced by the vaccine becomes ineffective.

But people who actually had an infection with this virus and got well, are people who have a much broader immunity Because in an actual infection, the human body produces antibodies against all foreign antigens it can find. So, a mutation in a few of these antigens does not totally defeat the person's immunity. Perhaps for this virus, vaccines can only give a temporary immunity. Herd immunity might never be reached, until a lot of people have an actual infection and get immunity from that.

The 'vector' vaccines work essentially like the mRNA vaccines. The Johnson & Johnson vaccine has the same vector class as the Sputnik, Oxford-Astra-Zeneca, and India Vac. All the vector vaccines use genetically modified virus DNA to invade the cells, then your cells convert that to mRNA so the body makes the Covid Spike Protein to pre-load the immune system to respond to it.

As such, these are really not strictly vaccines because they do not offer immunity or prevent transmission of covid. They are designed to pre-load your immune system to reduce severity of infection.

The only 'traditional' vaccines are the Chinese vaccines.

The Protein SubUnit vaccines are different from the 'vector' and RNA/DNA vaccines.

Viruses mutate constantly. Every person that has a cold or the flu passes on a virus that is mutated by that host. The host effectively mutates the virus. That is why throughout the history of humanity, there may never be a cold vaccine, or flu vaccine that works. A surprising number of patients who have already been fully vaccinated have been found to get re-infected. Doctors are expected to encourage people to "get your flu shot" every year, because "it is different than last year's strain". Even the annual flu shot is based on last year's strain or an amalgam of the last 3-5 years strains.

ANTIBODY DEPENDENT ENHANCEMENT, ADE, CREATING TYPHOID MARYS

A claim is that once you took the mRNA "vaccines" you are compromised, due to your immune system being overwritten/specialized only on the spike protein, here comes the Antibody Dependent Enhancement, ADE.

It is increasingly suspected that Covid-19 is a bioweapon that is SARS Covid-1 with the dangerous glycoproten 120, GP120 which is an HIV component, inserted into it to make it more virulent to attack the human immune system.

Medical scientists in India reported four intersections in the spike glycoprotein that are unique to Covid-19 and not present in other coronaviruses. The article was taken down after it was suggested that Covid-19 was created in a lab by inserting the glycoprotein from HIV-1 into a SARS virus.

Either the Covid-19 shot is a vaccine that prevents contraction and spread, or it is a treatment creating spreading Typhoid Marys out of everyone. The CDC says it cannot be a vaccine as they define vaccine as preventing contraction and spread. Then they announced that the "vaccines" allow contraction and spread. As weak antibodies against

the disease are generated, so the disease mutates and overpowers the weak antibodies. Dr. Lee Merritt suggests that mRNA technology is not a vaccine:

> "In animal studies, after mRNA injections have been administered to cats, when the virus arrived once again into the body, it arrived like a Trojan Horse, undetected by the cats' own immune system. The virus multiplied unchallenged, and all animals involved in the experiment died from various causes.
>
> What happened is all animals died… but they didn't die of the "vaccine". What they died from what used to be called "immune enhancement" and now they call it "antibody dependent enhancement" (ADE).Here's what happens:
>
> They make the RNA and you get the "vaccine" and you do fine. Now, you challenge the animal with the virus that you are supposed to be immunizing against.
>
> So when they challenged those cats with SARS [a.k.a. SARS-CoV-1, is a coronavirus species], instead of killing the virus or weakening it, the immune response that they built into your system went out and coddled the virus, so the virus came into the cat's body like a Trojan Horse, unseen by the cat's own immune system, and then it replicated without checking and killed the cat with overwhelming sepsis and cardiac failure. And that [also] happened in ferrets, that happened every time they tried this.
>
> Let me just point out. We have never made it through an animal study successfully for this type of virus. We have never done this in humans before… We don't really have a track record of success. This vaccine was rolled out to distribution centers before they even made a show of caring about the FDA approving it. Do you realize that? I've never seen that happen before."

Vermont, the state with the highest vaccination rate in the USA, experienced a Covid-19 virus surge. The number of cases in Vermont grew to a record level, hospitalizations reached records, and the state recorded the deadliest day and the second deadliest month of the pandemic in September 2021.

Cases in Vermont, already at record levels for the state, just kept on rising, even with the highest vaccination rate in the country — 89% of the 18+ population is at least partially vaccinated, 88% of 12+ & ~100% of seniors."

More than 69 percent of Vermont's population has been fully vaccinated against COVID-19 as of September 24, 2021, according to the CDC, far above the national rate of 56 percent. The state recorded the highest rate of hospitalizations per 100,000 residents on September 30, 2021, breaching a record set on January 31, 2020. Eight people died of the Covid-19 virus in Vermont on September 13, 2021, the highest total recorded since the outbreak of the virus.

In late August 2021, four of ten cases of COVID-19 in Vermont were among vaccinated people, according to a letter signed by 90 employees of the Vermont Health Department, including state Epidemiologist Patsy Kelso.

If Vermont and other northern states is seeing a spike in the Fall of 2021, it may mean that it is cold and people are spending more time indoors while the south is cooling and people are spending less time indoors. Hence cases declining in the south and rising in the north. The same was observed in 2020 when no vaccine existed.

Israel, at some point with 84 percent of the population vaccinated, had the highest infection rate worldwide with 64 percent of those vaccinated developing micro blood clots. A doctor tested all his patients after they took the vaccines with a d-dimer test that detects blood clotting. These people could get a problem with embolism or clotting in the lungs from Deep Vein Thrombosis, DVT, especially if they do not start taking blood thinners.

Hospitalizations and deaths Statistics with the caveat that these figures need more contextual unavailable detail to be fully meaningful as what percentage of the overall population is vaccinated. Elderly people and people with underlying health issues are a very large group among the vaccinated, whereas young people, who do not seem to be seriously affected by the virus, are a majority in the unvaccinated group. Thus, you would expect more vaccinated people to die than unvaccinated, so these results are in line with a priori expectations:

King County (pop. 2,269,675) - Washington State, USA
Death/Hospitalization- August 30 to September 30, 2021
26/131 fully vaccinated = 19.84% died
90/543 unvaccinated = 16.57% died

CDC - April 4, 2021 to July 17th, 2021:
Deaths / Hospitalization (all ages)
428/2,025 = 21.14% of the “fully vaccinated” and hospitalized died
5,126/28,883 = 17.74% of the “unvaccinated” and hospitalized died

Public Health England:
Deaths/Hospitalizations for age 50+
Technical Briefing 23 - Sept 17, 2021
1565/3913 = 39.99% of the "fully vaccinated" died
590/1786 = 33.03% "unvaccinated" died

Technical Briefing 22 - Sept 3, 2021
1054/2651 = 39.76% of the "fully vaccinated" died
437/1322 = 33.06% "unvaccinated" died

Technical Briefing 21 - August 20, 2021
652/1838 = 35.47% of the "fully vaccinated" died
318/989 = 32.15% "unvaccinated" died

Technical Briefing 20 - August 6, 2021
389/1131 = 34.39% of the “fully vaccinated” died
205/670 = 30.59% “unvaccinated” died

Technical Briefing 19 – July 23, 2021

220/703 = 31.29% of the “fully vaccinated” died
131/440 = 29.77% “unvaccinated” died

Technical Briefing 18 – July 9, 2021
116/265 = 43.77% of the “fully vaccinated” died
71/195 = 36.41% “unvaccinated” died

NOTICE: Between July 9th and September 17th 2021
816% increase in unvaccinated hospitalizations
1,377% increase in vaccinated hospitalizations

731% increase in unvaccinated deaths
1,249% increase in vaccinated deaths

187 deaths, 62% were fully vaccinated, for the July 9th report
2,156 deaths, 73% were fully vaccinated, for the Sept 17th report

Covid Hospitalization Data – USA
Hospitalization
0% vaccinated → September 22, 2020 = 4.75% of Hospital beds contain a Covid-19 patient
50.5% fully vaccinated → September 22, 2021 = 12.13% of Hospital beds contain a Covid-19 patient

Vaccines seem to have a short-term effect both on immunized people and a constantly mutating virus. All those vaccinated have similar, induced antibodies; B and several T cells. Those with natural immunity have fingerprint like uniqueness, from the viral perspective all those vaxxed are copies thus easy targets for future variants. Net result is that Vaxing is like smoking, once you are hooked, it is very hard and exceedingly risky to stop.

The "vaccine" is really a genetic therapy that reprograms your body at the cellular level to become a spike protein generating "engine". The term "vaccine" refers to the intended purpose, or at least publicly intended. What was ignored is the lessons of failed SARS and MERS vaccine attempts, and created a seemingly ineffective one, but does not change the name. The authorities knew the vaccines had a significant chance of ADE, but they could not sit back and do nothing. You would have had chaos in the streets. This is not the consequences of a bad government, but of an uninformed public. Doing 'nothing' would have resulted in the generation of natural herd immunity.

There could have been a financial factor at play. If a hospital admits you for "covid", the federal government pays them $13,000. If they put you on a ventilator, the government pays them $39,000.

No one ever said the vaccine would stop transmission, only potentially reduce transmission. It was said it would reduce the odds of having serious complications - which it has.

SPANISH FLU, “PNEUMONIC INFLUENZA” PANDEMIC, 1918-1919

The Spanish flu outbreak in 1918-1919 key lesson is that a second wave of the pandemic, in the autumn of 1918, proved to be more deadly than the first. There were no treatments for influenza and no antibiotics to treat complications such as pneumonia. Hospitals were quickly overwhelmed. In some factories, no-smoking rules were relaxed, in the belief that cigarettes would help prevent infection. Streets and buses in some towns and cities were sprayed with disinfectant and some people wore anti-germ masks, as they went about their daily lives. In the USA, some states imposed quarantines on their citizens, with mixed results, while others tried to make the wearing of face masks compulsory. Places of entertainment were closed across the country. In contrast to 2019-2020, New York was better prepared than most USA cities, having already been through a 20-year campaign against tuberculosis, and as a result suffered a lower death rate.

USE OF FACE MASKS, PERSONAL VS. COLLECTIVE RISKS

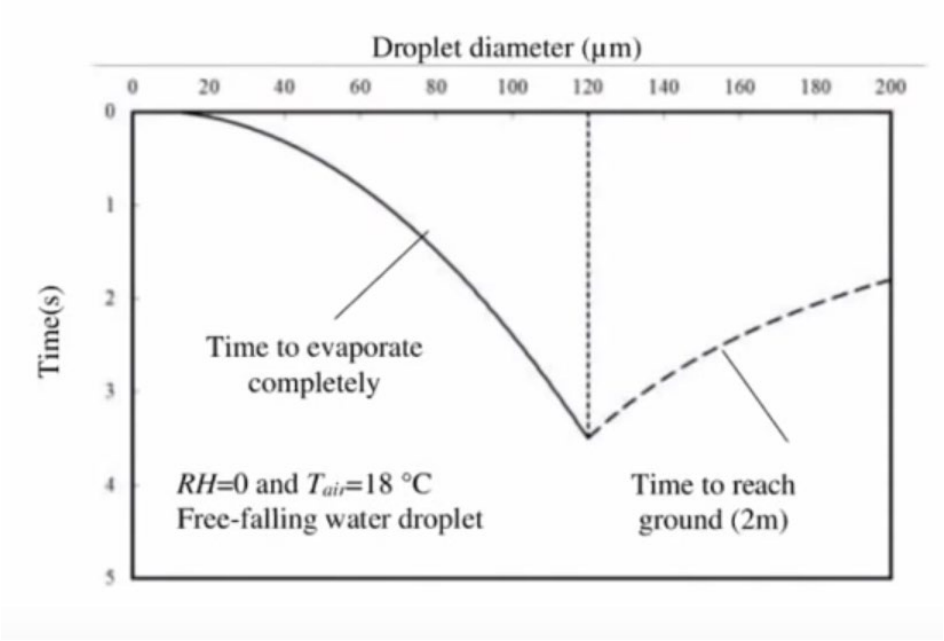


Figure 15. Droplet diameter decreasing as a function of time.

Face masks protect member of the public from exhalation of droplets from an infected person. They do not necessarily protect a person through the inhalation of an infecting particle. They have a collective beneficiary function in curbing the spread of infection, but not necessarily a protection function for the individual from infection.

A mask is less likely to catch a particle already in the air according to the physics of air flow. The longer a droplet is in the air, the more opportunity it has to evaporate through its surface and become smaller or become an aerosol. Infected droplets exhaled from an unmasked person has a better chance to make it through your mask. But most of the infected droplets exiting your mouth would not, since they have not yet a chance to evaporate and aerosolize.

The main transmission path of Covid-19 is long-residence-time aerosol particles (< 2.5 μm), which are too fine to be blocked, and the minimum-infective dose is smaller than one aerosol particle.

Viruses are 1/1,000th the size of pollen and they are just airborne floating around like pollen through Brownian Motion and infect through recirculated air in confined spaces such as central air conditioning systems much like legionnaire disease. However, unlike pollen, UV radiation kills a virus instantly; with virtually no chance of contracting it in the sunlight. It is also now recognized is the virus can infect through the eyes.

Wearing a mask provides a false sense of security and may lead people to feel they do not need to wash their hands, keep further apart and generally be careful in avoiding exposure to sources of infection. Masks that medical professional wear are to prevent them from spreading bacteria, not viruses. Viruses are way smaller than bacteria. They do not wear the cheap paper masks or bandanas. The medical masks are also designed to be static electric, so bacteria cling better to their inside.

Unlike well-to-do Europeans and Asians increasingly adopting bidet appliances, Americans still depend on primitive toilet paper instead of hygienic water in their dwellings as well as public places like offices and hotels.

Despite a global stampede of mask-wearing, data show that 80-90 percent of people in Finland and Holland say they "never" wear masks when they go out, a sharp contrast to the 80-90 percent of people in Spain and Italy who say they "always" wear masks when they go out. Dutch public health officials recently explained why they are not recommending masks: "From a medical point of view, there is no evidence of a medical effect of wearing face masks, so we decided not to impose a national obligation," said Medical Care Minister Tamara van Ark.

Others, echoing statements similar to the USA Surgeon General from early March 2020, said masks could make individuals sicker and exacerbate the spread of the virus: "Face masks in public places are not necessary, based on all the current evidence," said Coen Berends, spokesman for the National Institute for Public Health and the Environment: "There is no benefit and there may even be negative impact."

In Sweden, where COVID-19 deaths have slowed to a crawl, public health officials say they see "no point" in requiring individuals to wear masks: "With numbers diminishing very quickly in Sweden, we see no point in wearing a face mask in Sweden, not even on public transport," said Anders Tegnell, Sweden's top infectious disease expert.

The Center for Disease Control, CDC does not currently recommend the use of facemasks to help prevent novel #coronavirus. Take everyday preventive actions, like staying home when you are sick and washing hands with soap and water, to help slow the spread of respiratory illness.

It is clear from the data that despite the impression of Americans as selfish rebel cowboys who won't wear a mask to protect others, Americans are wearing masks far more than many people in European countries. Polls show Americans are wearing masks at record levels, though a political divide remains: 98 percent of Democrats report wearing masks in public compared to 66 percent of Republicans and 85 percent of Independents.
Whether one is pro-mask or anti-mask, the fact of the matter is that face coverings have become politicized to an unhealthy degree, which stands to only further pollute the science.

Researchers at Minnesota's Center for Infectious Disease Research and Policy responded to demands they remove an article that found mask requirements were "not based on sound data.

The Hippocratic Oath famously calls on medical practitioners to "first, do no harm." Those words did nut actually appear in the original oath; they developed as a form of shorthand. There is a similar principle in the realm of public health: the Principle of Effectiveness. Public health officials say the idea makes it clear that public health organizations have a responsibility to not harm the people they are assigned to protect: "If a community is at risk, the government may have a duty to recommend interventions, as long as those interventions will cause no harm, or are the least harmful option," wrote Claire J. Horwell Professor of Geohealth at Durham University and Fiona McDonald, Co-Director of the Australian Centre for Health Law Research at Queensland University of Technology. "If an agency follows the principle of effectiveness, it will only recommend an intervention that they know to be effective."

The problem with mask mandates is that public health officials are not merely recommending a precaution that may or may not be effective. They are using force to make people submit to a state order that could ultimately make individuals or entire populations sicker, according to world-leading public health officials. That is not just a violation of the Effectiveness Principle. It's a violation of a basic personal freedom.

Mask advocates might mean well, but they overlook a basic reality: humans spontaneously alter behavior during pandemics. Scientific evidence shows that American workplaces and consumers changed the patterns of their travel before lockdown orders were issued.

Instead of ordering people to "mask-up" under penalty of fines or jail time, scientists and public health officials should get back to playing their most important role: developing sound research on which people can freely make informed decisions.

Researchers found that about a third of the workers developed headaches with use of the mask, most had preexisting headaches that were worsened by the mask wearing, and 60% required pain medications for relief. As to the cause of the headaches, while straps and pressure from the mask could be causative, the bulk of the evidence points toward hypoxia and/or hypercapnia as the cause. That is, a reduction in blood oxygenation (hypoxia) or an elevation in blood C02 (hypercapnia).

It is known that the N95 mask, if worn for hours, can reduce blood oxygenation as much as 20%, which can lead to a loss of consciousness, as happened to the hapless fellow driving around alone in his car wearing an N95 mask, causing him to pass out, and to crash his car and sustain injuries. There were several cases of elderly individuals or any person with poor lung function passing out, hitting their head. This can lead to death. By wearing a mask, the exhaled viruses will not be able to escape and will concentrate in the nasal passages, enter the olfactory nerves and travel into the brain.

A drop in oxygen levels (hypoxia) is associated with an impairment in immunity. Studies have shown that hypoxia can inhibit the type of main immune cells used to fight viral infections called the CD4+ T-lymphocyte. This occurs because the hypoxia increases the level of a compound called hypoxia inducible factor-1 (HIF-1), which inhibits T-lymphocytes and stimulates a powerful immune inhibitor cell called the Tregs. This sets the stage for contracting any infection, including Covid-19 and making the consequences

of that infection much graver. In essence, a mask may very well places a person at an increased risk of infections and if so, having a much worse outcome.

People with cancer, especially if the cancer has spread, will be at a further risk from prolonged hypoxia as the cancer grows best in a microenvironment that is low in oxygen. Low oxygen also promotes inflammation which can promote the growth, invasion and spread of cancers. Repeated episodes of hypoxia have been proposed as a significant factor in atherosclerosis and hence increases all cardiovascular (heart attacks) and cerebrovascular (strokes) diseases.

There is another danger to wearing masks on a daily basis, especially if worn for several hours. When a person is infected with a respiratory virus, they will expel some of the virus with each breath. If they are wearing a mask, especially an N95 mask or other tightly fitting mask, they will be constantly rebreathing the viruses, raising the concentration of the virus in the lungs and the nasal passages. We know that people who have the worst reactions to the coronavirus have the highest concentrations of the virus early on. And this leads to the deadly cytokine storm in a selected number.

A Children's jump roping song, 1918, is:

"I had a little bird,
Its name was Enza.
I opened the window,
And in-flu-enza."

World War I killed 20 million people and was followed by the Spanish flu pandemic that incubated in cramped and crowded army training camps on the European Western Front and the unsanitary conditions in the trenches along the French border. The Armistice and war ended on November 11, 1918, but as the soldiers returned home to the USA, they spread a second wave of the disease. About 50 - 100 million people are thought to have succumbed globally which was about 3 percent of the world's population at the time.

In 1918, when the total world population was 1.8 billion people and traveling 100 miles was a major undertaking that took days, the Spanish flu circled the globe, infecting an estimated 500 million people, killing 50 million. Out of a 1918 population of 103 million people, the USA lost 675,000 people; a 2-3 percent mortality rate.

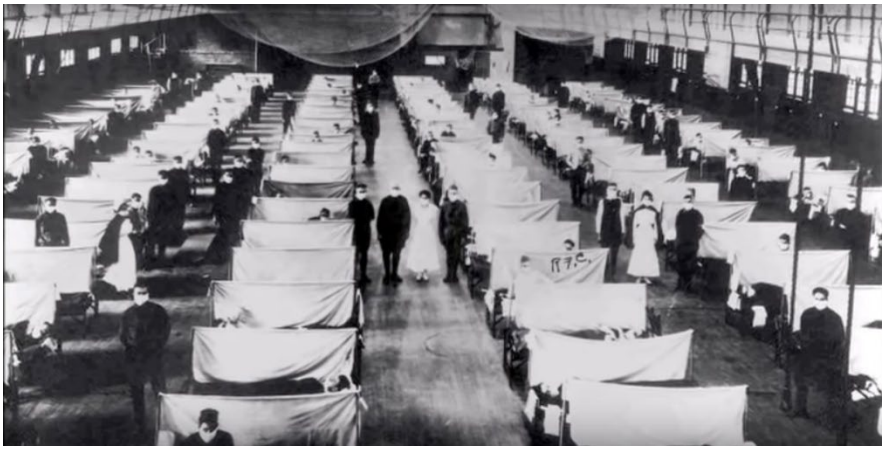
Without the benefit of anything resembling modern medicine, the people of the USA survived and partied the following decade away in what was colloquially known as the Roaring 20's.

The disastrous character of the USA elite running the First World War is clearly revealed with the astonishing fact that more American soldiers were killed and hospitalized by influenza (63,114) than in combat (53,402). And an estimated 340,000 American troops were hospitalized with influenza/pneumonia, compared with 227,000 hospitalized by Germans attacks.

Some researchers argue that the 1918 Spanish flu pandemic began in France in 1916 or China and Vietnam in 1917. The Australian immunologist and Nobel laureate Macfarlane Burnet, who spent most of his career studying influenza, concluded the evidence was "strongly suggestive" that the disease started in the USA and spread to France with "the arrival of American troops" participating in World War I.

Army Camp Funston, Kansas had long been considered as the site where the pandemic started until research pointed to an earlier outbreak in Haskell County, Kansas, in the southwest corner of the state, near Oklahoma and Colorado. In 1918 sod houses were still common, barely distinguishable from the treeless, dry prairie they were dug out of. It had been cattle country but Haskell farmers also raised hogs, which is one possible clue to the origin of the crisis. Another clue is that the county sits on a major migratory flyway for 17 bird species, including sand-hill cranes and mallard ducks [26].

A puzzle has been why China was not affected by the Spanish flu the same year or the next year. Some researchers suggest it hit China at an earlier date. USA soldiers returning from the Philippines and other parts of Asia to assist in preparing for the European WW I effort just might have infected Kansas.



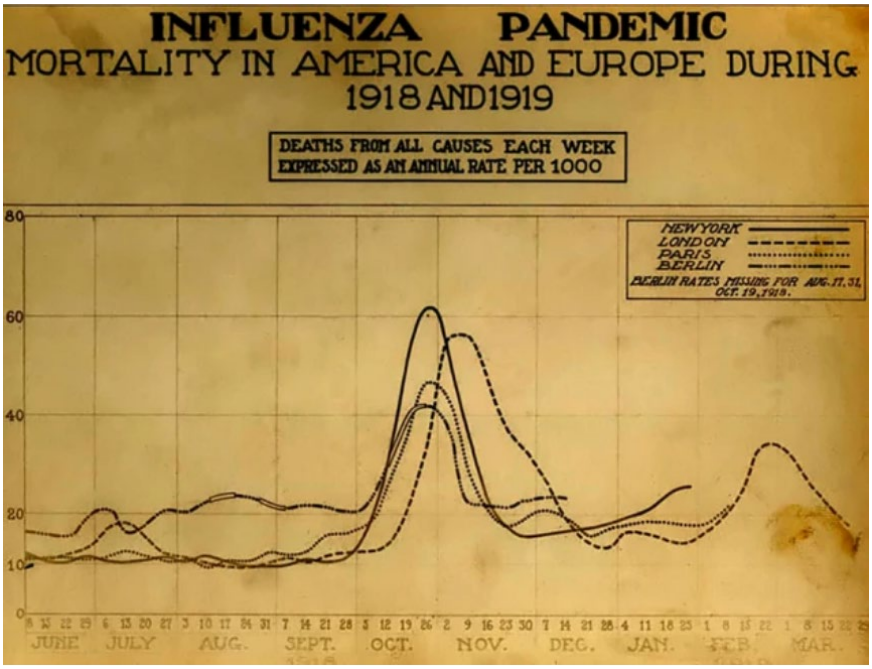

INFLUENZA PANDEMIC
MORTALITY IN AMERICA AND EUROPE DURING 1918 AND 1919
DEATHS FROM ALL CAUSES EACH WEEK EXPRESSED AS AN ANNUAL RATE PER 1000
NEW YORK
LONDON
PARIS
BERLIN
BERLIN RATES MISSING FOR AUG. 17, 31, OCT. 19, 1918.
80
60
40
20
10
0
JUNE JULY AUG. SEPT. OCT. NOV. DEC. JAN. FEB. MAR.

Figure 16. Spanish Swine flu patients' cramped-conditions confinement, 1918. In 1917, military pathologists reported the onset of a new disease with high mortality that they later recognized as the flu. By late 1917, there had already been a first wave of the epidemic. October 1918 was the deadliest month of the whole pandemic. It is estimated to have killed 50 million people which is about 3 percent of the global population at the time.

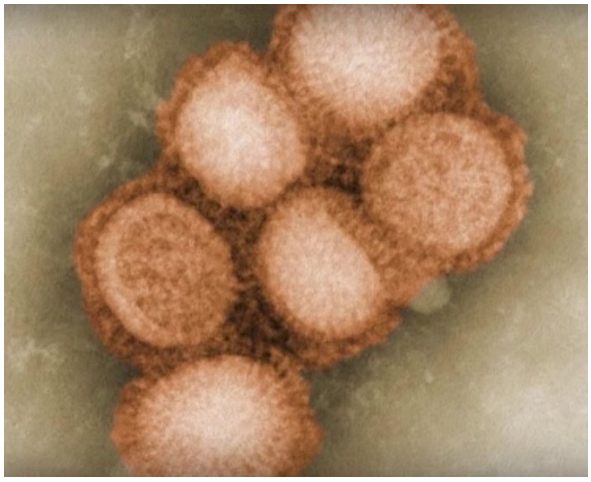


Figure 17. Spanish flu H1N1 virus spread occurred in three waves. The second wave had a 100 percent mortality.

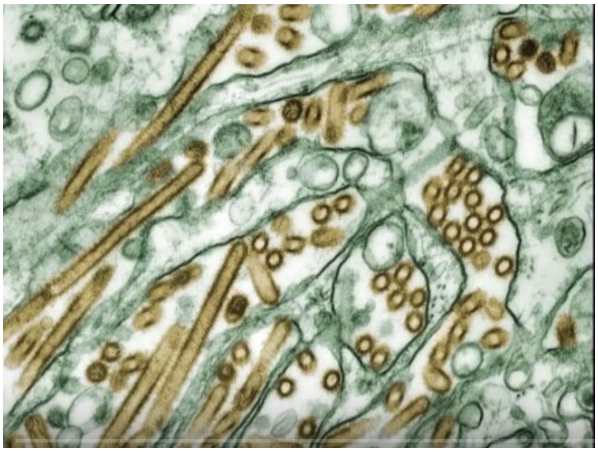


Figure 18. Avian or bird flu H5N1 virus had a 61 percent mortality rate.

Table 14. Wars and pandemic flu victims. Source: DOD.

	American deaths in wars	American deaths from 1918 flu
World War I	116,560	
World War II	418, 500	
Korea	36,914	

Vietnam	58, 220	
Iraq	4,424	
Afghanistan	2,403	
Total	636,977	675,000

Figure 19. Confined birds' mortality from avian or bird flu.

Few places on Earth escaped its effects. Its passage across the world was slower, carried by railway and passenger steamer rather by airliners and filthy airports' passengers checks unsanitary conditions. Some places held out for months, and even years, before the flu arrived and wreaked its toll. Many of the victims succumbed to a form of pneumonia, which takes hold as the immune system is weakened from fighting the virus.

One community in Alaska on Bristol Bay escaped the flu almost unscathed. They closed schools, banned public gatherings, and shut off access to the village from the main road. With the absence of public health systems, only the middle class or the rich could afford to be visited by a doctor. The flu killed many in slums and other poor urban areas, among populations with poor nutrition and sanitation, and often those with underlying health conditions.

The Spanish flu is considered as the "greatest medical holocaust in history". It was not just the fact it killed so many, it was that so many of its victims were young and healthy. Its mutation version struck so quickly that it overwhelmed the immune system, causing a massive over-reaction known as a "cytokine storm", flooding the lungs with fluids which in turn became the reservoir for secondary infections. The elderly were not as susceptible, as they had acquired a level of immunity, having survived a similar strain of flu which spread through human populations in the 1830s.

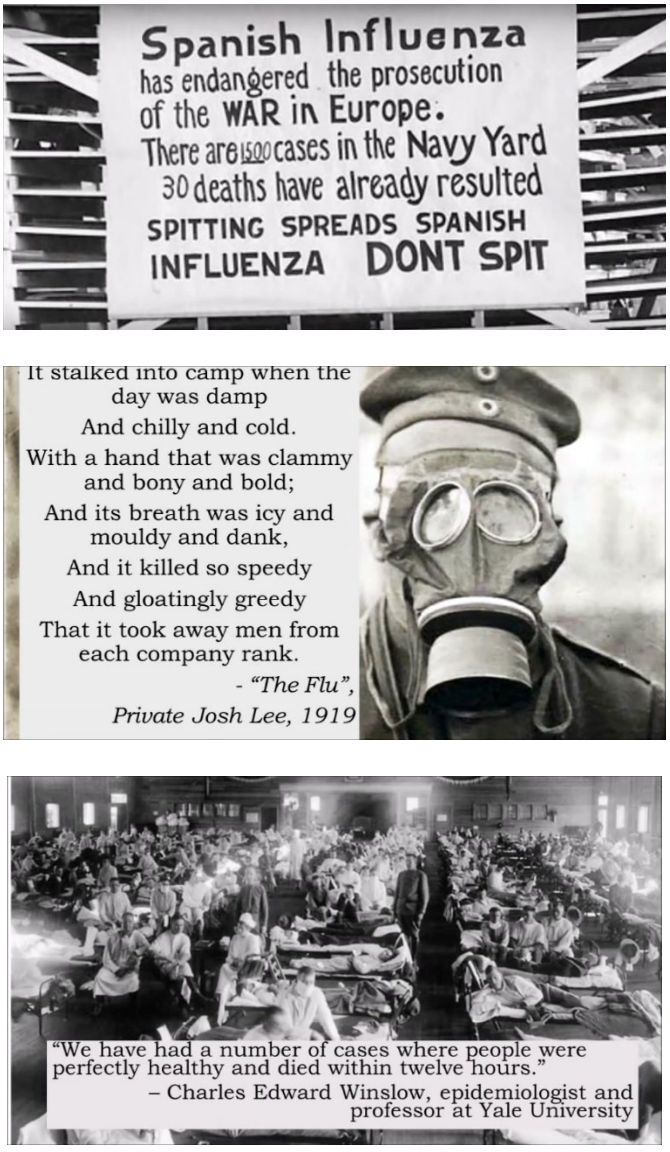
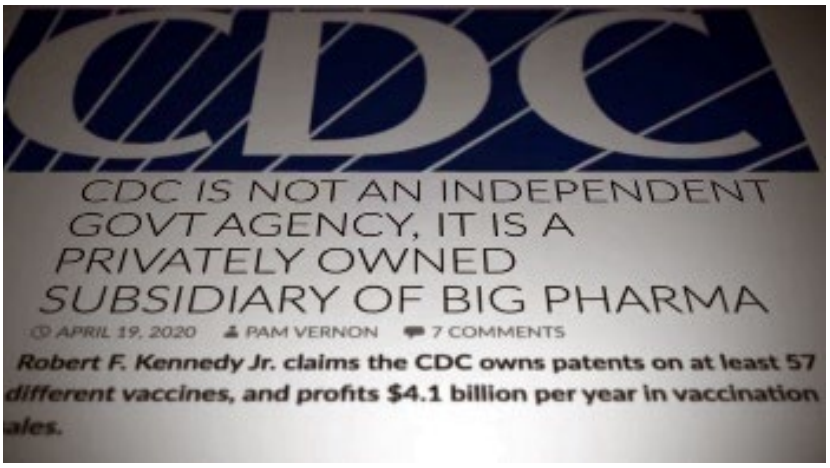
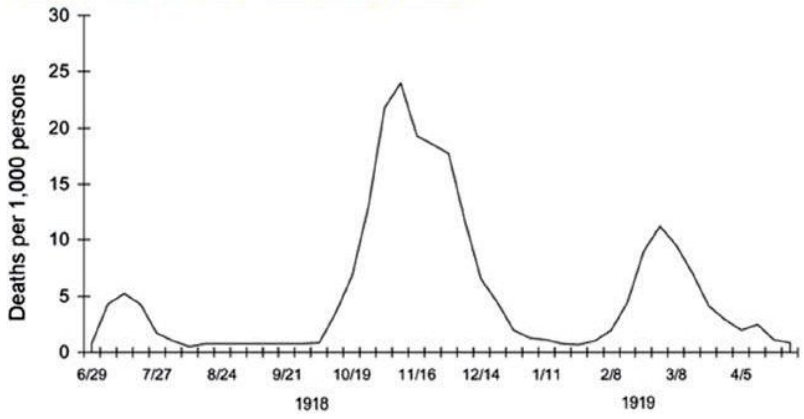


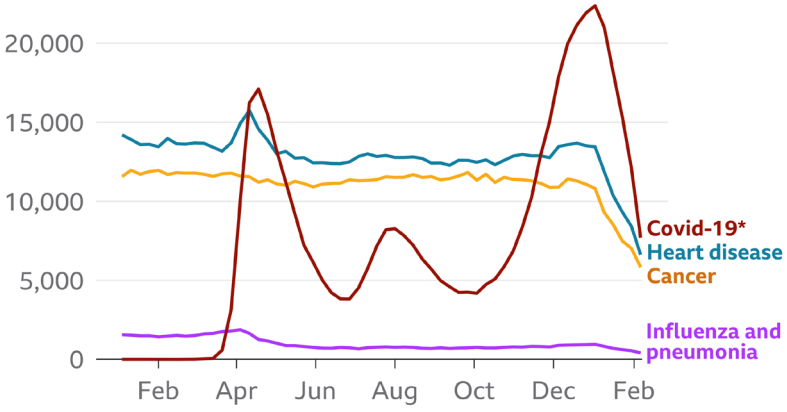
Figure 20. Spanish/Swine Blue-Death (Cyanosis) flu ads, 1918.

Figure 21. Mass burial of Spanish flu victims, 1918-1919, USA.





Number of deaths per week by selected causes, 2020-2021



*Data for Covid-19 includes deaths where other causes may have also been cited

Source: US Centers for Disease Control and Prevention BBC

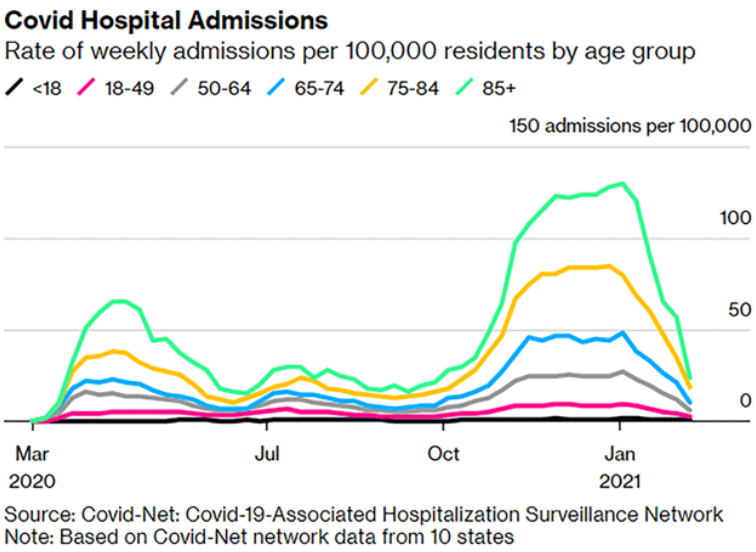
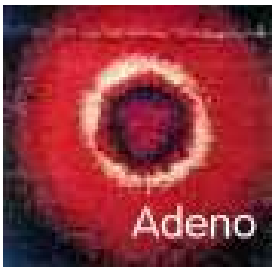


Figure 22. Triple peak of Spanish flu pandemic 1918-1919. Source: CDC. Peaks of Covid-19, 2020-2021.

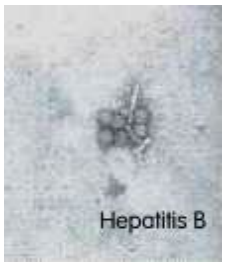
Figure 23. Mass burial for people without a next of kin, Covid-19 pandemic outbreak, New York, April 2020.

Wherever it began, the 1918 "Spanish flu" pandemic lasted just 15 months but was the deadliest disease outbreak in human history, killing between 50 million and 100 million people worldwide. An exact global number is unlikely ever to be determined, given the lack of suitable records in much of the world at that time. But it is clear the pandemic killed more people in a year than the Auto Immune Deficiency Syndrome AIDS has killed in 40 years, and more than the bubonic plague killed in a century. The impact of the pandemic on the USA is sobering to contemplate: Some 670,000 Americans died [26].

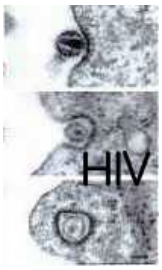
The flu epidemic, misdiagnosed as meningitis, swept through Spain, and sickened the king. The press in Spain, which was not at war and maintained neutrality, wrote at length about the disease, unlike the censored press in warring countries, including the USA that was covered by a "sedition law" limiting free speech that could spread panic at a time of war. Hence it became known as the "Spanish flu."


Adeno

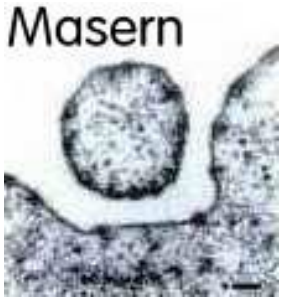

Ebola

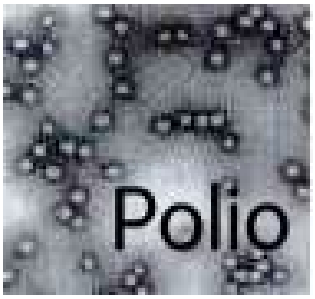

Hepatitis B


Herpes

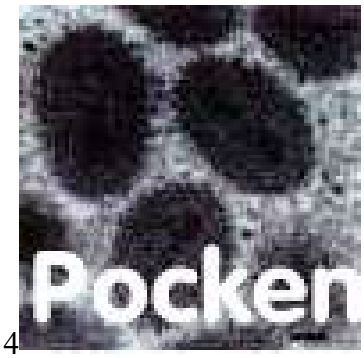

HIV

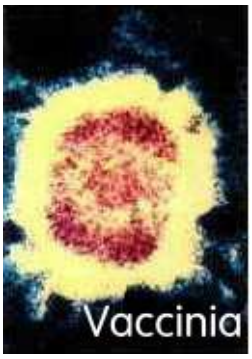

Influenza A


Masern


Polio


Polio


Pocken


Vaccinia

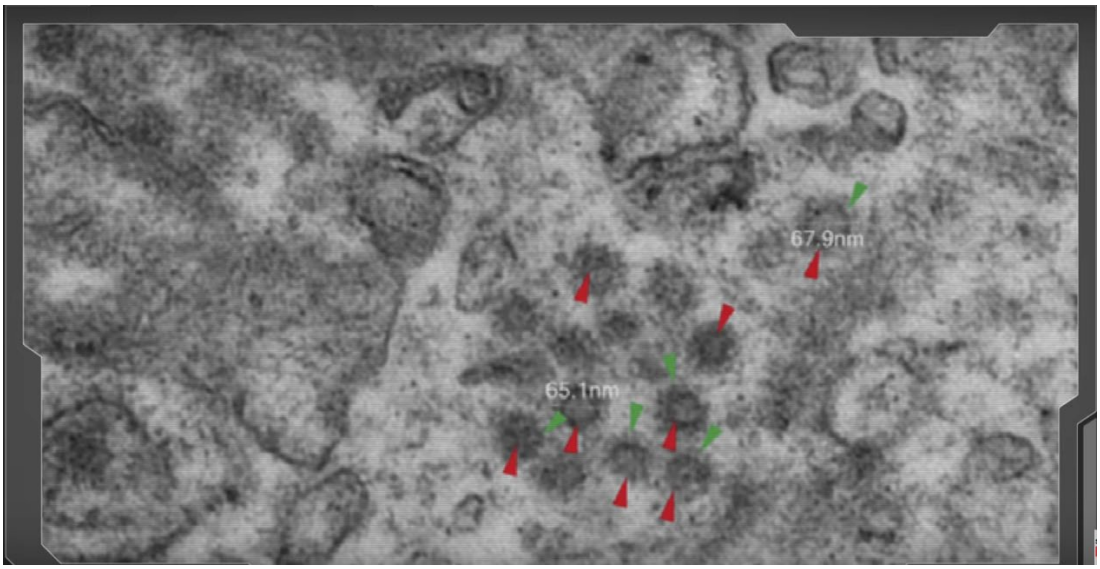
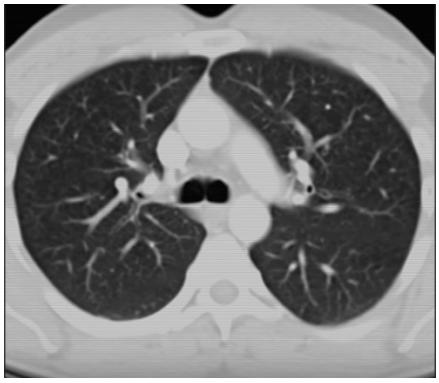
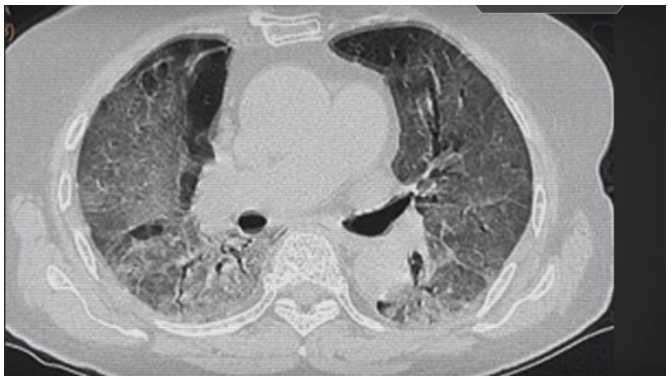


Figure 24. Viruses. Masern: Measles, Pocken: Smallpox, Masern: Measles. Bottom: Covid-19 in kidney tissue from electron microscopy.





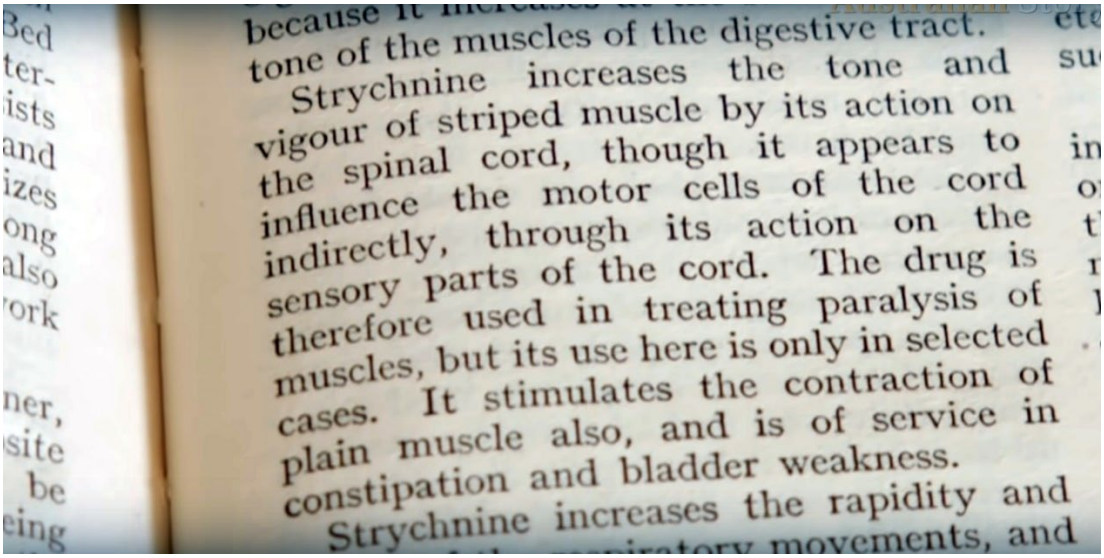


Figure 25. Normal (left) and covid-19 post-mortem (right) Computed Tomography CT scans of chest showing reticular infiltration with bilateral severe dense consolidations. Medication with Strychnine. Vaccination process of military and zinc sulfide with mint inhalation chambers to cleanse out the airways in Australia; with no positive effect.

Secondary bacterial infections are a problem, especially pneumonia. There are definitive indications that the flu can evolve into pneumonia. Afflicted people experience chills so severe that their teeth chatter and experience fever up to 105 degrees Fahrenheit. Labored or rapid breathing is another indication the flu has turned into pneumonia. The cough will be severe and dry and is often accompanied by tightness in the chest. The coughing and chest pain of pneumonia sometimes described as “bronchitis” typically become worse after 12 to 36 hours, and the fever lingers beyond the usual three to four days that accompanies the flu.

The cytokine response induced by Influenza; the so-called "Cytokine Storm" that is responsible for the high mortality in high risk groups, such as young individuals, also appears to inhibit bacterial colonization. It is interesting to note that the long-term Pseudomonas lung colonization in Cystic Fibrosis patients increases their mortality risk

from Influenza, mainly owing to bio-film gene induction changes in response to interferon levels.

By June, the influenza pandemic reached from Algeria to New Zealand [26]. The pandemic probably killed about 670,000 people in the USA. Worldwide, estimates have ranged from 20 million to 40 million. World War I deaths were 8.5 million in comparison.

According to historian John M. Barry [26]:

> "The killing created its own horrors. Governments aggravated them, partly because of the war. For instance, the U.S. military took roughly half of all physicians under 45—and most of the best ones.
>
> "What proved even more deadly was the government policy toward the truth. When the United States entered the war, Woodrow Wilson demanded that "the spirit of ruthless brutality...enter into the very fiber of national life." So he created the Committee on Public Information, which was inspired by an adviser who wrote, "Truth and falsehood are arbitrary terms....The force of an idea lies in its inspirational value. It matters very little if it is true or false."
>
> At Wilson's urging, Congress passed the Sedition Act, making it punishable with 20 years in prison to "utter, print, write or publish any disloyal, profane, scurrilous, or abusive language about the form of government of the United States ...or to urge, incite, or advocate any curtailment of production in this country of anything or things...necessary or essential to the prosecution of the war." Government posters and advertisements urged people to report to the Justice Department anyone "who spreads pessimistic stories...cries for peace, or belittles our effort to win the war."
>
> Against this background, while influenza bled into American life, public health officials, determined to keep morale up, began to lie.
>
> Early in September, a Navy ship from Boston carried influenza to Philadelphia, where the disease erupted in the Navy Yard. The city's public health director, Wilmer Krusen, declared that he would "confine this disease to its present limits, and in this we are sure to be successful. No fatalities have been recorded. No concern whatever is felt."
>
> The next day two sailors died of influenza. Krusen stated they died of "old-fashioned influenza or grip," not Spanish flu. Another health official declared, "From now on the disease will decrease."
>
> The next day 14 sailors died—and the first civilian. Each day the disease accelerated. Each day newspapers assured readers that influenza posed no danger. Krusen assured the city he would "nip the epidemic in the bud."

By September 26, 1918 influenza had spread across the country, and so many military training camps were beginning to look like Camp Devens, an Army training base 35 miles from Boston, that teemed with 45,000 soldiers, that the Army canceled its nationwide draft call. An internal American Red Cross report concluded: "A fear and panic

of the influenza, akin to the terror of the Middle Ages regarding the Black Plague, [has] been prevalent in many parts of the country [26]."

By 1916 generic aspirin was made by the ton and distributed worldwide by the new upstart Monsanto Company. A Federal appeals court earlier that year ruled that only the USA Bayer Company could say it was a pain reliever but everyone else could say aspirin was a fever reducer. The flu-infected patients were taking many grams (grains then) of aspirin per day, worldwide. Treating fever with anti-pyretics is like putting a fire out with kerosene. All the bodily functions that create fever is an evolved response. Aspirin in those quantities was possible to kill those who took large doses.

Victor Vaughan, formerly the dean of the University of Michigan's Medical School, was not a man to resort to hyperbole. Now the head of the Army's communicable disease division, he jotted down his private fear: "If the epidemic continues its mathematical rate of acceleration, civilization could easily disappear...from the face of the earth within a matter of a few more weeks [26]."

In an average year, the seasonal flu lands 200,000 Americans in hospitals. In adults, it imposes an economic burden of $83 billion per year in the USA, a number equal to the annual budget for the state of Florida.

THE ASIAN FLU PANDEMIC, H3N2 SHIFT AND DRIFT VIRUS 1957-1958

The "Asian flu" was a novel strain (H2N2) of influenza A. It was first reported in Hong Kong in April 1957, having originated in mainland China two months before, and it swiftly went global. It led to significant excess mortality. Between 700,000 and 1.5 million people worldwide died in the pandemic.

A difference is that one is a corona virus and the other is an influenza virus. Another difference is that the Asian Flu was likely just a natural mutation of influenza, while Covid-19 is suspected as originating from a lab escape from Gain of Function GOF research; a possible disguise for a biological weapon.

For those who grew up in the 1930s and 1940s, there was nothing unusual about finding yourself threatened by contagious disease. Mumps, measles, chicken pox and German measles swept through entire schools and towns in the USA.

In 1968 another pandemic struck the world, called the Hong Kong flu. The schools had shut down because half the teachers and kids were sick, and there were almost no cars on the streets and no kids out playing in the snow. A few people, mostly in their '80s, did not make it, but life went on as soon as people recovered.

There was also a vanishing polio epidemic. There is a close correlation between the DDT insecticide fumigation campaigns fighting mosquitoes spreading Malaria and Yellow Fever during the second half of the 1940s and the early-1950s in the USA and the dramatic increase and decline of polio during those years.

A pre-Covid study of the 1957-58 pandemic concluded that if "a virus of similar severity" were to strike in our time, around 2.7 million deaths might be anticipated worldwide. The 2021 Covid-19 death toll is 3 million, about the same percentage of world population as were killed in 1957–58 or 0.04%, compared with 1.7% in 1918-19 during the Spanish Flu Pandemic.

The Asian flu killed appreciable numbers of young people. In terms of excess mortality relative to baseline expected mortality rates, the age groups that suffered the

heaviest losses globally were 15- to 24-year-olds (34% above average mortality rates) followed by 5- to 14-year-olds (27% above average). In total years of life lost in the USA, adjusted for population, Covid-19 has been roughly 40% worse than the Asian flu.

The groups most vulnerable to Covid-19 are the elderly: 80.4% of USA Covid deaths, according to the CDC, have been among people 65 and older, compared with 0.2% among those under 25.

The Asian flu and Covid-19 are very different diseases. The Asian flu's basic reproduction number—the average number of people that one person was likely to infect in a population without any immunity—was around 1.65. For Covid-19, it is likely higher, perhaps 2.5 or 3.0. Superspreader events probably played a bigger role in 2020 than in 1957: Covid-19 has a lower dispersion factor—that is, a minority of carriers do most of the transmission. On the other hand, people had more reason to be afraid of a new strain of influenza in 1957 than of a novel coronavirus in 2020. The disastrous pandemic of 1918 was still within living memory, whereas neither SARS nor MERS had produced pandemics.

The first cases of Asian flu in the USA occurred early in June 1957, among the crews of ships berthed at Newport, Rhode Island. Cases also appeared among the 53,000 boys attending the Boy Scout Jamboree at Valley Forge, Pennsylvania. As Scout troops traveled around the country in July and August, they spread the flu. In July there was a massive outbreak in Tangipahoa Parish, Louisiana. By the end of the summer, cases had also appeared in California, Ohio, Kentucky and Utah.

It was the start of the school year that made the Asian flu an epidemic. The Communicable Disease Center, as the CDC was then called, estimated that approximately 45 million people—about 25% of the population—became infected with the new virus in October and November 1957. Younger people experienced the highest infection rates, from school-age children up to adults aged 35-40. Adults over 65 accounted for 60% of influenza deaths, an abnormally low share.

Young Americans were disproportionately vulnerable to the Asian flu. Part of the explanation is that they had not been as exposed as older Americans to earlier strains of influenza. But the scale and incidence of any contagion are functions of both the properties of the pathogen itself and the structure of the social network that it attacks. The year 1957 was in many ways the dawn of the American teenager. The first baby boomers born after the end of World War II turned 13 the following year. Summer camps, school buses and unprecedented social mingling after school ensured that between September 1957 and March 1958 the proportion of teenagers infected with the virus rose from 5% to 75%.

The policy response of then President Dwight Eisenhower could was different from the response of 2020. He did not declare a state of emergency. There were no state lockdowns and, despite the first wave of teenage illness, no school closures. Sick students simply stayed at home, as they usually did. Work continued more or less uninterrupted.

With workplaces open, the Eisenhower administration saw no need to borrow to the hilt to fund transfers and loans to citizens and businesses. The president asked Congress for a mere $2.5 million ($23 million in today's inflation-adjusted terms) to provide additional support to the Public Health Service. There was a recession that year, but it had little if anything to do with the pandemic. The Congressional Budget Office has described the Asian flu as an event that "might not be distinguishable from the normal variation in economic activity."

President Eisenhower's decision to keep the country open in 1957-58 was based on expert advice. When the Association of State and Territorial Health Officials (ASTHO) concluded in August 1957 that "there is no practical advantage in the closing of schools or the curtailment of public gatherings as it relates to the spread of this disease," Eisenhower listened. As a CDC official later recalled:

> "Measures were generally not taken to close schools, restrict travel, close borders or recommend wearing masks. ASTHO encouraged home care for uncomplicated influenza cases to reduce the hospital burden and recommended limitations on hospital admissions to the sickest patients. Most were advised simply to stay home, rest and drink plenty of water and fruit juices."

This decision meant that the onus shifted entirely to pharmaceutical interventions. As in 2020, there was a race to find a vaccine. Unlike in 2020, however, the USA had no real competition, thanks to the acumen of one exceptionally talented and prescient scientist. From 1948 to 1957, Maurice Hilleman—born in Miles City, Montana, in 1919—was chief of the Department of Respiratory Diseases at the Army Medical Center, now the Walter Reed Army Institute of Research.

Early in his career, Hilleman had discovered the genetic changes that occur when the influenza virus mutates, known as "shift and drift." It was this work that enabled him to recognize, when reading reports in the press of "glassy-eyed children" in Hong Kong, that the outbreak had the potential to become a disastrous pandemic. He and a colleague worked nine 14-hour days to confirm that this was a new and potentially deadly strain of flu.

Speed was of the essence, as in 2020. Hilleman was able to work directly with vaccine manufacturers, bypassing "the bureaucratic red tape," as he put it. The Public Health Service released the first cultures of the Asian influenza virus to manufacturers even before Hilleman had finished his analysis. By the late summer, six companies were producing his vaccine.

The first New York Times report of the outbreak in Hong Kong was on April 17, 1957. By July 26, 1957; three months later, doctors at Fort Ord, California, began to inoculate recruits to the military.

Surgeon General Leroy Burney announced on August 15. 1957 that the vaccine was to be allocated to states according to population size but distributed by the manufacturers through their customary commercial networks. Approximately 4 million one-milliliter doses were released in August, 9 million in September and 17 million in October. This amounted to enough vaccine for just 17% of the population, and vaccine efficacy was found to range from 53% to 60%. But the net result of Hilleman's rapid response to the Asian flu was to limit the excess mortality suffered in the USA.

D.A. Henderson, who as a young doctor was responsible for establishing the CDC Influenza Surveillance Unit, recalled a similar sangfroid in the medical profession:

> "From one watching the pandemic from very close range…it was a transiently disturbing event for the population, albeit stressful for schools and health clinics and disruptive to school football schedules."

A difference between 1957 and 2020 is that the size of government has expanded. The number of government employees in the USA, including those in federal, state and local governments, numbered 7.8 million in November 1957 and reached around 22 million in 2020—a nearly threefold increase, compared with a doubling of the population. Federal net outlays were 16.2% of GDP in 1957 versus 20.8% in 2019.

The Department of Health, Education and Welfare was just four years old in 1957. The CDC had been established in 1946, with the eradication of malaria as its principal objective. These relatively young institutions appear to have done what little was required of them in 1957, namely to reassure the public that the disastrous pandemic of 1918-19 was not about to be repeated, while helping the private sector to test, manufacture and distribute the vaccine.

The hospital system was not overwhelmed in 1957-58 for the simple reason that it had vastly more capacity than today. Hospital beds per thousand people were approaching their all-time high of 9.18 per 1,000 people in 1960, compared with 2.77 in 2016.

The USA working population simply did not have the option to work from home in 1957. In the absence of a telecommunications infrastructure more sophisticated than the telephone (and a quarter of U.S. households still did not have a landline in 1957), the choice was between working at one's workplace or not working at all. The economic and social costs, in terms of lost education and employment, have been disproportionately shouldered by the young in 2019-2021.

RISK OF FLU VACCINES ACCELERATED EVOLUTION, VACCINE INTERFERENCE, PARADOXICAL IMMUNE RESPONSE, PARADOXICAL IMMUNE ENHANCEMENT

Hundreds of children brain damaged by the Swine Flu vaccine received $90 million in financial compensation from the UK Government. RNA-specific-pathogen, like SARS and HIV, in their virulence are such that once a subject is infected, then the RNA specific pathogen imbeds itself in the brain, spinal cord and eyes laying dormant in the infected subject presumably permanently. Among 176 patients who had had severe acute respiratory syndrome (SARS), SARS-specific antibodies were maintained for an average of 2 years, and significant reduction of immunoglobulin G–positive percentage and titers occurred in the third year. Thus, SARS patients might be susceptible to reinfection for 3 years after initial exposure.

People tried for many years to create a coronavirus vaccine. The coronavirus can be super virulent, super deadly and super transmissible, or it can be mild, like a seasonal cold. When one tries to create a vaccine, they accelerate evolution by taking the coronavirus from the anus of the bat and replicate it in animal tissue such as pangolin kidney tissue. Next, the grown viruses are placed on feral monkey kidney cells, followed by mouse brain tissue.

Figure 26. Robert Francis Kennedy Jr., Attorney.

Each time one transfers the virus to another animal tissue, one increases the risk of zoonotic animal virus contamination in addition to mutations. According to Robert F. Kennedy Jr., six years of evolution can be accomplished in a matter of days using this accelerated evolution process. Through this process, extremely viral forms of the virus can be rapidly created. Typically, milder forms are used to create a vaccine. As explained by Robert F. Kennedy Jr.:

> "You can take a mild form and give a person that mild form, and they don't really get sick. They develop the antibodies, and that is the theory [behind vaccination]. But there are reasons that they like to create those super viral forms. One is, most of the labs where they do it, like Fort Detrick in [the U.S.] and Wuhan lab in China, are not only vaccine labs but they are also military labs.
>
> So, they want to mess around and look at these viruses that they may be able to weaponize. Not only that, the people who are creating vaccines like to create super viral forms. They give them to mice who have been genetically engineered to have a human immune system, essentially. Then they try to cure them.
>
> Those experiments were going on in the United States until 2014. They were Dr. Anthony Fauci's projects. President Obama ordered that to stop because they had a lot of lab escape problems in 2014 from three different labs.
>
> Instead of stopping as he was ordered, Fauci moved those operations to the Wuhan lab in China and continued to do those experiments right up until the time that the coronavirus [pandemic occurred]. In fact, [infectious disease expert] Ian Lipkin was doing those experiments over there when [COVID-19] exploded. And I'll tell you exactly what happened because it's very suspicious.
>
> When President Trump came in, Obama had an office in the White House for pandemic defense, for pandemic security. They were involved in funding [coronavirus research projects in Wuhan] through Fauci. President Trump ended all funding for that office September 20, 2019. So that was the last paycheck any of those scientists got.

> On September 30 [2019], a whole lot of scientists were laid off in Wuhan. October 1 is when the first case of [COVID-19 was reported]. So, it's suspicious because it looks like there's a possibility — and I'm speculating here; I want to make that clear — but there's a possibility that somebody who lost their job in that lab ... could have released the virus.
>
> Because, immediately, it created an instantaneous market for people with that particular skill set, which is to study how to make a coronavirus vaccine. So, you could go from unemployed to highly employed almost overnight if you released one of those microorganisms they were creating in that lab. I don't know if that happened, but that's something that needs to be [investigated]."

Robert F. Kennedy Jr. goes on to summarize the history of coronavirus vaccine development, which began after three SARS epidemics had broken out, starting in early 2002.

> "The first one was a natural epidemic that had moved from bats to human beings. The second two were lab-created organisms where people were experimenting with the coronavirus … That is noncontroversial. Everybody accepts that.
>
> The Chinese, the Americans, the Europeans all got together and said, 'We need to develop a vaccine against coronavirus.' Around 2012, they had about 30 vaccines that looked promising. They took the four best of those and … manufactured the vaccines. They gave those vaccines to ferrets, which are the closest analogy when you're looking at lung infections in human beings.
>
> The ferrets had an extraordinarily good antibody response, and that is the metric by which FDA licenses vaccines. Vaccines, as you know, are never tested in the field. They never give 5,000 people the vaccine, 5,000 people a placebo vaccine, and then tell them to go out and live life and watch what happens to those people. That never happens.
>
> The way that vaccines get licensed is that FDA gives people a vaccine or the industry gives them the vaccines, and then they do a serological response [test to] see 'Did you develop in your blood antibodies to that target virus?' The ferrets developed very strong antibodies, so they thought, 'We hit the jackpot.' All four of these vaccines ... worked like a charm.
>
> Then something terrible happened. Those ferrets were then exposed to the wild virus, and they all died. [They developed] inflammation in all their organs, their lungs stopped functioning and they died.
>
> Then those scientists remembered that the same thing had happened in the 1960s when they tried to develop an RSV vaccine, which is an upper respiratory illness very similar to coronavirus.
>
> At the time, they did not test it on animals. They went right to human testing. They tested it on I think about 35 children, and the same thing happened. The children developed a champion antibody response, robust,

durable. It looked perfect, and then the children were exposed to the wild virus and they all became sick. Two of them died. They abandoned the vaccine. It was a big embarrassment to FDA and NIH …

Those scientists in 2012 remembered that, and they said, 'This is the same thing that happened [back then].' So, they look closer and they realize that there are two kinds of antibodies that were being produced by the coronavirus. There are neutralizing antibodies, which are the kind you want, which fight the disease, and then there are binding antibodies.

The binding antibodies actually create a pathway for the disease in your body, and they trigger something called … a paradoxical immune response or paradoxical immune enhancement. What that means is that it looks good until you get the disease, and then it makes the disease much, much worse …

Coronavirus vaccines can be very dangerous, and that is why even our enemies, people who hate you and me — Peter Hotez, Paul Offit, Ian Lipkin — are all saying, 'You got to be really, really careful with this vaccine.'"

According to Kennedy, the same thing happened in 2014 with the dengue vaccine DENVax, which Fauci owns the patent on. "They knew from the clinical trials that there was a problem with paradoxical immune response," Kennedy says, but they gave it to several hundred thousand Filipino kids anyway.

They got a great immune response from the vaccine, but those exposed to wild dengue got horribly sick and 600 of the children died. "Today, the Philippine government is prosecuting criminally a bunch of the people locally who were involved in that decision," Kennedy says.

Coronaviruses mutate very rapidly. Kennedy cites a recent Chinese study: "Patent-Derived Mutations Impact Pathogenicity of SARS-CoV-2" — which was also reported in the New York Post5 April 21, 2020, in which they looked at the coronavirus strains found in hundreds of patients. They identified more than 30 different strains, 19 of which had previously not been seen. According to the authors:

"Current genomic survey data suggest that single nucleotide variants (SNVs) are abundant … Here we report functional characterizations of 11 patient-derived viral isolates, all of which have at least one mutation. Importantly, these viral isolates show significant variation in cytopathic effects and viral load, up to 270-fold differences, when infecting Vero-E6 cells.

We observed intrapersonal variation and 6 different mutations in the spike glycoprotein (S protein), including 2 different SNVs that led to the same missense mutation. Therefore, we provide direct evidence that the SARS-CoV-2 has acquired mutations capable of substantially changing its pathogenicity."

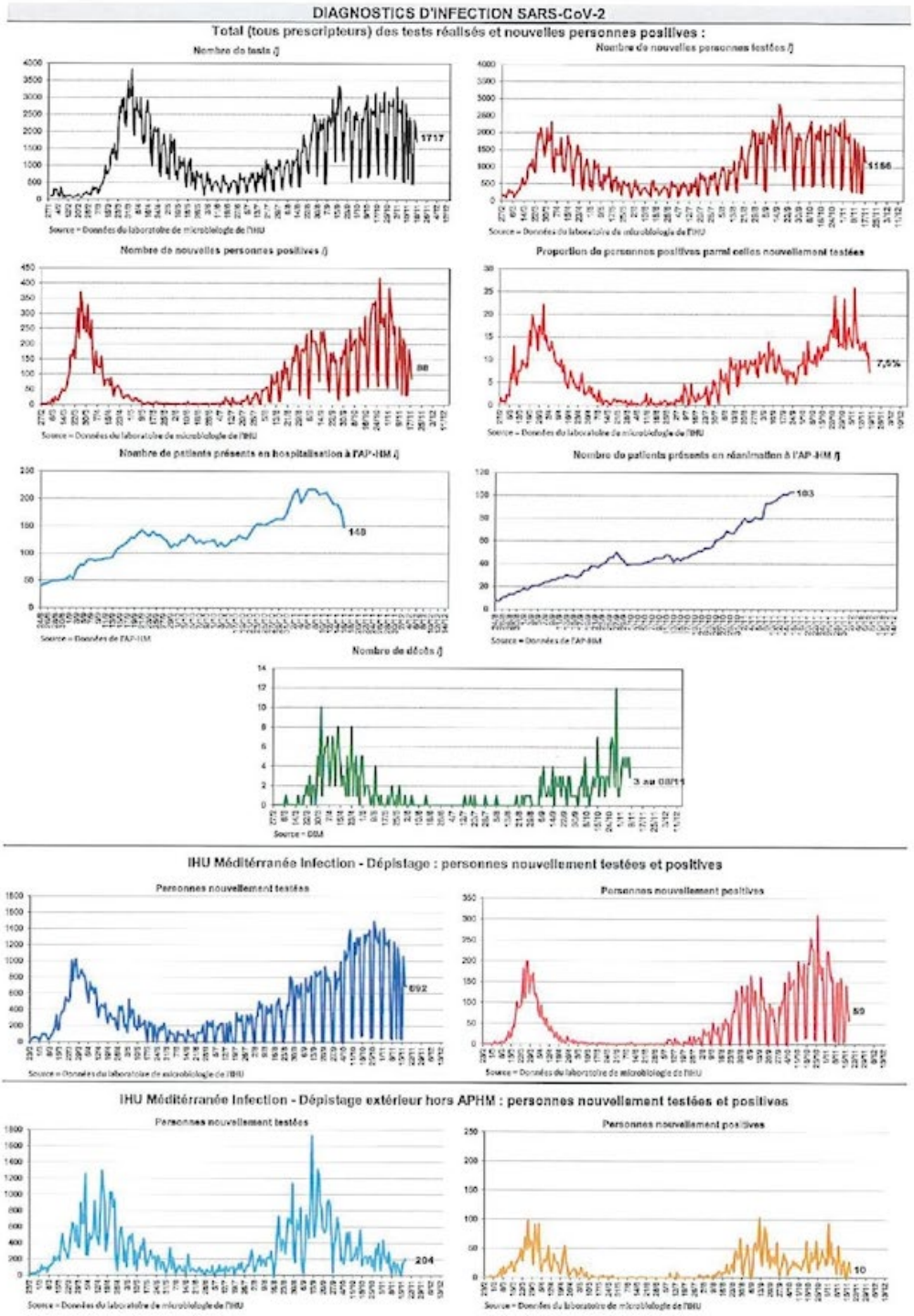


Figure 27. Virus mutations described as new waves.

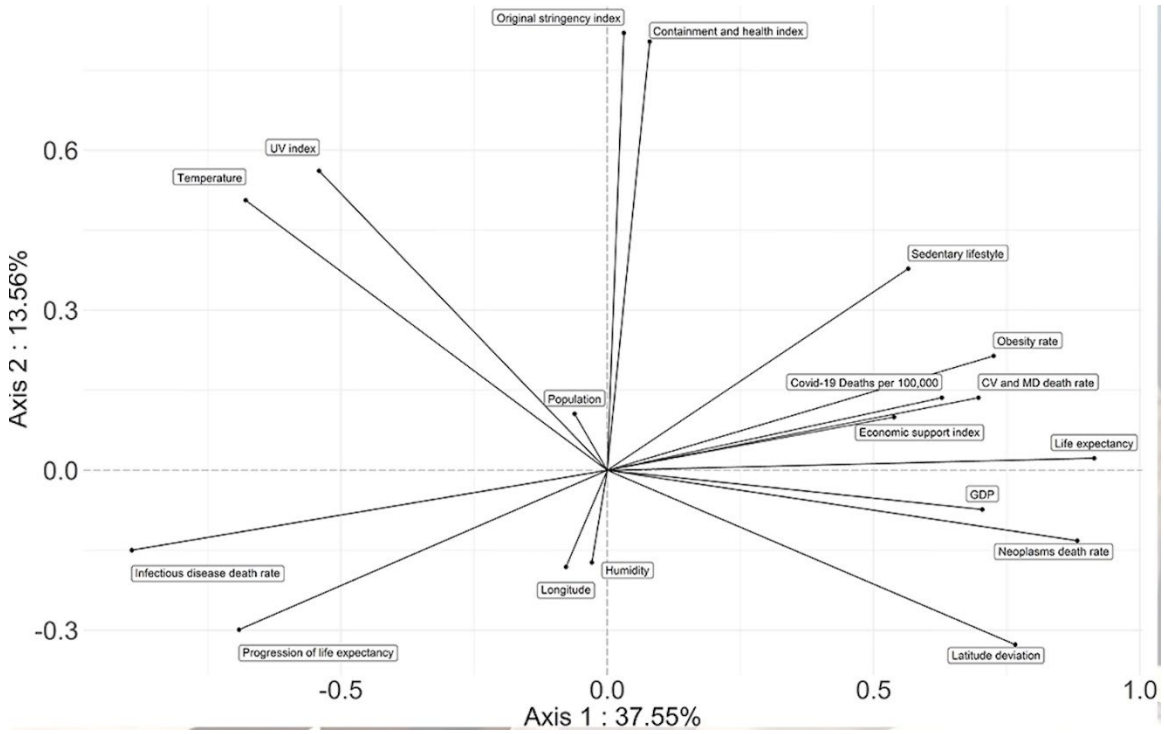
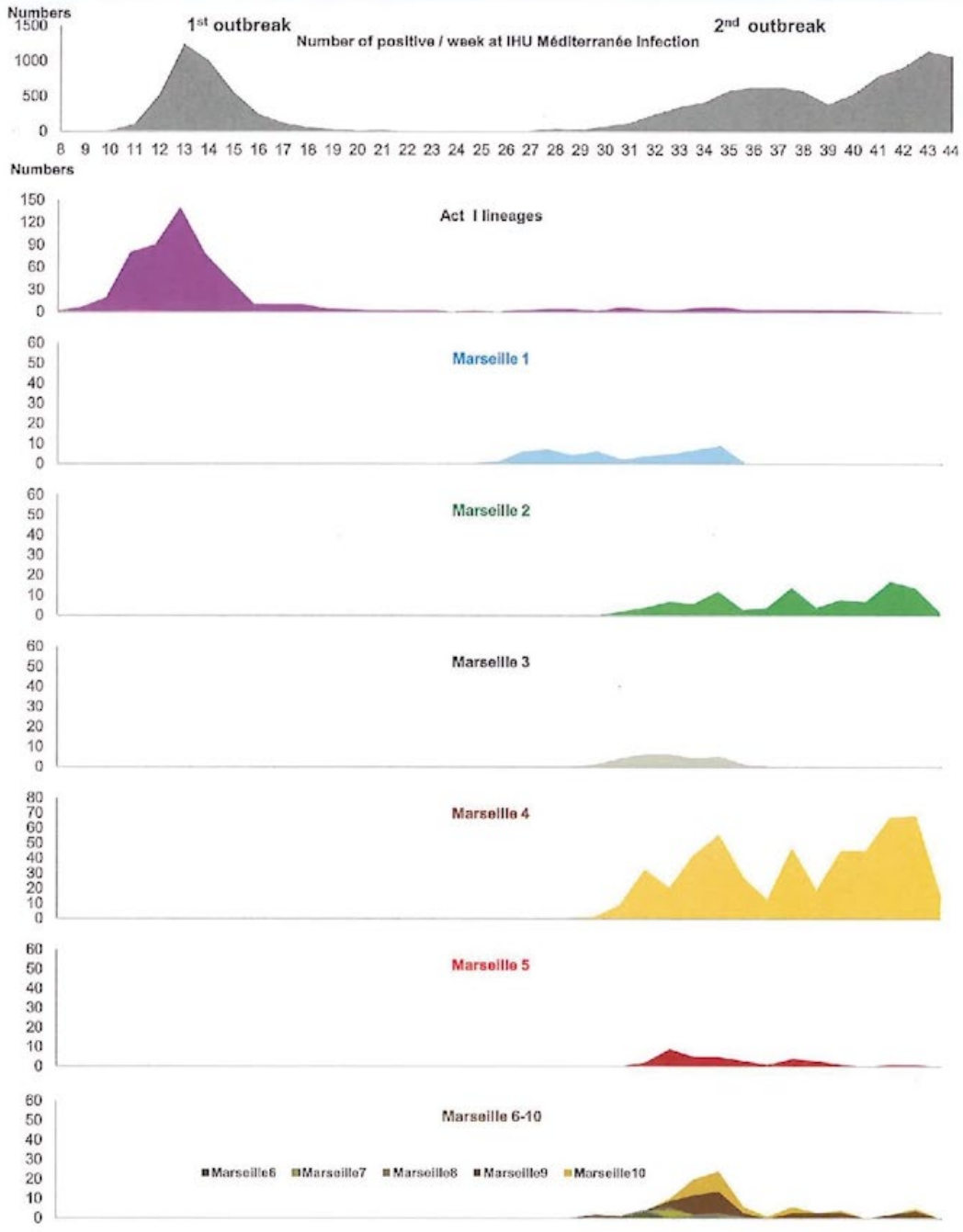


Figure 28. Mortality factors in Covid-19.

SARS-CoV-2 genomes - IHU Méditerranée Infection

N= 1,425 SARS-CoV-2 genomes



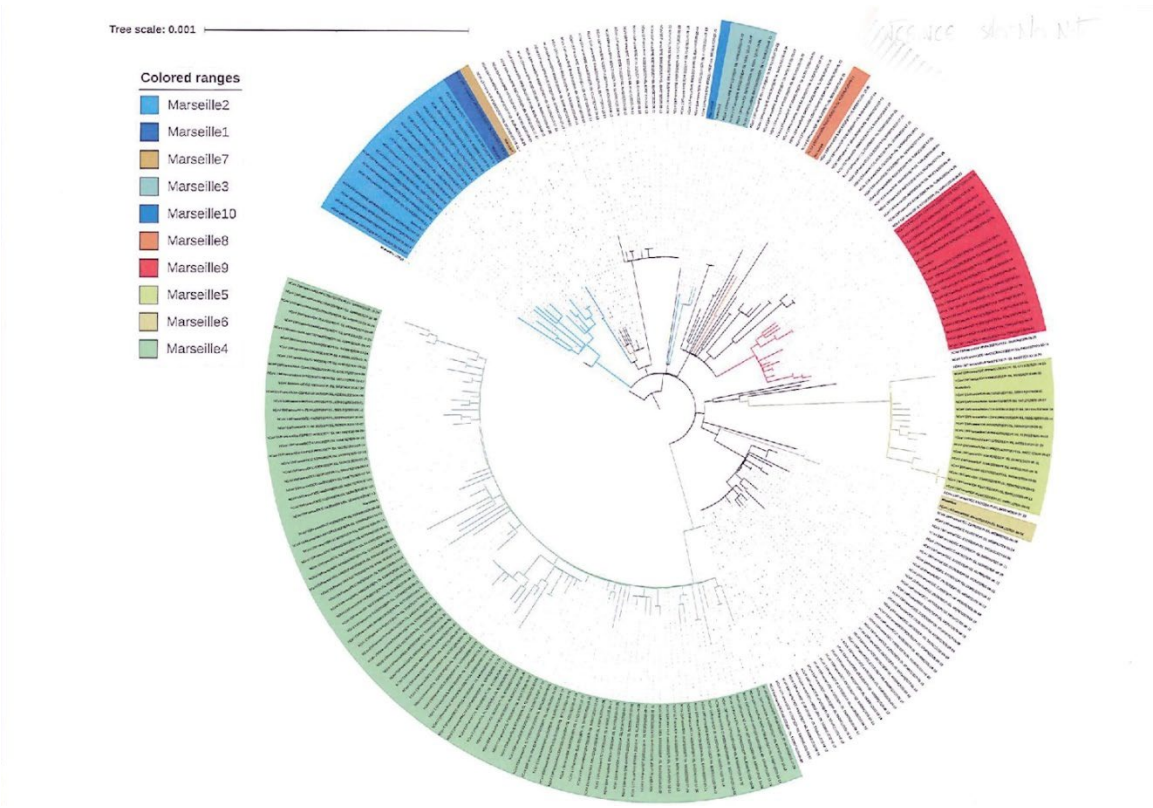


Figure 29. CoVid-19 variants in France.

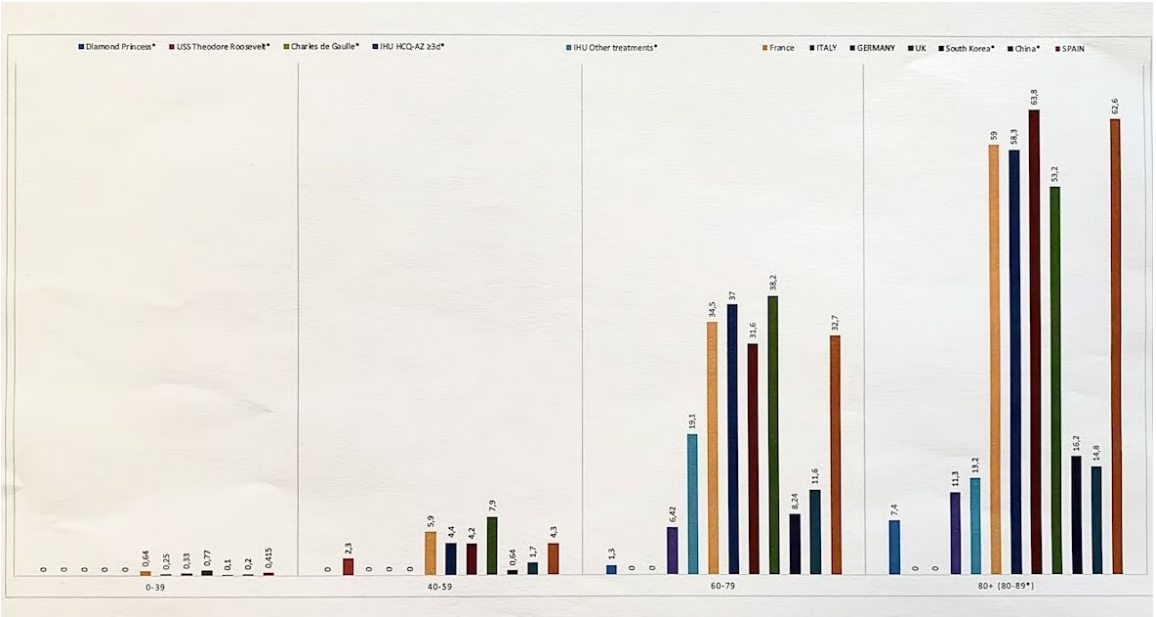


Figure 30. Age group mortality of Covid-19 on affected ships and different countries.

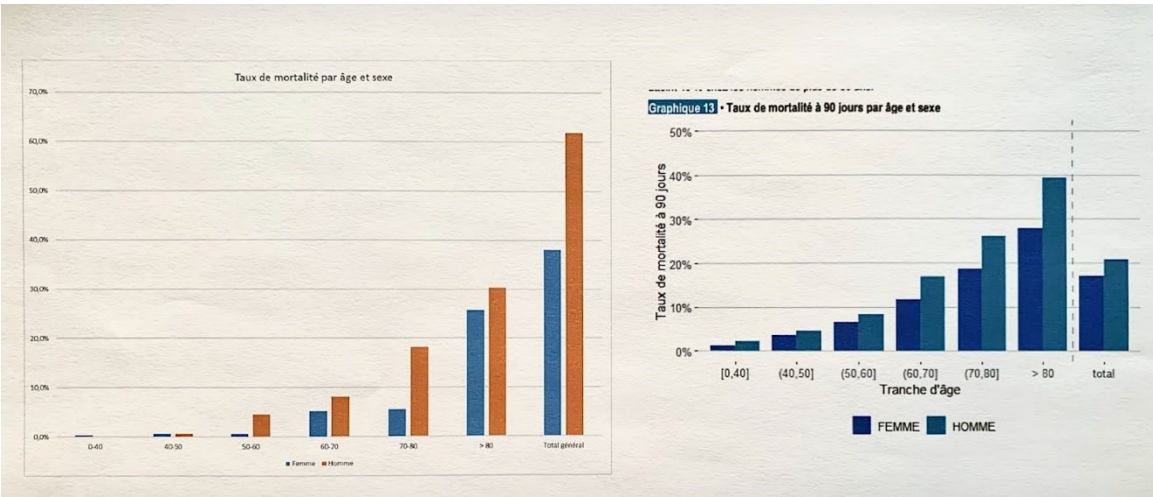
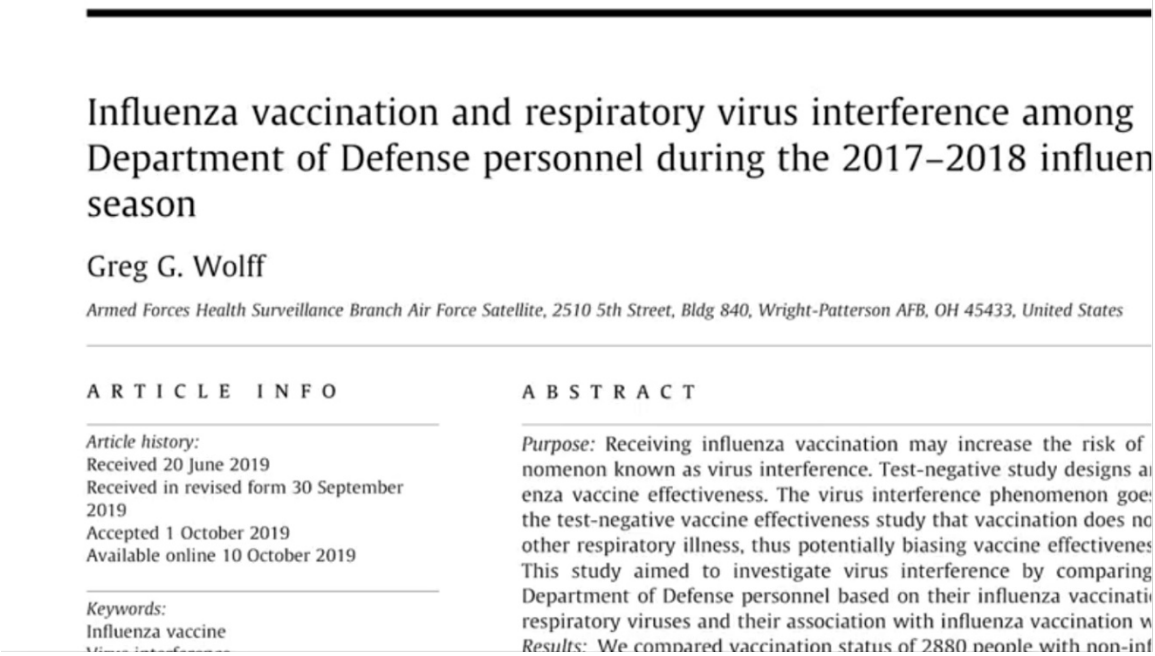


Figure 31. Mortality by age and sex.

As noted by Kennedy, the question is, if you vaccinate against one of those strains, will it protect against the rest? Or might the coronavirus act more like the influenza virus, where the vaccine will only give you a narrow band of immune response and/or might actually enhance injury from other strains?

> "The World Health Organization and the British Medical Services are now saying there is no evidence that even getting an infection from the coronavirus equips you with antibodies that will protect you in the future.
>
> They're seeing a lot of reinfection of people who got COVID-19, got better, and then got [sick from] coronavirus again. If that's true, then it's unlikely that any vaccine will work because natural infection always [gives you] a wider band immune response than a vaccine."

Judy Mikovits does not believe COVID-19 is due to SARS-CoV-2 alone but, rather, that the virus may serve to activate latent XMRV retroviral infection. She points out that retroviruses, not coronaviruses, are what cause the characteristic cytokine storm signature observed in COVID-19. Mikovits suspects that in people who do not have retroviral infections, SARS-CoV-2 causes no or only mild symptoms.



Influenza vaccination and respiratory virus interference among Department of Defense personnel during the 2017–2018 influen season

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ARTICLE INFO

Article history:
Received 20 June 2019
Received in revised form 30 September 2019
Accepted 1 October 2019
Available online 10 October 2019

Keywords:
Influenza vaccine

ABSTRACT

Purpose: Receiving influenza vaccination may increase the risk of
nomenon known as virus interference. Test-negative study designs a
enza vaccine effectiveness. The virus interference phenomenon goe
the test-negative vaccine effectiveness study that vaccination does no
other respiratory illness, thus potentially biasing vaccine effectivenes
This study aimed to investigate virus interference by comparing
Department of Defense personnel based on their influenza vaccinati
respiratory viruses and their association with influenza vaccination w
Results: We compared vaccination status of 2880 people with non-inf

Figure 32. Respiratory virus interference. Military personnel vaccinated against Influenza viruses are reportedly 36 percent more susceptible for infection by Covid-19.

Like Mikovits, Kennedy cites a Pentagon study published in the January 10, 2020, issue of the Vaccine Journal, which found you're 36% more likely to get coronavirus infection if you got the influenza vaccine in 2017 or 2018. As noted in this study, titled "Influenza Vaccination and Respiratory Virus Interference Among Department of Defense Personnel During the 2017-2018 Influenza Season":

> "Receiving influenza vaccination may increase the risk of other respiratory viruses, a phenomenon known as virus interference. Test-negative study designs are often utilized to calculate influenza vaccine effectiveness.
>
> The virus interference phenomenon goes against the basic assumption of the test-negative vaccine effectiveness study that vaccination does not change the risk of infection with other respiratory illness, thus potentially biasing vaccine effectiveness results in the positive direction.
>
> This study aimed to investigate virus interference by comparing respiratory virus status among Department of Defense personnel based on their influenza vaccination status. Furthermore, individual respiratory viruses and their association with influenza vaccination were examined."

Results were mixed. Interestingly enough, while seasonal influenza vaccination did not raise the risk of all respiratory infections, it was in fact "significantly associated with unspecified coronavirus (meaning it did not specifically mention SARS-CoV-2) and human metapneumovirus" (hMPV). Those who had received a seasonal flu shot were 36% more likely to contract coronavirus infection and 51% more likely to contract hMPV infection than unvaccinated individuals.

Preliminary end of season influenza vaccine effectiveness for all vaccine types

Preliminary end of season influenza vaccine effectiveness for all vaccine types, Against influenza A or B viruses

Age group (years)	Influenza positive Total	Influenza positive (% Vaccinated)	Influenza negative Total	Influenza negative (% Vaccinated)	Adjusted VE %	Adjusted 95% CI
All ages	2723	1158 (43)	6121	3414 (56)	39	(32, 45)
6 mos–8	645	271 (42)	1361	763 (56)	33	(17, 45)
9–17	471	158 (34)	722	327 (45)	37	(17, 51)
18–49	1057	395 (37)	2203	1001 (45)	35	(24, 45)
50–64	351	184 (52)	999	624 (62)	42	(24, 56)
≥65	199	150 (75)	836	699 (84)	37	(5, 58)

Figure 33. Yearly influenza vaccines effectiveness VE varies between 33-42 percent over age groups. Persons administered a flu shot are capable of transmitting the flu.

Figure 34. Suspected polio spread by polio vaccine recipients. It is suspected that recipient may become an asymptomatic carrier.Source: AP, WHO.

4.3 Concurrent Illness

Do not administer VARIVAX to individuals with any febrile illness. Do not administer VARIVAX to individuals with active, untreated tuberculosis.

4.4 Pregnancy

Do not administer VARIVAX to individuals who are pregnant because the effects of the vaccine on fetal development are unknown. Wild-type varicella (natural infection) is known to sometimes cause fetal harm. If vaccination of postpubertal females is undertaken, pregnancy should be avoided for three months following vaccination *[see Use in Specific Populations (8.1) and Patient Counseling Information (17)]*.

Figure 35. Warning about chicken pox vaccine (VARIVAX) on fetal development. Recipient may become an asymptomatic carrier.

Looking at the symptoms list for hMPV9 is also telling, as the main symptoms include fever, sore throat and cough. The elderly and immunocompromised are at heightened risk for severe hMPV illness, the symptoms of which include difficulty breathing and pneumonia. All of these symptoms also apply for COVID-19. Again, while this study did not look at SARS-CoV-2 specifically, it did look at coronaviruses, so "It is a red flag," Kennedy says, adding:

> "That study is not alone. We've found — and I've posted these on my Instagram — at least 10 other studies that say, 'If you get the flu vaccine, you're much more likely to get a non-flu respiratory viral infection.' The risk goes up, in some of those studies, about 600%. In some other of those studies, less than that — 200%, 300%, 400%.
>
> But virtually all of these studies show that the flu vaccine actually makes you more susceptible to coronavirus, and there may be reasons for that. I i's been speculated that there may be coronavirus contamination in the flu vaccines … [or] it could be the XMRV.
>
> You're getting that paradoxical immune response because you've been inadvertently inoculated with the coronavirus when you get the flu vaccine. So, we don't know, but the observed effect is very well documented.
>
> In Northern Italy, right before the outbreak of [COVID-19], there was a mass vaccination [using] a very powerful flu vaccine … But it is anecdotal. There's no proof of [a correlation]."

Judy Mikovits believes one of the reasons older Italians got hit so hard in northern Italy is because the vaccine given there was grown in dog kidney cells, which she claims are contaminated with coronaviruses. Mikovits claims that anyone who has received a flu vaccine is likely to register as positive for SARS-Co-V-2 using a PCR test, for the fact that most flu vaccines in the USA are made in chicken cells or dog kidney cells, which her research shows are contaminated with coronaviruses. She explained:

> "[The vaccines] are grown in animal cells and … have some of the same host viral proteins and lock and keys. As they are floating through the

> laboratory where they are growing large stocks of these cells, aerosolizing them, it contaminates and cross contaminates through the air ...
>
> This is what we found in 2011. The big 'Oh my God,' was, we can't afford to retrofit our laboratories and manufacturing facilities toward biosafety level 3 and 4 to protect the lab workers who are spreading these viruses and getting infected. And now the [retroviruses] are aerosolized … All the cell lines are contaminated …"

Judy Mikovits' research showed that the contamination occurred during the original creation of the cultured cell lines used to then grow the vaccine in. In other words, the cells in which many vaccines are grown are already infected. That is how the retroviruses get into the vaccine and is then spread via injection. She does not believe the contamination of vaccines with retroviruses was an intentional act. But the cover-up certainly is.

"The message of 'Plague of Corruption' is that we cannot mix animal and human tissues. Not just coronaviruses, but the infectious retroviruses [are spread this way]. We are injecting lots of animal tissue, fetal tissue, into humans, and we're creating novel viruses all the time, even within the individual or family," she says.

Moderna (MRNA) became a company creating a potential mRNA medicines for a wide range of diseases and conditions which currently include infectious diseases, oncology, rare genetic diseases, and cardiovascular diseases. Moderna is developing these potential medicines independently and through strategic alliances with collaborators, including AstraZeneca, Merck, and Vertex Pharmaceuticals, as well as the Defense Advanced Research Projects Agency (DARPA), the Biomedical Advanced Research and Development Authority (BARDA), and the Bill & Melinda Gates Foundation.

MRNA's vaccine is being looked into by scientists and health professionals around the world, and some whistleblowers have come forward with some scary claims - that it will include human fetus cells which cause cancer. According to fringe site Zero Hedge claim:

> "The aborted human cells used in vaccines come from lung tissue and are considered "abnormal" cells because they keep dividing, spreading, multiplying in the human body after being injected, and that is the definition of cancer. You can find these cancer-causing, cannibal-style injections listed on the CDC vaccine website, and you might even recognize a few of them. These dangerous and dirty vaccines include the MMR (Measles, Mumps & Rubella), Hepatitis A & B, Chicken Pox (Varicella), Polio, and in the works now … wait for it … novel Coronavirus or "Covid-19." The company cheered in mainstream headlines, Moderna, that's claiming to be developing a Covid-19 vaccine, is using human abortion cells to do it. It's just plain witchcraft, and the benefits (if any at all anymore) do NOT outweigh the risk. Doctors, nurses and pharmacists do not understand this, and even if a few do, they can never speak out without getting fired or forever labeled "anti-vax" and "anti-science." This is population control and cancer breeding exposed by forensic medicine experts."

INFORMATION/DISINFORMATION CLAIMS

Social Media Facebook, Twitter and Google have been urged by a USA lawmaker to ban a dozen people who it is claimed are spreading the vast majority of disinformation about Covid vaccinations. Representative Mike Doyle made the call to remove their accounts during a USA congressional session on how the three firms were dealing with fake news. He challenged Mark Zuckerberg, Jack Dorsey and Sundar Pinchai to deplatform the dozen people immediately.

The Center for Countering Digital Hate (CCDH) analyzed more than 812,000 Facebook and Twitter vaccine-related posts and found that 65% of anti-vaccine posts came from what it called the "disinformation dozen".

Anti-vaccine activists on Facebook, YouTube, Instagram and Twitter reach more than 59 million followers, making these the largest and most important social media platforms for anti-vaxxers.

Three of the 12 have been removed from at least one platform but none have been removed from all. Among the dozen are Robert F Kennedy Jr, a nephew of the former USA president who leads an anti-vaccine group; Dr Joseph Mercola; and Ty and Charlene Bollinger. Twelve state attorney generals have also written to Mr. Zuckerberg and Mr. Dorsey asking them to remove "a small group of individuals who use your platforms to downplay the dangers of Covid-19 and spread misinformation about the safety of vaccine.

Two of the twelve - Dr Rashid Buttar and Dr Sherri Tenpenny - feature in a video that promotes falsehoods about the coronavirus vaccine. Alternative medicine entrepreneur Dr Joseph Mercola, who has more than three million followers across Facebook and Instagram, is on the list. Also featured are influencer duo the Bollingers - a married couple who have promoted claims that that Microsoft founder Bill Gates wants to use the coronavirus vaccine to inject everyone with microchips.

The Instagram account of campaigner Robert F Kennedy Jr - perhaps the best-known anti-vaccine influencer - has been removed, but not his Facebook page, where he promotes similar vaccine information. See also: https://www.brighteon.com/f4581da9-79f0-46bf-a95e-da69b1da6723

OXFORD TEST VACCINE – CHADOX1 NCOV-19.

This vaccine is built upon a weakened version of a common cold virus that typically infects chimpanzees. It is a technique that the group had already been developing before the pandemic, to tackle Middle East respiratory syndrome (MERS) and Ebola. And it is why they were able to move so fast in response to Covid-19. In the early months of 2020, when the world was stumbling towards the grim realization that this pandemic was not going away, the Oxford group was scrambling to refocus their work on the crisis.

First, they took the chimp cold virus and genetically altered it so it is impossible to grow in humans. Next they added genes that make proteins from the Covid-19 virus, called spike glycoprotein. If the body learns to recognize and develop an immune response to this spike glycoprotein, the hope is that it will help stop the Covid-19 virus from entering human cells.

Half the volunteers get this vaccine. The second group is given an existing licensed vaccine called MenACWY (either Nimenrix or Menveo), which is used to protect against the causes of meningitis or sepsis. This vaccine is a "control" for comparison, and was chosen instead of an inert placebo so that the control group experience the effects (and side-effects) of a real vaccine, preventing them from working out which group they are in. Since 2015, MenACWY has been given routinely to teenagers in the UK, and also as a travel vaccine to high-risk parts of the world, such as sub-Saharan Africa. Saudi Arabia requires proof of MenACWY vaccination for participants in the annual Hajj.

Potential side-effects range from the mild nausea, and headaches to the rare and severe Guillain-Barre syndrome, which causes severe weakness and can be fatal. The vaccine could make the effects of coronavirus worse. Some studies on animals that received experimental vaccines to protect against SARS (a related virus) have shown worsened lung inflammation when they were infected with SARS. One report had found similar lung inflammation in vaccinated mice infected with MERS. The effect had thankfully not been seen in animal studies for the Oxford Covid-19 vaccine.

Vaccine rollouts went wrong in the past. In 1976, fears of a swine flu outbreak led the USA government to accelerate vaccine development and inoculate tens of millions of Americans. The feared pandemic never arrived, but by some estimates, around 30 people died due to adverse vaccine reactions. Such mistakes may well have dented trust in public health advice and fueled anti-vax fears too, which is the last thing needed in a pandemic.

A reality is that the initially approved vaccines may also not be the "sterilizing" panacea that many imagine, totally preventing the disease. They may not completely clear the virus, but instead mitigate its effects. People could still carry the virus even if they do not suffer symptoms spreading it to the unvaccinated. That protection would still be of huge value, but whatever happens, we need to be prepared for the long-haul. This virus might always be with us.

USE OF TYPE I INTERFERON

Interferon alpha Type 1 is a type of beneficial cytokine released by the body as one of its first line of defense against viral infections. In a nutshell, it interferes with viral replication. It is also been shown to suppress certain types of tumors. As part of the immune system, it stimulates the infected cells and those nearby to produce proteins that prevent the virus from replicating within them.

Interferon alpha and beta also help regulate the immune response. As noted in a 2018 paper on the dual nature of Type 1 and Type 2 interferons, "both antiviral and immunomodulatory functions are critical during virus infection to not only limit virus replication and initiate an appropriate antiviral immune response, but to also negatively regulate this response to minimize tissue damage."

According to Judy Mikovits, the existence and function of XMRVs is highly relevant as it pertains to Covid-19. There are many coronaviruses in the natural world, but according to Judy Mikovits, they are not highly pathogenic because they do not cause this inflammatory signature of disease that suggests the immune system is out of control and causing massive cytokine storms:

> "This was our work for the last four decades … We were led down a path where we learned in 1991 that you could have HIV and never get AIDS.
>
> If you employ the right treatment at the right time, then you stop the replication of the virus, you stop the reservoirs, you stop the immune destruction, and that could easily have been done in the case of SARS-CoV-2 with simple Type 1 interferon at a very low dose, which has 40 years of research [behind it].
>
> I was part of the team that first used the immune therapy, a purified Type 1 interferon alpha, as a curative therapy for a leukemia. That research has proceeded for decades, [yet] the Food and Drug Administration said, 'You can't use that in preventing coronaviruses from jumping from animals [to humans].'
>
> [Type 1 interferon] is a simple food. It is a simple spray. We have it on the shelf now, made by Merck, [yet] Merck discontinued its use. Why would you do that if that was the frontline … prevention? Interferon alpha is your body's own best antiviral against coronaviruses and retroviruses."

One of Judy Mikovits' primary treatment recommendations is Interferon 1 alpha, sold under brand names such as Alferon and Roferon, to shut down the replication of RNA viruses, including retroviruses and coronaviruses. She believes it might be beneficial to take twice a day for the duration of known exposure. Although a bottle costs around $600, one only needs small amounts and a bottle can treat 1,000 people for a week.

Like Judy Mikovits, Dominic Chan, a Doctor of Pharmacy who recently updated an article on interferon on Medicinenet.com., proposes using interferons against Covid-19. The earlier article, written by Eni Williams, Pharm. D. and Ph. D., before she died in 2017,13 says:

> "Interferons modulate the response of the immune system to viruses, bacteria, cancer, and other foreign substances that invade the body. Interferons do not directly kill viral or cancerous cells; they boost the immune system response and reduce the growth of cancer cells by regulating the action of several genes that control the secretion of numerous cellular proteins that affect growth."

She goes on to list a number of interferons that are commercially available, including Intron-A (interferon alfa-2b), Betaseron (interferon beta-1b) and many more. In April 2020, Dominic Chan added:

> "Interferon beta-1a, currently in use to treat multiple sclerosis, and interferon alfa-2b are both under investigation as potential treatments for people with Covid-19 coronavirus disease …
>
> Interferon Beta 1a, specifically, activates macrophages that engulf antigens and natural killer cells (NK cells), a type of immune T-Cell … The theory is, interferon may be able to make the immune system stronger by

turning on dormant parts and directing them toward the defense against SARS-CoV-2's assault."

It is worth noting the warnings, however. According to Dominic Chan, if you already have flu-like symptoms and take interferons, the symptoms are likely to get worse before they get better, as your immune system ramps up. "If someone is already on a ventilator and symptoms are about to overwhelm them, giving them an interferon-based medicine could be catastrophic."

Judy Mikovits also proposes a novel vaccine for such viruses that involves the alpha interferon, small amounts of the virus and peptide T, which will block the interaction of the virus and keep the T cells from getting infected. Unlike conventional vaccines, which are mostly injected, this would be oral and would only stimulate antibody humoral responses. Her version would also cause innate cellular immunity from the T cells.

Judy Mikovits' research and conclusions in an interview, "Could Retroviruses Play a Role in Covid-19?" suggests that the Covid-19 — the disease — is not caused by SARS-CoV-2 alone, but rather that it is the result of a combination of SARS-CoV-2 (which appears to have been manipulated to include components of HIV that destroys immune function) and previous XMRV (human gamma retroviruses) infection from vaccines may facilitate SARS-CoV-2 to express the Covid-19 illness.

Put another way, Covid-19 may be initiated by SARS-CoV-2, but dependent upon a preexisting infection with and awakening of other viruses such as XMRV, gamma retroviruses, possibly Lyme and other coinfections, including parasites, and this is why antiparasitic medications like hydroxychloroquine and Ivermectin help.

She contends that blood products and vaccines are contaminated with XMRVs that can damage the immune system and cause CFS, cancer and other chronic diseases. The viruses spread within laboratories as they have adapted to become aerosolized and contaminate cell lines used in vaccine production and other viral research, including research on corona viruses. She believes that flu vaccines have spread a host of dangerous viruses around the world, which can then interact with SARS COV-2.

It is possible to develop safer oral vaccines, and interferon alpha could be a valuable treatment alternative against Covid-19. Aside from interferons, other treatment strategies discussed in the interview include hyperbaric oxygen therapy, cannabinoids (CBD), peptide T and antioxidant support.

She believes that SARS-CoV-2 is more dangerous and virulent than typical coronaviruses because it includes sequences of HIV, SARS and another virus, which enable it to infect more than just the respiratory epithelium. It can also infect blood cells and hematopoeitic organs such as the spleen.

The influenza vaccines are not as effective as most people assume. The effectiveness of the flu shot each year varies significantly and across age groups. That is because the shot is meant against last year's flu strains. In the flu year of 2012–2013, the shot was estimated to be effective for only 32 percent of those above the age of 65.

An article in "Morbidity and Mortality Weekly Report" in 2014 shows that this year's vaccine was protecting an average of 61 percent of the population. For children aged 6 months to 17, the vaccine was proving to be 67 percent effective. For adults 18–64, it is 60 percent effective, and for people over 65, it is 52 percent effective.

Although many who get flu shots may still get ill, those who do not get flu shots are far more likely to end up in a hospital, and even intensive care units, fighting for their lives. A study from Duke University published in the American Journal of Respiratory and Critical Care Medicine that looked at flu patients admitted to intensive care, shows that only two out of 22 had gotten their shot.

The Center for Disease Control and Prevention (CDC) reported in December 2013 that less than 45 percent of eligible Americans got a flu shot in the 2012–13 season, but estimated those shots prevented 6.6 million cases of influenza and kept 79,000 people out of the hospital.

The compositions of the vaccines vary from year to year. The 2013-2014 season's vaccine dose contained protection against an H1N1 strain, an H3N2 strain and a virus known as B/Massachusetts/2/2012. The FDA committee advised adding a fourth strain known as B/Brisbane/60/2008 to the mix for 2014–2015.

There are some viruses where vaccines are difficult or almost impossible to produce. AIDS started in the early 1980's but has no vaccine. The common cold has no vaccine. The flu has a vaccine but its efficiency is like a dart thrown at a dart board that often misses due to mutations in the seasonal variety. Some vaccines were dangerous. Some of the early Polio vaccines contained live Polio virus and some people got Polio from the vaccine.

The Center for Disease Control and Prevention (CDC) and the World Health Organization (WHO) said adults aged 65 and older, and people of any age who have serious underlying medical conditions such as heart and lung disease or diabetes, might be at higher risk for severe illness from Covid-19.

GENETIC MAKEUP SUSCEPTIBILITY, INTERFERON, TYK2, DPP9, OAS, IFNAR2 GENES, CHROMOSOME 3

Some people affected by viruses have no symptoms and others get extremely ill. A study Genomicc in Nature of more than 2,200 intensive care patients identified specific genes that may hold the answer. The findings shed light on where the immune system goes wrong, which could help identify new treatments.

Vaccines should drastically decrease the numbers of covid cases, but it's likely doctors will still be treating the disease in intensive care for a number of years around the world.

Differences between people response to viral loads were found. The first in a gene called TYK2 which is part of the system that makes the immune cells more angry and more inflammatory. If the gene is faulty, this immune response can go into overdrive, putting patients at risk of damaging lung inflammation. A class of anti-inflammatory drugs already used for conditions such as rheumatoid arthritis targets this biological mechanism, including a drug called Baricitinib.

Genetic differences were also found in a gene called DPP9, which plays a role in inflammation, and in a gene called OAS, which helps to stop the virus from making copies of itself. Variations in a gene called IFNAR2 were also identified in the intensive care patients.

The gene IFNAR2 is linked to the potent anti-viral molecule, interferon, which helps to kick-start the immune system as soon as an infection is detected. It is thought that

producing too little interferon can give the virus an early advantage, allowing it to quickly replicate, leading to more severe disease.

Two other recent studies published in the journal Science have also implicated interferon in Covid cases, through both genetic mutations and an autoimmune disorder that affects its production. Interferon accounted for nearly 15 percent of the critical Covid-19 cases internationally enrolled in a cohort. If given in the first two, three, four days of infection, the interferon would work, because it essentially would provide the molecule that the patient does not produce by himself.

The Genomicc study and several others revealed a cluster of genes on chromosome 3 strongly linked to severe symptoms. However, the biology underpinning this is not yet understood.

VIRUSES EPIMEDICS PANDEMICS AND ECUMENE RISK, SEVERE ACUTE RESPIRATORY SYNDROME VIRUS VARIANT 2, "SARS-COV-2", CORONA VIRUS DISEASE "COVID-19", $R_0 = 2.6$

The four horsemen of the Apocalypse in Christian Theology are: Plague, Pestilence, Famine and War. As a cost-saving measure, in 2018 the USA administration dissolved the team responsible for coordinating responses to pandemics. Funding for the Center for Disease Control and Prevention, CDC, global disease outbreak prevention effort was reduced by 80 percent.

Human beings have had to content with *influenza* for at least eight thousand years. No public health official has ever been able to eradicate it. In fact the only virus that has ever been officially eradicated (according to the World Health Organization) among the human population is smallpox. But even that is not actually true because smallpox is still considered by some states as a biological weapon.

In April 2020 Capt. Brett E. Crozier, who caught the Covid-19 virus, the captain of the aircraft carrier USS Theodore Roosevelt, on which the virus was reportedly spreading, was relieved of command. He was blamed by his superiors for the leak of a letter he wrote warning the Navy that failure to act rapidly threatened the health of his 5,000 sailors. He expressed in writing that the Navy's prioritizing military readiness at a moment the virus threatened to spread across the close quarters crew of his sailors was putting lives at risk: "We are not at war. Sailors do not need to die. If we do not act now, we are failing to properly take care of our most trusted asset — our Sailors. If the Navy focuses on being battle ready, it will lead to "losses to the virus.

The Washington Post reported that new data from New York's largest hospital system showed that survival rates for patients placed on ventilators are even lower than previously believed. The data showed that a staggering 88% of coronavirus patients who were placed on ventilators in the state's hospitals did not survive. The USA's federal government pays hospitals a set amount of money to treat coronavirus patients, about $13,000 from Medicare/Medicaid. This amount rises to $39,000 if the patient is placed on a ventilator. An obvious source of profiteering.

Doctors, meanwhile, are also seeing more strange complications from the disease involving blood clots and the cardiovascular system. One doctor in China who barely survived his struggle with the virus experienced an extremely strange shift in skin pigmentation.

Viruses are infectious organisms that have no capacity to reproduce on their own. Hundreds of viruses infect humans. Rotavirus infections are the leading cause of severe diarrheal illness in children. Two versions of the virus, herpes simplex virus 1 and 2, cause a wide spectrum of human infections. Common warts occur on the hands or feet. A group of high-risk genital Human Papilloma Viruses, HPVs can lead to cervical cancer. Some virus' categories are https://talk.ictvonline.org/taxonomy/

1. Rhinoviruses

The USA Centers for Disease Control and Prevention (CDC) states more than 200 viruses can cause the common cold--and rhinoviruses lead the pack. This group of viruses causes more than 50 percent of all colds.

2. Rotaviruses

Rotavirus infections are the leading cause of severe diarrheal illness in children. The CDC reports that roughly 55,000 children are hospitalized with rotavirus each year in the USA. More than 500,000 children die annually of the illness worldwide. Rotavirus symptoms include abdominal pain, vomiting and watery diarrhea, which persist for three to eight days. Adults are susceptible to rotavirus gastroenteritis, but the illness is typically much milder than it is in young children. The USA Advisory Committee on Immunization Practices recommends routine immunization against rotavirus for all children beginning at age 2 months.

3. Herpes Simplex Viruses, HSV

Herpes simplex viruses are common worldwide. Two versions of the virus, herpes simplex virus 1 and 2, cause a wide spectrum of human infections. Genital herpes, cold sores, herpes eye infections, herpes encephalitis (brain infection) and congenital herpes are common HSV infections. A distinguishing characteristic of HSV infection is the cycle of dormancy and reactivation. Once infected with HSV, the virus remains in the body. During inactive periods, HSV remains dormant in nerve cells. The viruses, however, are capable of reactivating and causing another round of symptoms if triggered.

4. Human Papilloma viruses, HPV

Causes skin growths better known as warts. Plantar warts commonly occur on the soles of the feet. Common warts occur on the hands or feet. Plane warts are most common in children and usually occur on the neck, face or hands. Of greatest public health concern are sexually transmitted genital warts caused by 30 different types of HPV. The CDC reports 20 million Americans are currently infected with genital warts; 6 million new infections occur annually. A group of high-risk genital HPVs can lead to cervical cancer. Vaccines that protect against infection with some—but not all—of the high-risk HPVs are currently available. There are more than 100 types of human papillomaviruses. They cause benign epithelial warts.

5. Retroviruses

According to Wikipedia: "A retrovirus is a type of RNA virus that inserts a copy of its genome into the DNA of a host cell that it invades, thus changing the genome of that cell. Once inside the host cell's cytoplasm, the virus uses its own reverse transcriptase enzyme to produce DNA from its RNA genome, the reverse of the usual pattern, thus retro (backwards). The new DNA is then incorporated into the host cell genome by an integrase enzyme, at which point the retroviral DNA is referred to as a provirus. The host cell then treats the viral DNA as part of its own genome, transcribing and translating the viral genes

along with the cell's own genes, producing the proteins required to assemble new copies of the virus. Human retroviruses include HIV-1 and HIV-2, the cause of the disease AIDS. Retroviruses are also a valuable research tools in molecular biology, and they have been used successfully in gene delivery systems."

6. **Corona Viruses**

"Corona" is a Latin word meaning "crown," from the Ancient Greek κορώνη (korōnē, "garland, wreath"). Corona viruses take on the shape of a crown when the virus is examined with an electron microscope.

Corona viruses are a large family of viruses that can cause illnesses ranging widely in severity. The first known severe illness caused by a coronavirus emerged with the 2003 Severe Acute Respiratory Syndrome (SARS) epidemic in China. A second outbreak of severe illness began in 2012 in Saudi Arabia with the Middle East Respiratory Syndrome (MERS).

Common human coronaviruses, including types 229E, NL63, OC43, and HKU1, usually cause mild to moderate upper-respiratory tract illnesses, like the common cold. Most people get infected with one or more of these viruses at some point in their lives.

Human coronaviruses can sometimes cause lower-respiratory tract illnesses, such as pneumonia or bronchitis. This is more common in people with cardio-pulmonary disease, people with weakened immune systems, infants, and older adults.

There is no vaccine to protect against human coronaviruses and there are no specific treatments for illnesses caused by human coronaviruses. Most people with common human coronavirus illness will recover on their own.

7. **Filoviruses**

   Such as Marburg and Ebola which cause hemorrhagic fever.

   Marburg virus is the causative agent of Marburg virus disease (MVD), a disease with a case fatality ratio of up to 88%. Marburg virus disease was initially detected in 1967 after simultaneous outbreaks in Marburg and Frankfurt in Germany; and in Belgrade, Serbia. Marburg and Ebola viruses are both members of the Filoviridae family (filovirus).

   Marburg is yet another highly infectious virus, and one that the WHO has classified as the highest-level biological threat– "Risk Group 4".

   By comparison, SARS-Cov-2 is a lower, "Risk Group 3" biological agent.

   Marburg comes from the same virus family as Ebola. And, while Covid-1984 has a roughly 1.7% fatality rate according to CDC data, the limited data from the past 20 years of Marburg cases shows a fatality rate of 85%

8. **Henipaviruses**

   Like Hendra or Nipah causing fatal brain infections.

One billion influenza infections occur worldwide each year, with up to 45 million cases in the USA per year, tens of thousands of USA deaths, and 291,000 to 646,000 deaths worldwide. The seasonal flu has a fatality rate of less than 0.1 percent.

In analyzing the spread of an epidemic one must distinguish between:

$$\text{Case Fatality Ratio=CFR=}\frac{\text{Deaths}}{\text{Total diagnosed confirmed cases}}$$

$$\text{Infection Fatality Ratio=IFR=}\frac{\text{Deaths}}{\text{Total estimated infections}}$$

The total number of infections is obviously hard to determine since many cases are presymptomatic, or with mild symptoms and are not even reported and is larger than the diagnosed confirmed cases. It is determined by extrapolations and models of the disease and people with the antibodies and yields a much lower number for the infection fatality ratio IFR for the Covid-19 virus (0.5 percent) comparable to that of the seasonal flu IFR of (0.2 percent).

The CFR for New York, USA in 2020 was 8 percent, and the IFR 0.5 percent. Compared with the 2009 H1N1 pandemic, and using the seasonal flu data, the Covid-19 was 8/0.2 = 40 times more fatal on a CFR basis, and 0.5 / 0.02 = 25 times on an IFR basis.

The coronavirus Covid-19 virus is considered more lethal at 2-3 percent compared with the seasonal flu at 0.1 percent. No deaths occurred in those 9 and younger, but cases in those aged 70 to 79 carried an 8 percent fatality rate, and those aged 80 years and older had a fatality rate of 14.8 percent. The fatality rate was 49 percent among critical cases and elevated among those with pre-existing conditions to between 5.6 percent and 10.3 percent, depending on the condition.

In 2017 to 2018, the worst flu season on record in the USA outside of a pandemic, approximately 80,000 Americans died. The four other coronavirus strains that already exist are responsible for around 25 percent of the common colds,

Adults with the flu, which has an average incubation period of two days, can infect others 24 hours before symptoms develop and five to seven days after becoming sick. The novel Covid-19 has a median incubation period of 5.1 days, longer than those of other human coronaviruses (3 days) that cause the common cold.

The death rate is a risk issue different from one location to another. China has 2 deaths/million individuals, USA and Germany have 5. Italy is the highest at 151. It all comes down to different risk situations. The UK reports a death rate as only 0.025 percent with 1/1000 of infected being hospitalized and 1/4 of those hospitalized dying.

A small unrepresentative of the whole population, yet closed sample, of the quarantined ship in Japan, the Diamond Princess where all people were tested, whether they had symptoms or not, shows a fatality rate of 0.5 percent among the infected. The average age on the boat was 58 which is within the moderate high-risk range.

A logical suggested approach to mitigate the effects of such a pandemic would be to completely sequester the high risk 70 and older and other at-risk populations and protect them. Let the rest of the population go about their lives and deal with mild flu-like symptoms. This would steepen the infection curve and not overwhelm the health care system but contain the death rate. It would also lengthen the time do get through the peak from the flattened curve. However, we would expand and build up the population immunity, reducing the severity of future outbreaks.

CHRONOLOGY

In 2013, scientists at the Wuhan Institute of Virology collected horseshoe bat feces at a cave 1,000 miles away infected with a coronavirus 96.2% identical to the virus which causes COVID-19 (Nature).

Peng Zhou, Wuhan Institute of Virology's head of Bat Virus Infection and Immunization, was researching "the molecular mechanism that allows Ebola and SARS-associated coronaviruses to lie dormant for a long time without causing diseases," while a press release from his lab was titled "How bats carry viruses without getting sick."

Zhou's colleague, Shi Zheng Li, has been involved in bioengineering bat coronaviruses - co-authoring a controversial 2015 paper which described the creation of a new virus by combining a coronavirus found in Chinese horseshoe bats with another that causes human-like severe acute respiratory syndrome (SARS) in mice.

In 2015, Nature magazine expressed concern over Zheng Li's experiments with bat coronavirus. The same year, the USA government suspended funding to the lab due to their concern over risks of experimenting with bat coronavirus.

Meanwhile, the USA State Department warned over safety standards at the Wuhan lab in a series of cables beginning in 2015, according to the Washington Post's Josh Rogin.

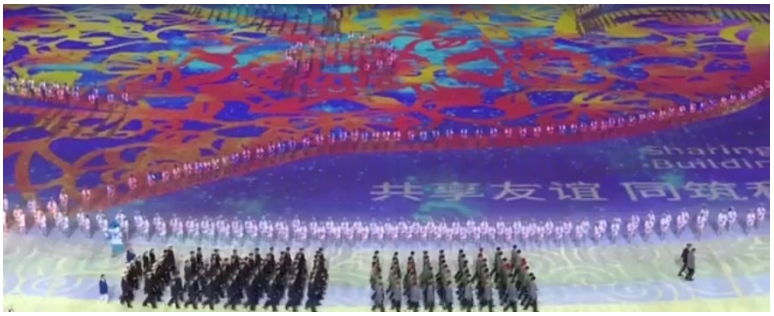
Coronaviruses are a group of related viruses that cause diseases in birds and mammals. Coronavirus have existed for a long time and account for about 25 percent of the seasonal common colds.

In one scenario, the Covid-19 virus evolved to its current pathogenic state through natural selection in a non-human host and then jumped to humans. This is how previous coronavirus outbreaks have emerged, with humans contracting the virus after direct exposure to palm civets (SARS) and camels (MERS). Bats are the most likely reservoir for SARS-CoV-2 as it is very similar to a bat coronavirus. There are no documented cases of direct bat-human transmission, however, suggesting that an intermediate host was likely involved between bats and humans. In this scenario, both of the distinctive features of SARS-CoV-2's spike protein—the RBD portion that binds to cells and the cleavage site that opens the virus up—would have evolved to their current state prior to entering humans. In this case, the ensuing epidemic would probably have emerged rapidly as soon as humans were infected, as the virus would have already evolved the features that make it pathogenic and able to spread between people.

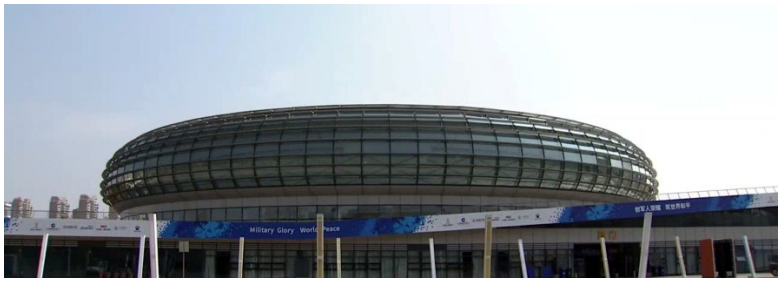
In the second proposed scenario, a non-pathogenic version of the virus jumped from an animal host into humans and then evolved to its current pathogenic state within the human population. For instance, some coronaviruses from pangolins, armadillo-like mammals found in Asia and Africa, have an RBD structure very similar to that of SARS-CoV-2. A coronavirus from a pangolin could possibly have been transmitted to a human, either directly or through an intermediary host such as palm civets or ferrets. Then the other distinct spike protein characteristic of SARS-CoV-2, the cleavage site, could have evolved within a human host, possibly via limited undetected circulation in the human population prior to the beginning of the epidemic. Researchers found that the SARS-CoV-2 cleavage site, appears similar to the cleavage sites of strains of bird flu that has been shown to

transmit easily between people. SARS-CoV-2 could have evolved such a virulent cleavage site in human cells and soon kicked off the epidemic, as the coronavirus would possibly have become far more capable of spreading between people.

It is suspected that the virus spreads, while generating new mutations, in conjunction with bacterial infections such as causing bronchitis, pneumonia and gastro-intestinal distress even affecting the heart, liver and nervous and brain systems.




第七届世界军人运动会
7TH CISM MILITARY WORLD GAMES


Military Glory World Peace


2019
Military Glory World Peace

Figure 36. Seventh Military World Games, October 18 -27, 2019, Wuhan, China along the Yangtze River with attendants from 109 countries and mottos: “Make Friends, Not War,” and “Military Glory, World Peace.”. The event, for the first time, used large-scale projection technology, integrated with lighting effects and LED displays. Five USA soldiers went to the Jinyintan Sensory Diseases Hospital for medical treatment for suspected malaria during the Wuhan Military Games. Malaria has the same symptoms as the new Covid-19 virus, and the same treatment with chloroquine phosphate. The USA delegations shows naval personnel possibly sourcing the infection to USA naval aircraft carriers.







Figure 37. Live fish and animal wet local outdoor market, China. Fish, eels, lobsters, oysters, clams, shrimp are kept alive or stored in water tanks. In Cambodia, buckets are used. The spraying of vegetables with water makes them look fresher and more appealing to the customer, and also increases the selling weight for the merchant.

Figure 38. Spread of Covid-19 virus worldwide from focal sources, March 2020. China forbade all flights to other Chinese cities from Hubei province which succeeded in saving most of the rest of China. However international flights from Hubei were unfortunately allowed with 5 million people destined to other locations worldwide. The panicked international persons in Wuhan were able to fly abroad possibly spreading Covid-19 throughout the world. “You get a few letters out of ‘pandemic’, you get ‘panic’”. The discovery that covid-19 was out in the wild was discovered by the Wuhan lab as they discovered the release in October 2019 when all the parked cars at the lab suddenly disappeared one day from satellite imagery.

On October 18th, 2019, the “2019 Military World Games” event held its opening ceremony followed by a USA men’s soccer match in Wuhan China, which became the ground zero of a novel Covid-19 virus outbreak. Nearly 10,000 military personnel from 110 countries, with the notable exception of Japan and the UK, which have refused to join; gathered at Wuhan at the same time, only weeks before the outbreak began. With a time-delay, outbreaks occurred at different “community spread” hot spots globally:

> “The 2019 Military World Games, officially known as the 7th CISM Military World Games and commonly known as Wuhan 2019, was held from October 18–27, 2019 in Wuhan, Hubei, China.
>
> The 7th Military World Games was the first international military multi-sport event to be held in China and also it was the largest military sports event ever to be held in China, with nearly 10,000 athletes from over 100 countries competing in 27 sports.”

Attendees included workers from the Mylan Company from North Italy, where all the uniforms were manufactured by Chinese immigrants in the Mylan Garment district. This may correlates with the epicenter of hard hit Italy as many of these employees went to the games for fitting and logistics.

One of two possible early patient candidates is American military athlete, Maatje Benassi, a cyclist who was in Wuhan at the time for the cycling competition at the World Military Games, may possibly allegedly been affected by the disease. The USA cyclist in question had an accident during the race. This is her account: "My first reaction was, 'I could not breathe,' I just had to catch my breath, but it would not come". The road race took place around Wuhan's East Lake in China. Several kilometers from the finish line, the turns got even tighter than usual.

At the same time those athletes were in Wuhan, the World Economic Forum, the Bill and Melinda Gates Foundation, Johnson & Johnson, and other establishments hosted a pandemic simulation called Event 201 causing a death statistic of 65 million people.

Figure 39. John Hopkin's University "Event 201, a global pandemic exercise," October 19, 2019 in New York. Funded primarily by the World Economic Forum as well as the Bill and Melinda Gates Foundation, notably occurred in October 2019, just weeks before the official start of the outbreak of the Covid-19 pandemic.

The virus appeared in Wuhan, home of China's biggest biodefense laboratory, and China's biggest transportation hub, at the time of the Chinese New Year, when most Chinese travel to visit relatives.

Over 21 million cell phone accounts in China were canceled three months while 840,000 landlines were closed, Beijing authorities announced on March 19, 2020. Deaths due to the Covid-19 virus may have contributed to the number of account closings. It is possible that some migrant workers had two cell phone numbers before. One is from their hometown, and the other is from the city they work in. In February 2020, they might close the number in the city they work in because they could not go there.

It is theorized that it may have been an accidental release from the Wuhan Center of Disease Control CDC, not the Institute of Virology IV, when they were moving to a new

laboratory location, with unshielded viral experiments being moved on the sidewalk into a new building. Another theory suggests that the virus escaped from a laboratory in Wuhan was included in a USA intelligence dispatch that said three lab workers became sick in November 2019.

Several USA articles, including Fox News, The Seattle Times and the Palm Beach Post reported the findings from an antibody study that showed that 39 Americans in three states had been infected by COVID (or at least they had antibodies) when they donated blood December 13-16, 2019. It takes about two weeks for antibodies to form, which means these blood donors had the antibodies probably in November 2019. People - including about 18 Americans - have come forward and said they had COVID weeks or months before the Wuhan outbreak. They had all the symptoms and later tested positive for antibodies. 106 Americans who donated blood to the Red Cross in December 2019 and January 2020 later tested positive for antibodies.

The USA funded the research in China because the regulation there was much lower than the USA. Lower regulation also enabled lower security which in turn allowed the leak to occur.

The main virus spread started in Wuhan, China. But it spread in two directions. It came east where there was an initial outbreak in California and Washington. But the virus also went west out of China to Italy. Why Italy?

It was Fashion Week in February 2020, and the Chinese essentially own the fashion industry. So there were tens of thousands of Chinese flying to Milan for Fashion Week. In Italy, the virus mutated and became more contagious. Not more lethal. The death rate did not go up, but the contagion rate went up. Deaths increased, but only because the number of infections increased. The Italian strain then came to New York.

New York was the epicenter, the hotspot of the entire country, while California seemed to be doing pretty well. Two months later the Italian strain, which hit New York, has spread to the rest of the country. This is not just a question of public policy, smart governors versus incompetent governors. It is California getting hit with the Italian strain that hit New York in March 2020.

A second wave is when you actually do get the virus under control and the caseload drops off everywhere. Then four, five or six months go by and it comes back more fatal, more contagious than before. That is what happened in the 1918/1919 Spanish flu. There was a bad outbreak with a lot of fatalities in March 1918, but the most fatalities happened in October after the initial outbreak cooled down. There was relative calm in May and June, but then it started coming back. By October it got so bad that bodies were piled up on the streets like cordwood.

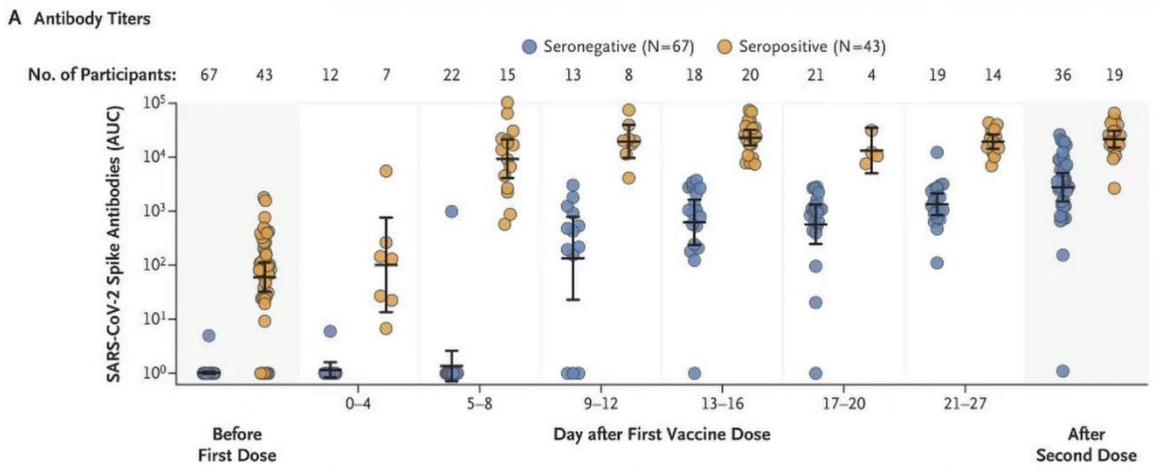
Pandemics are epidemics that spread throughout an Ecumene; a part of the world that has an integrated economy and division of labor, held together and produced by trade and exchange. In 2019-2020, the world faced a truly global Ecumene.

A 300 person USA military delegation visited Wuhan and two weeks later the Covid-19 outbreak occurred. They could have inadvertently brought the virus to USA shores. Other returning delegations may have spread it worldwide to their own countries.

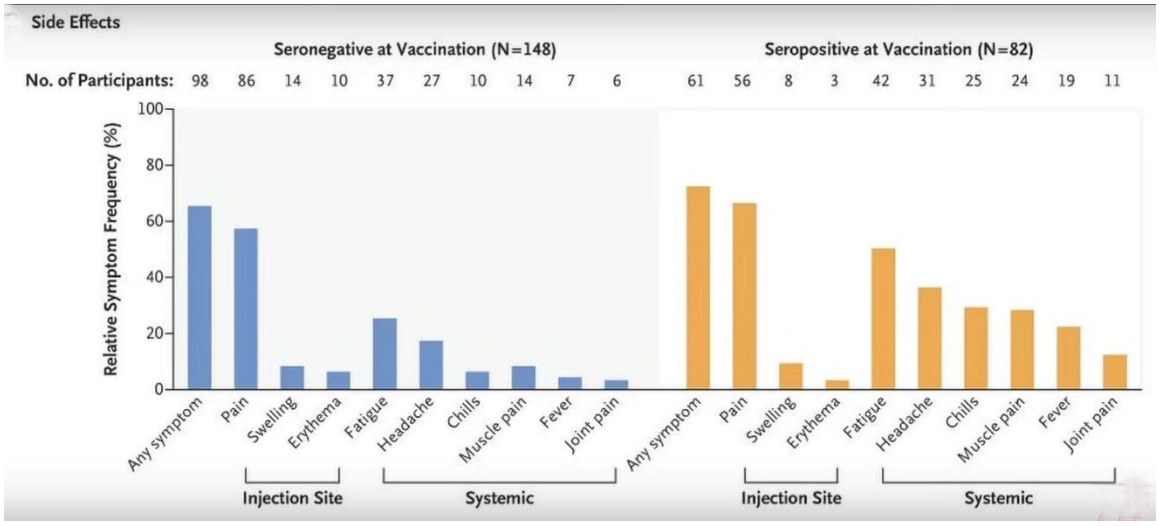
In fact, CDC Director Robert Redfield admitted that some Americans who seemingly were identified as died from the seasonal influenza were tested positive for novel corona virus Covid-19 in the posthumous diagnosis, during the USA House Oversight Committee on Wednesday, March 11, 2020.

ANTIBODIES AND SIDE EFFECTS OF VACCINATION IN UNINFECTED AND PRIOR INFECTED INDIVIDUALS

Moderna trial study ends October 27, 2022. Pfizer ends April 2023.



Level of antibodies slightly increases and remains higher in prior infected individuals, questioning the need for vaccination. Prior uninfected vaccinated individuals continue increasing antibodies level after second dose, but lower than those earlier infected.



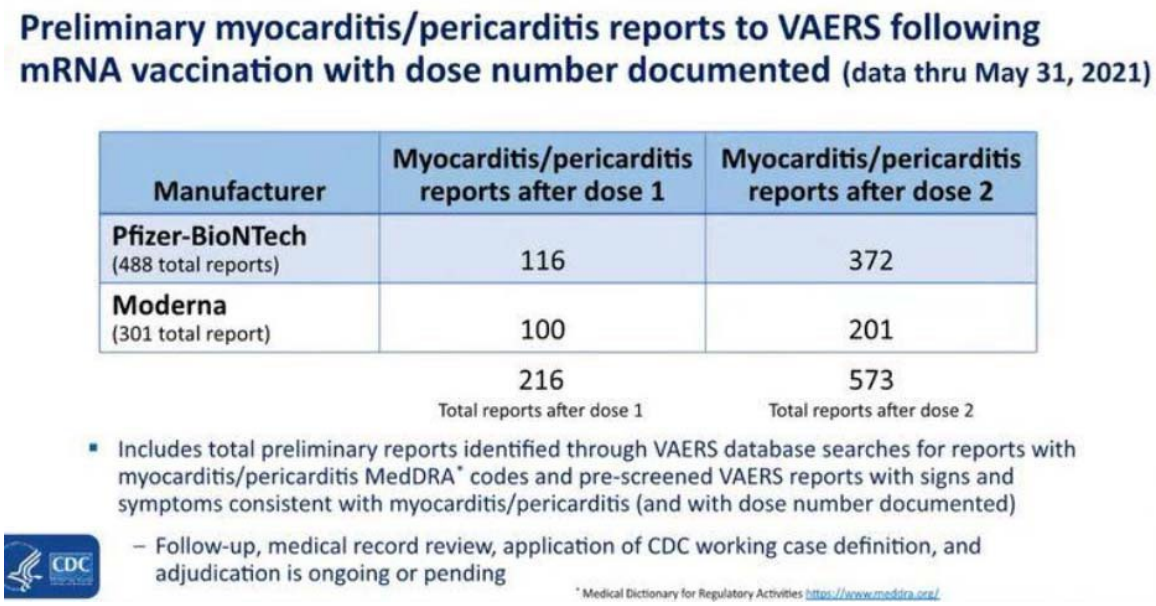
Side effects are higher in individuals who were prior infected with Covid-19.

HEART INFLAMMATION RISK

The Centers for Disease Control and Prevention convened an "emergency meeting" of its advisers on June 18th, 2021 to discuss rare but higher-than-expected reports of heart inflammation following doses of the mRNA-based Pfizer and Moderna COVID-19 vaccines.

The details about myocarditis and pericarditis emerged first in presentations to a panel of independent advisers for the Food and Drug Administration to discuss how the regulator should approach emergency use authorization for using COVID-19 vaccines in younger children. Scar tissue is a side effect of Myocarditis, which can lead to the need for a cardiac transplant. The vaccine is claimed to attack the uterus and blood vessels causing miscarriages.

The CDC disclosed that reports of heart inflammation were detected mostly in younger men and teenage boys following their second dose, and that there was a "higher number of observed than expected" cases in 16- to 24-year-olds.



Preliminary myocarditis/pericarditis reports to VAERS following mRNA vaccination with dose number documented (data thru May 31, 2021)

Manufacturer	Myocarditis/pericarditis reports after dose 1	Myocarditis/pericarditis reports after dose 2
Pfizer-BioNTech (488 total reports)	116	372
Moderna (301 total report)	100	201
	216 Total reports after dose 1	573 Total reports after dose 2

- Includes total preliminary reports identified through VAERS database searches for reports with myocarditis/pericarditis MedDRA* codes and pre-screened VAERS reports with signs and symptoms consistent with myocarditis/pericarditis (and with dose number documented)
  - Follow-up, medical record review, application of CDC working case definition, and adjudication is ongoing or pending

CDC

* Medical Dictionary for Regulatory Activities https://www.meddra.org/

Figure 40. Heart Inflammation Risk from mRNA vaccines. The numbers may actually be higher than those that actually used the reporting system correctly, and those that actually took themselves to the hospital, as well as those affected by " … cover up for their colleagues as well ... unspoken rule in medicine." _

The vast majority of the USA reports deal with male patients. Approximately 300 preliminary reports indicated the patients suffered chest pain, with nearly as many having elevated cardiac enzymes.

Research reported by Dr. Bridle of Guelph University and Japanese scientists suggests that the spike protein is a toxin that leaves the deep muscle injection site in some subjects and enters the bloodstream, It then travels through the lymphatic system to the spleen, liver, kidneys and ovaries and can attach to platelets causing the Idiopathic Thrombocytopoenia Purpura which causes clotting and bleeding especially in the brain as it crosses the blood brain barrier which is thinner in male than female children/adolescents.

The heart is an amazing and resilient organ. Bad things can be going on with it like dying tissue or infarction as it is called, and a person does not know it.

Common human coronaviruses, including types 229E, NL63, OC43, and HKU1, usually cause mild to moderate upper-respiratory tract illnesses, like the common cold.

The Pfizer Company spokesperson perspective is: "With a vast number of people vaccinated to date, the benefit risk profile of our vaccine remains positive." However,

adding booster injections is like playing Russian Roulette but after every empty round you load another round to the gun's cylinder. The gene therapy mRNA injections target a single spike protein. If that protein changes, the injections are suddenly aiming at the wrong target. Virion replication in a "vaccinated" host merely accelerates the emergence of variants with changed spike proteins. The mRNA "vaccine" is directed against just a small part of the virus whereas the natural human immune response against a whole virus which has multiple antigenic sites results in a poly clonal antibody repertoire against a virus that won't be made obsolete when just 1 or 2 mutation variant comes along. It appears unfortunately undesirable to run a mass vaccination campaign in the middle of an epidemic, putting immense selection pressure on the virus and provoking its evolution of variants that escape the vaccines.

DEBATED ORIGIN OF COVID-19

Covid-19 and the influenza are different. Unlike the influenza viruses for which there are several vaccines, humans have not built up an immunity to Covid-19 over multiple generations. What is worse, is that the virus does mutate. The first known person was reported to have contracted the virus on December 1, 2020 in China. It spread to at least 118 countries.

China's envoy to Moscow, Zhang Hanhui reported that five top Chinese scientific organizations collected the data from 93 genome specimens of Covid-19 that have been published in a global database based on inputs from 12 countries on four different continents. The research has shown that the Covid-19's earliest "ancestor" is a virus known as mv1, which subsequently evolved into haplotypes H13 and H38. (A haplotype is a group of genes within an organism that was inherited together from a single parent.)

In turn, H13 and H38 evolved into a second-generation haplotype — H3 — which subsequently evolved into H1 (Covid-19). That is to say that Covid-19's "father" is H3; its "grandparents" are H13 and H38; and, its "great grandfather" is mv1.

Although the virus that was discovered in the Wuhan seafood market (Covid-19) was of the H1 variety, only its "father" H3 has been spotted in Wuhan, and that too, not in the seafood market. Importantly, the Covid-19's "grandparents" — H13 and H38 — have never been spotted in Wuhan.

According to Ambassador Zhang: "This suggests that the H1 specimen was brought to the seafood market by some infected person, which sparked the epidemic. The gene sequence cannot lie."

Ambassador Zhang recounted:

> "A married couple from Japan contracted Covid-19 while in Hawaii (where the USA Pacific base is located) sometime between January 28 and February 3, 2020, although they had not visited China or had come into contact with any Chinese person. Notably, the husband had symptoms by February 3, 2020.
>
> The media reported that Covid-19 has first appeared in Lombardy in northern Italy as early as January 1, 2020.
>
> According to the renowned Italian medical specialist Giuseppe Remuzzi, the Covid-19 epidemic in Italy had begun spreading even before it started

in China. Fashion production and creation has been allocated to Chinese workers living in France and Italy where sweatshops were set in a 200,000 Chinese migrants populated area.

The well-known American virologist Robert Redfield — currently the Director of the Centers for Disease Control and Prevention (the leading national public health institute of the US and a federal agency) and the Administrator of the Agency for Toxic Substances and Disease Registry (a a federal public health agency based in Atlanta, Georgia) — has speculated that the large number of flu deaths in the USA could have in fact been caused by Covid-19, but the USA did not test for it at that time. An estimated 80,000 Americans died of flu and its complications in the winter of 2019.

Shockingly enough, Italy wanted to trace the first infection case of Covid-19 by conducting an exhumation in the USA of so-called flu victims, by the USA has flatly refused permission."

In 2015 The University of North Carolina at Chapel Hill, USA created a genetically mutated SARS-CoV hybrid that was able to infect vectors other than bats; https://www.nature.com/articles/nm.3985:

> "The hybrid virus allowed us to evaluate the ability of the novel spike protein to cause disease independently of other necessary adaptive mutations in its natural backbone."

Ralph S. Baric, an infectious-disease researcher at the University of North Carolina UNC) at Chapel Hill, with associates including Zhengli-Li Shi from Wuhan Biolaboratory, China, published a study on their team's efforts to engineer a virus using ferrets with the surface protein of the SHC014 coronavirus, found in horseshoe bats in China, and the backbone of one that causes human-like severe acute respiratory syndrome (SARS) in mice. The hybrid virus could infect human airway cells and caused disease in mice, according to the team's results, which were published in Nature Medicine under the title:

> "A SARS-like cluster of circulating bat coronavirus shows potential for human emergence."

Zhengli-Li Shi, known as 'bat-woman', because of her work with bat-borne viruses, is reported to have said that the coronavirus spread is "nature punishing the human race for keeping uncivilized living habits":

> "The novel 2019 coronavirus is nature punishing the human race for keeping uncivilized living habits. I, Shi Zhengli, swear on my life that it has nothing to do with our laboratory," she wrote in early February (2020), adding "I advise those who believe and spread rumors from harmful media sources … to shut their stinking mouths."

Scientific American verifies the information about Shi Zhengli, the Chinese virologist as:

> "Shi — a virologist who is often called China's "bat woman" by her colleagues because of her virus-hunting expeditions in bat caves over the past 16 years — walked out of the conference she was attending in Shanghai and hopped on the next train back to Wuhan. "I wondered if [the municipal health authority] got it wrong," she says. "I had never expected this kind of thing to happen in Wuhan, in central China." Her studies had shown that the southern, subtropical areas of Guangdong, Guangxi and Yunnan have the greatest risk of coronaviruses jumping to humans from animals — particularly bats, a known reservoir for many viruses. If coronaviruses were the culprit, she remembers thinking, "could they have come from our lab?"
>
> By January 7 the Wuhan team determined that the new virus had indeed caused the disease those patients suffered — a conclusion based on results from polymerase chain reaction analysis, full genome sequencing, antibody tests of blood samples and the virus's ability to infect human lung cells in a petri dish. The genomic sequence of the virus — now officially called SARS-CoV-2 because it is related to the SARS pathogen — was 96 percent identical to that of a coronavirus the researchers had identified in horseshoe bats in Yunnan, they reported in a paper published last month in Nature. "It's crystal clear that bats, once again, are the natural reservoir," says Daszak, who was not involved in the study."

Bats Are Natural Reservoirs of SARS-Like Coronaviruses

Wendong Li[1,2], Zhengli Shi[2,*], Meng Yu[3], Wuze Ren[2], Craig Smith[4], Jonathan H. Epstein[5], Hanzhong Wang[2], Gary Crameri[3]_
+ See all authors and affiliations

Science 28 Oct 2005:
Vol. 310, Issue 5748, pp. 676-679
DOI: 10.1126/science.1118391

Isolation and characterization of a bat SARS-like coronavirus that uses the ACE2 receptor

Xing-Yi Ge, Jia-Lu Li, Xing-Lou Yang, Aleksei A. Chmura, Guangjian Zhu, Jonathan H. Epstein, Jonna K. Mazet, Ben Hu, Wei Zhang, Cheng Peng, Yu-Ji Zhang, Chu-Ming Luo, Bing Tan, Ning Wang, Yan Zhu, Gary Crameri, Shu-Yi Zhang, Lin-Fa Wang, Peter Daszak & Zheng-Li Shi

Nature **503.** 535–538 (28 November 2013) | Download Citation

nature medicine

Letter | Published: 09 November 2015

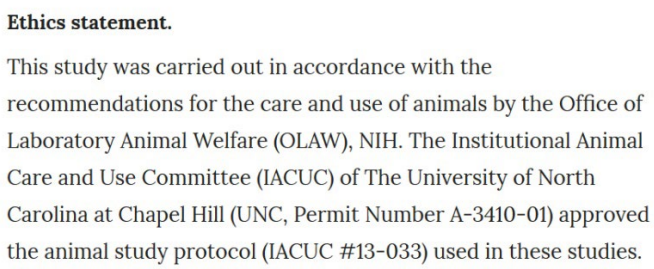
A SARS-like cluster of circulating bat coronaviruses shows potential for human emergence

Vineet D Menachery, Boyd L Yount Jr, Kari Debbink, Sudhakar Agnihothram, Lisa E Gralinski, Jessica A Plante, Rachel L Graham, Trevor Scobey, Xing-Yi Ge, Eric F Donaldson, Scott H Randell, Antonio Lanzavecchia, Wayne A Marasco, Zhengli-Li Shi & Ralph S Baric

Nature Medicine **21**, 1508–1513(2015) | Cite this article

Abstract

The emergence of severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome (MERS)-CoV underscores the threat of cross-species transmission events leading to outbreaks in humans. Here we examine the disease potential of a SARS-like virus, SHC014-CoV, which is currently circulating in Chinese horseshoe bat populations[1]. Using the SARS-CoV reverse genetics system[2], we generated and characterized a chimeric virus expressing the spike of bat coronavirus SHC014 in a mouse-adapted SARS-CoV backbone. The results indicate that group 2b viruses encoding the SHC014 spike in a wild-type backbone can efficiently use multiple orthologs of the SARS receptor human angiotensin converting enzyme II (ACE2), replicate efficiently in primary human airway cells and achieve *in vitro* titers equivalent to epidemic strains of SARS-CoV. Additionally, *in vivo* experiments demonstrate replication of the chimeric virus in mouse lung with notable pathogenesis. Evaluation of available SARS-based immune-therapeutic and prophylactic modalities revealed poor efficacy; both monoclonal antibody and vaccine approaches failed to neutralize and protect from infection with CoVs using the novel spike protein. On the basis of these findings, we synthetically re-derived an infectious full-length SHC014 recombinant virus and demonstrate robust viral replication both *in vitro* and *in vivo*. Our work suggests a potential risk of SARS-CoV re-emergence from viruses currently circulating in bat populations.



Ethics statement.

This study was carried out in accordance with the recommendations for the care and use of animals by the Office of Laboratory Animal Welfare (OLAW), NIH. The Institutional Animal Care and Use Committee (IACUC) of The University of North Carolina at Chapel Hill (UNC, Permit Number A-3410-01) approved the animal study protocol (IACUC #13-033) used in these studies.

Figure 41. Joint University of North Carolina and Wuhan Biolaboratory publications staff on "SARS-like cluster of circulating bat coronaviruses". On "Bats are Natural Reservoirs of SARS-Like Coronaviruses," and: "Isolation and Characterization of a bat SARS-like coronavirus that uses the ACE2 receptor," in 2013. Zhengli Shi as a lead scientist appears as coauthor on these papers in 2005 and 2013. Sources are cited as Nature/Medicine, The Scientist, Science and Scientific American publications.
https://www.nature.com/articles/nm.3985#Sec1

Ralph S. Baric's et. al. study on the SHC014-chimeric coronavirus began before a moratorium was announced, and the National Institute of Health, NIH allowed it to proceed during a review process, which eventually led to the conclusion that the work did not fall under some new restrictions.

But some researchers, like Wain-Hobson, disagree with that decision. The debate comes down to how informative the results are. "The only impact of this work is the creation, in a lab, of a new, non-natural risk," Richard Ebright, a molecular biologist and biodefence expert at Rutgers University, told Nature:" In effect, they adapted the bat-only virus to spread to other animals, including humans.

Richard Ebright does not consider the virus as a "gain-of-function" or engineered bioweapon, due to scientific evidence showing otherwise. However, the notion that the strain of coronavirus that has spread around the world, and since mutated, came from the Wuhan lab is a real possibility in Ebright's opinion.

His notion is supported by the fact that according to a study contributed-to by the 'bat-woman' herself, Zhengli-Li Shi, the novel coronavirus is 96.2 percent identical to a viral strain that was detected in horseshoe bats from the Yunan Province, which is over 600 miles away from Wuhan. It is worth noting that the virus shares similar characteristics with the earlier SARS virus and that the Wuhan biolab had Americans on its staff.

Separate Chinese research confirmed and cited testimonies from close to 60 people who lived or stayed in Wuhan for lengthy periods, saying that the bat "was never a food source in the city, and no bat was traded in the market."

A deadly virus leak from a Chinese laboratory is not unprecedented. The SARS virus escaped twice from the Chinese Institute of Virology in Beijing in 2004, one year after its spread was brought under control. The leak could possibly happen accidentally from faulty or inadequate ventilation or waste disposal systems, or from faulty confinement leading to escape of the experimental carriers.

China's military website Xilu published an article on Januray 26, 2020 with the title "Four Key Proteins of COVID-19 Have Been Replaced, Which Can Precisely Attack

Chinese". The main arguments of this article are that the USA has been collecting blood and DNA samples of Chinese people to develop bioweapons that can especially target Chinese. It mentions that four key proteins in the virus were replaced so that the virus can have a "strong ability to infect humans". This is a false argument as the virus affected more people across the globe who were not of Chinese heritage.

It was reported that there is no incinerator at or near the Wuhan lab to burn the bodies of the animals that have been used in experiments. The routine procedure is, after simple disinfection of the exterior and surface of the animals' bodies, they are then sealed in a large plastic bag, and put into the refrigerator. After a certain amount of bodies are accumulated this way, they will then be transported outside of the lab, to be centrally incinerated by a contractor. This provides a "back door" for the viruses to escape the lab environment.

On January 2, 2020, Li Ning, a professor at China Agricultural University was sentenced to 12 years for "embezzlement of scientific research funds". According to the judgment, Li Ning illegally gained about 11 million yuan, or 1.44 million USA dollars, by selling animals and milk used in scientific experiments to the market. Li Ning's case is not an isolated one and reflects a systemic problem with the management of labs in China. The contractors can profit as they are paid for the disposal of the animals' bodies, but they can make more money by selling the animals, instead of burning and destroying them.

Shi ZhengLi, a virologist at Wuhan Institute of Virology, published a preprint paper at New England Journal of Medicine. The paper says that this new coronavirus shows 96.2 percent of whole-genome identity to a virus called BatCoV RaTG13, which was detected in horseshoe bats in Yunan Province in China, and kept by Shi ZhengLi's team.

In a presentation made in June 2018, Shi ZhengLi reported:

> "Although bats carry many viruses, their chances of directly infecting people are actually very small. Only at what point do we increase our protection? Usually, it's when there are too many bats in a cave, you go in there and there are a lot of dust droplets, and we don't feel too good after we inhale them into our lungs, so we add some protection. Most of the time, we just take some simple protection measures, and it's OK."

Allegedly, Shi Zhengli's team would also inject rabies vaccines in advance to protect themselves. This is similar to researchers in the USA using the Tamiflu antiviral as prophylaxis. None of the researchers in Wuhan Institute of Virology has been infected, possibly because they had already acquired immunity. Shi ZhengLi apparently outlined the transmission path of SARS: From the bats in the caves in Yunan province to the civets breed nearby. After those civets were sold to Guangdong province, the virus reproduced and mutated within the bodies of more civets and then jumped to human bodies.

Fact is that we do not know about all the variants of viruses in nature; so we logically cannot tell whether the Covid-19 virus is man-made or naturally-occurring. Even if it were man-made, the process of its generation entails using multiple hosts that would intentionally or unintentionally shade its artificial personality and make it appear as having a natural source.

An interesting, related case is Charles Lieber, the Harvard Chemistry and Bio-Chemistry Department Chairperson who was arrested by the USA's Federal Bureau of

Investigations, FBI shortly after the Wuhan outbreak in January 2020 for lying about his receiving payments to transfer intellectual property and establish a bio-nanotechnology research laboratory located at Wuhan, China. One of his students was intercepted at Logan airport leaving with 21 vials of undisclosed biological substances.

After epidemics of SARS and the Middle East respiratory syndrome, many scientists were worried about the possibility of interspecific transmission of viruses – SARS-CoV and MERS-CoV, the causative agents of these diseases also affected bats and other animals. The potential for animal infections to mutate and infect humans was a serious threat.

Researchers at the University of North Carolina at Chapel Hill in the USA drew attention to the SHC014-CoV, the SARS-like coronavirus, which opened in 2013, infecting horseshoe bats. As a study by Chinese experts showed, the virus appeared due to the recombination of lines that also led to the appearance of SARS-CoV.

In 2015, scientists, together with colleagues from the Wuhan Institute of Virology, created a "chimeric" virus based on the surface protein SHC014 and the SARS virus. Their study showed that SHC014 already has all the necessary tools for binding to the key receptor of human cells. The experiment confirmed the hypothesis of the possibility of direct human infection with bat coronaviruses.

The new virus could infect the epithelium of the human respiratory tract, cancer cells of the lungs and uterus, as well as the epithelium of the kidney of the monkey. In experimental mice, the virus caused pneumonia, in which loss of up to 10 percent of body weight was also observed. Fatal outcome was observed rarely and only in old mice (from 12 months).

Researchers did not find drugs effective against the new virus. In 2018, a vaccine was found that could neutralize it. "Our approach shows how to use metagenomic data to predict the appearance of viruses and apply this knowledge in preparation for the treatment of future emerging viral infections," the authors wrote. They also warned of the dangers of transmitting SHC014-CoV to people with possible mutations.

Such experiments caused discontent from the scientific community. In November 2015, an article appeared in Nature devoted to criticizing the work. Also, its author expressed concerns about what would happen if an experimental virus leaks out of the laboratory – after all, SHC014-CoV is only a theoretical danger, and its chimeric counterpart already exists in reality.

In 2016, Vincent Racaniello, a professor at the Department of Microbiology and Immunology at Columbia University, responded to such claims with an article in the PNAS journal on the latest research on viruses that could lead to epidemics:

> "Critics of experiments with artificially enhancing the function of viruses often cite apocalyptic scenarios involving the release of altered viruses and subsequent catastrophic effects on humans. However, such statements represent private opinions, which are intended only to scare the public and push us to unnecessary regulation. Virologists have manipulated viruses for years, and not a single modified virus has caused an epidemic in humans."

From these data, a number of media outlets, including Russian ones, concluded that the causative agent of Covid-19 was allegedly created by Chinese scientists in collaboration with the American army. The cosmological idea turned out to be very popular among users of social networks, and then journalists, and Nature editors even had to write an epigraph for the article criticizing the experiment:

> "We know that this story is used as the basis for unverified theories that the coronavirus leading to Covid-19 was created artificially. There is no evidence that this is true; scientists believe that the most likely source of coronavirus was an animal."

In February 2020, a team of scientists from Ohio University, the University of Pennsylvania, and the University of North Carolina published an article refuting the link between SHC014-MA15 and SARS-CoV-2 coronaviruses. According to Chinese scientists, SHC014-MA15 differs from SARS-CoV-2 by more than 6,000 nucleotides. The complete genetic code SHC014-MA15, would eventually be published.

Chinese state media conspiracy theories and allegations suggested it was the USA that first infected Wuhan province with the deadly coronavirus via a USA Army covert operation by words of Chinese Foreign Ministry Spokesman Lijian Zhao: "It might be USA army who brought the epidemic to Wuhan," citing the prior televised testimony by CDC Director Robert Redfield.

Allegations are that there are five strains of this virus and all emanate from the same "root stock" which is known only to exist at Fort Detrick, USA. And the strains found in China, Iran and Italy are three of them. One line of thinking is that the virus was possibly unknowingly carried to China by an infected USA person in the military games held in Wuhan in September-October 2019.

As the SARS-COV-2 disease spread in 2020 across the USA, tens of millions of Americans were unable to seek medical help either because they were uninsured or undocumented migrants or refugees fearing deportation if they sought medical help, and contributed to further spread it. More than 27 million people in America have no medical insurance at all. Tens of millions more are classified as being "underinsured" or having basic insurance that often only covers a fraction of the cost of any check-ups or treatment. Testing kits were initially in short supply or practically unavailable. That placed everyone in society at greater risk of spread of the infection.

This possible viral mutation reportedly correlated with an earlier outbreak of African swine fever or swine flu on Chinese pig farms and an early January 2020 situation when the Chinese government banned fishing and consumption of fish along the entire 6,300 km or 3,900 miles length and all 350 species of fish from the Yangtze River. This shut down China's 200 billion dollars aquaculture economy, which controls 70 percent of the world fish market from Chinese fish breeding ponds.

Figure 42. African swine fever outbreak, China, Vietnam, Cambodia, Mongolia, North Korea, Hong Kong and Taiwan, decimated a quarter of the world pigs, 2019. The African swine fever destroyed more than half of China pig population and crossed over into a summer flu among Beijing residents in 2019. In early January 2020, the Chinese government banned fishing and consumption of fish along the entire 6,300 km (3,900 miles) length of the Yangtze River.

ANIMAL TO HUMAN TRANSMISSION

A mutated strain of coronavirus that has spread to humans in Denmark in November 2020 has triggered culls of millions of mink animals and a lockdown in some parts of the country. More than 200 people have been infected with strains related to mink.

Mink kept in large numbers on farms have caught the virus from infected workers. And, in a small number of cases, the virus has crossed back from mink to humans, picking up genetic changes on the way. Mutations in some of the strains, which have infected a small number of people, are reported to involve the spike protein of the virus, which is targeted by some, but not all, vaccines being developed.

The coronavirus, like all viruses, mutates over time, but there is no evidence that any of the mutations pose an increased danger to people.

HISTORICAL PERSPECTIVE, THE VIROME

It is suggested that humans have 8,000 different strains of viruses existing .in their bodies. This is designated as the Virome. Viruses evolve through mutations quickly to harmlessly handshake with the host and join the virome.

In many ancient societies, people believed that spirits and gods inflicted disease and destruction upon those that deserved their wrath. This unscientific perception often led to disastrous responses that resulted in the deaths of thousands, if not millions.

In the case of Justinian's plague, the Byzantine historian Procopius of Caesarea traced the origins of the plague (Yersinia pestis bacteria) to China and northeast India, via land and sea trade routes to Egypt where it entered the Byzantine Empire through Mediterranean ports.

Despite his apparent knowledge of the role geography and trade played in this spread, Procopius laid blame for the outbreak on the Emperor Justinian, declaring him to be either a devil, or invoking God's punishment for his evil ways. Some historians found that this event could have dashed Emperor Justinian's efforts to reunite the Western and Eastern remnants of the Roman Empire and marked the beginning of the Dark Ages.

Hippocrates of Kos, the Greek physician who was born around 460 B.C., mentioned what we now know as the modern influenza virus in his writings, some historians say. He called it the "Fever of Perinthus." Others wonder whether this was influenza, another illness, or a combination of illnesses.

In 1173 and 1500, two influenza outbreaks were described in scant detail. The name "influenza" originated in the 15th century in Italy, from an epidemic attributed to the "influence of the stars," which, according to historical documents, "raged across Europe and perhaps in Asia and Africa," a 2016 paper in the Journal of Preventive Medicine and Hygiene reported. "Scholars and historians debate whether influenza was already present in the New World or whether it was carried by contaminated pigs transported on ships," it added. "Some Aztec texts speak of a 'pestilential catarrh' outbreak in 1450-1456 in an area now corresponding to Mexico, but these manuscripts are difficult to interpret correctly, and this hypothesis seems controversial."

Luckily, humanity's understanding of the causes of disease has improved, and this is resulting in a drastic improvement in the response to modern pandemics, albeit slow and incomplete.

Influenza A viruses are divided into subtypes based on two proteins on the surface of the virus: hemagglutinin (H) and neuraminidase (N). There are 18 different hemagglutinin subtypes and 11 different neuraminidase subtypes (H1 through H18 and N1 through N11, respectively). While there are potentially 198 different influenza A subtype combinations, only 131 subtypes have been detected in nature.

And this is just the A variation. There are four types of influenza viruses: A, B, C and D. Human influenza A and B viruses cause seasonal epidemics of disease known as the flu season; almost every winter in the USA.

No disease and especially no virus in the entirety of history has ever ended or gone away. Non-viral stuff burns out over time and, occasionally, some treatment comes along and mitigates it, but it is not gone. The plague still exists. Polio still exists. Viruses mutate and go on indefinitely. Smallpox was gone, until they dug it back up out of the graves as part of risky GOF research.

IMPORTING DISEASE, QUARANTINE

The practice of quarantine began during the 14th century, in an effort to protect coastal cities from plague epidemics. Cautious port authorities required ships arriving in Venice from infected ports to sit at anchor for 40 days before crews' landing — the origin of the word quarantine from the Italian "quaranta giorni", or 40 days.

One of the first instances of relying on geography and statistical analysis was in mid-19th century London, during a cholera outbreak. In 1854, John Snow came to the conclusion that cholera was spreading via tainted water and decided to display neighborhood mortality data directly on a map. This method revealed a cluster of cases around a specific pump from which people were drawing their water.

While the interactions created through trade and urban life play a pivotal role, it is also the virulent nature of particular diseases that indicate the trajectory of a pandemic.

TRACKING INFECTIOUSNESS

Scientists use a basic measure to track the infectiousness of a disease called the reproduction number — also known as R_0 or "R naught." This number tells us how many susceptible people, on average, each sick person will in turn infect.

Measles tops the list, being the most contagious with a R_0 range of 12-18. This means a single person can infect, on average, 12 to 18 people in an unvaccinated population.

While measles may be the most virulent, vaccination efforts and herd immunity can curb its spread. The more people are immune to a disease, the less likely it is to proliferate, making vaccinations critical to prevent the resurgence of known and treatable diseases.

URBANIZATION AND THE SPREAD OF DISEASE, SOCIAL DISTANCING

Global trade and travel connections and interactions are a driving force behind pandemics. From small hunting and gathering tribes to the metropolis, humanity's reliance on one another has also sparked opportunities for disease to spread. Urbanization in the developing world is bringing more and more rural residents into denser neighborhoods, while population increases are putting greater pressure on the environment. At the same time, passenger air traffic nearly doubled within a decade. These macro-economic trends are having a profound impact on the spread of infectious disease.

As organizations and governments around the world ask for citizens to practice social distancing to help reduce the rate of infection, the digital world is allowing people to maintain connections and commerce like never before.

Six feet is four cubits. In biblical times, that was the distance lepers were obliged to keep from healthy people. It protected the populace from leprosy two thousand years ago.

Table 15. Historical Pandemics; "diseases prevalent over a whole country or the world." Note that Tuberculosis, TB an old disease not much discussed these days, killed nearly 1.6 million people in 2017. About 2.56 million people died from pneumonia in 2017. Almost a third of all victims were children younger than 5 years, it is the leading cause of death for children under 5. Fatal complications from the flu can include pneumonia, stroke and heart attack. About 60 million people die each year; the majority of them are in their old age.

Pandemic	Date, AD	Deaths	Comments
Antonine Plague	165-180	$5x10^6$	Either smallpox or measles
Plague of Justinian	541-542	$30\text{-}50x10^6$	Yersinia pestis bacteria, rats, fleas. May have contributed to the fall of the Roman Empire.
Japanese Smallpox Epidemic	735-737	$1x10^6$	Variola major virus

Bubonic Plague, Black Death	1347-1351	$200x10^6$	Yersinia pestis bacteria in fleas in rats then spread to humans. Wiped out 30-50 percent of European population. It took 200 years for recovery.
New World Smallpox	1520-onwards	$56x10^6$	Smallpox was spread on blankets given to Indigenous people of North America in the 19th Century. Variola major virus was introduced by European colonists to the Americas and Hawaii. Killed 90 percent of Native Americans. In Europe in 1800s, 400,000 /year were killed. First developed vaccine was against Smallpox.
Seventeenth century European "Great Plagues"	1600	$1x10^5$	Yersinia pestis bacteria, rats, fleas
Italian Plague	1629-1631	$1x10^6$	Yersinia pestis bacteria, rats, fleas
Great Plague of London	1665		
Eighteenth century European "Great Plagues"	1700	$6x10^5$	
Cholera 1-6 Pandemics	1817-1923	$1x10^6$	V. Cholera bacteria. 1800s outbreaks, no consensus on death toll
The Third Plague	1885	$12x10^6$	In China and India. Yersinia Pestis bacteria, rats, fleas.
Yellow Fever	Late 1800s	$1.0\text{-}1.5x10^5$	Mosquitoes, virus. USA
Russian Flu	1889-1890	$1x10^6$	H2N2 virus, avian vector
Spanish Flu	1918-1919	$40\text{-}50x10^6$	H1N1 virus, swine vector
HIV/AIDS	1981-present	$25\text{-}35x10^6$	Virus, Chimpanzees.
Asian Flu	1957-1958	$1.1x10^6$	H2N2 virus
Hong Kong Flu	1968-1970	$1x10^6$	H3N2 virus
SARS, Severe Acute Respiratory Syndrome	2002-2003	770	Corona virus. Bats, palm civets vectors.
Swine Flu	2009-2010	$2x10^5$	H1N1 virus, swine vector
Ebola Virus	2014-2016	$11.3x10^3$	Ebola virus, wild game as vectors.
MERS, Middle Eastern Respiratory Syndrome	2015-present	859	Corona virus. Bats, camels as vectors.
SARS-COV-2, Novel Corona Virus Disease, Covid-19 virus	2019-present 4,402 deaths/day 349,615 new cases/day 11/22/2021	5,151,560 deaths, 257,579,393 confirmed cases	Bats, pigs, ferrets, pangolins, palm civet cats, snakes as suspected vectors.

		USA: 47,516,220 cases 767, 509 deaths 11/22/2021.	

Figure 43. Asian avian flu subtype H2N2 killed one million people worldwide. Maurice Hilleman and colleagues developed a vaccine in 1957.

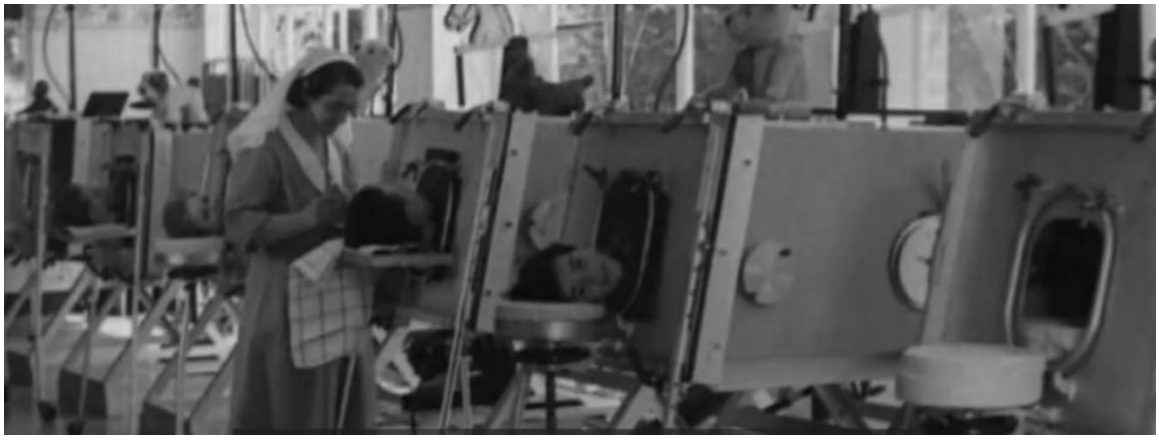


Figure 44. Jonas Falk developed a vaccine against the polio virus affecting the brain and spinal cord causing infantile muscle paralysis. In 1952 there were 58,000 cases of polio in the USA. The vaccine prevented the occurrence of a pandemic.

Influenza and the Covid-19 virus are untreatable with antibiotics, and they have almost identical symptoms: fever, coughing, night sweats, aching bones, tiredness and, in more severe cases of both viruses, nausea and diarrhea. They can be spread by touching the face, coughing and sneezing. There are 1 billion influenza infections worldwide each

year, with up to 45 million cases in the USA per year, tens of thousands of USA deaths, and 291,000 to 646,000 deaths worldwide.

Seasonal flu has a fatality rate of about 0.1 percent whereas the Covid-19 virus is roughly 10 times more lethal than the seasonal flu at 1 percent. Influenza has been around for more than 2,000 years. The "novel influenza A viruses" in humans lead to a pandemic approximately once every 40 years but have existing flu vaccines.

Most people have cross immunity from other common corona cold viruses which means they do not initiate an immune response to it, that is no symptoms occur with 60-70% of the population is in this group. Others get a fever for 6-48 hours and get better. The fever is the immune system performing its function, raising the internal body temperature to make the body inhospitable to the pathogen while the immune system gene-sequences it. Once the immune system as learned what it is looking for, it destroys it and the fever comes down. This is the other 29-39% of the population. About 1% need hospitalization and this includes the obese, cancer patients, heart disease patients, type 2 diabetes patients, kidney failure patients, and the old and frail.

Hippocrates of Kos, the Greek physician, born around 460 BC, mentioned what we now know as the modern influenza virus in his writings. He called it the "Fever of Perinthus." In 1173 and 1500, two other influenza outbreaks were described, though in scant detail. The name 'influenza' originated in the 15th century in Italy, from an epidemic attributed to the 'influence of the stars,'" which, according to historical documents, "raged across Europe and perhaps in Asia and Africa".

Scholars and historians debate whether influenza was already present in the New World or whether it was carried by contaminated pigs transported on ships. Some Aztec texts speak of a 'pestilential catarrh' outbreak in 1450-1456 in an area now corresponding to Mexico. These manuscripts are difficult to interpret correctly and this hypothesis seems controversial.

Influenza and Covid-19 come from different virus families, and Covid-19 is brand new. There are four other strains of the coronavirus, but the attack rate of this virus is relatively high as there is no immunity to it. In 2017–18, the worst flu season on record in the USA outside of a pandemic, approximately 80,000 Americans died. The four other coronavirus strains that already exist are responsible for around 25 percent of the common colds.

Humans have a "herd immunity" to flu. When there are enough people in the community who are immune, it protects people who are not immune. That is the case with influenza, but not with Covid-19. Both can be spread from person to person through droplets in the air from an infected person coughing, sneezing or talking. Based on the estimated distance viruses travel, scientists recommend "social distancing" of at least six feet in enclosed public spaces.

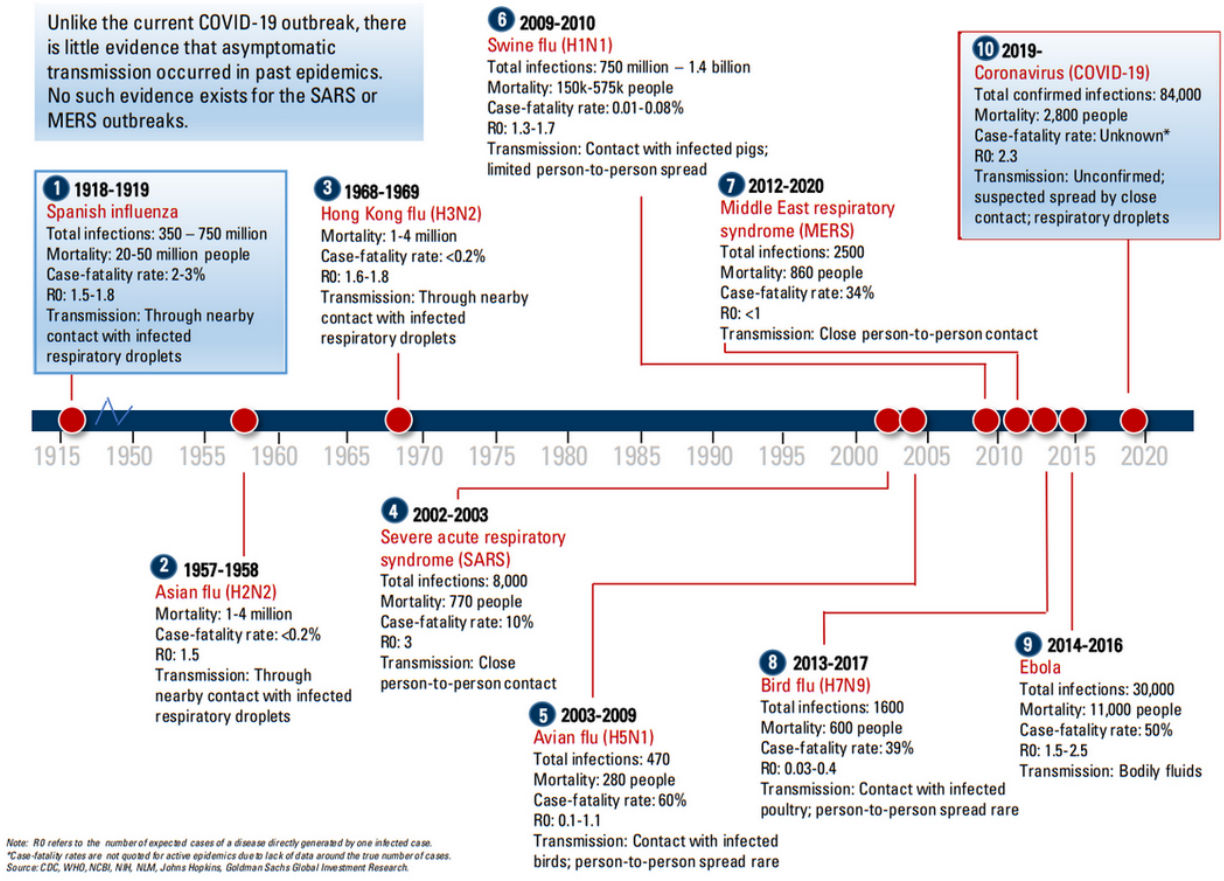
Fatality depend on the age of the individual. No deaths occurred in those 9 and younger, but cases in those aged 70 to 79 carried an 8 percent fatality rate, and those aged 80 years and older had a fatality rate of 14.8 percent. The rate was 49 percent among critical cases, and elevated among those with pre-existing conditions, to between 5.6 - 10.3 percent, depending on the condition.

Adults with the flu, which has an average incubation period of two days, can infect others 24 hours before symptoms develop and 5 to 7 days after becoming sick. Novel

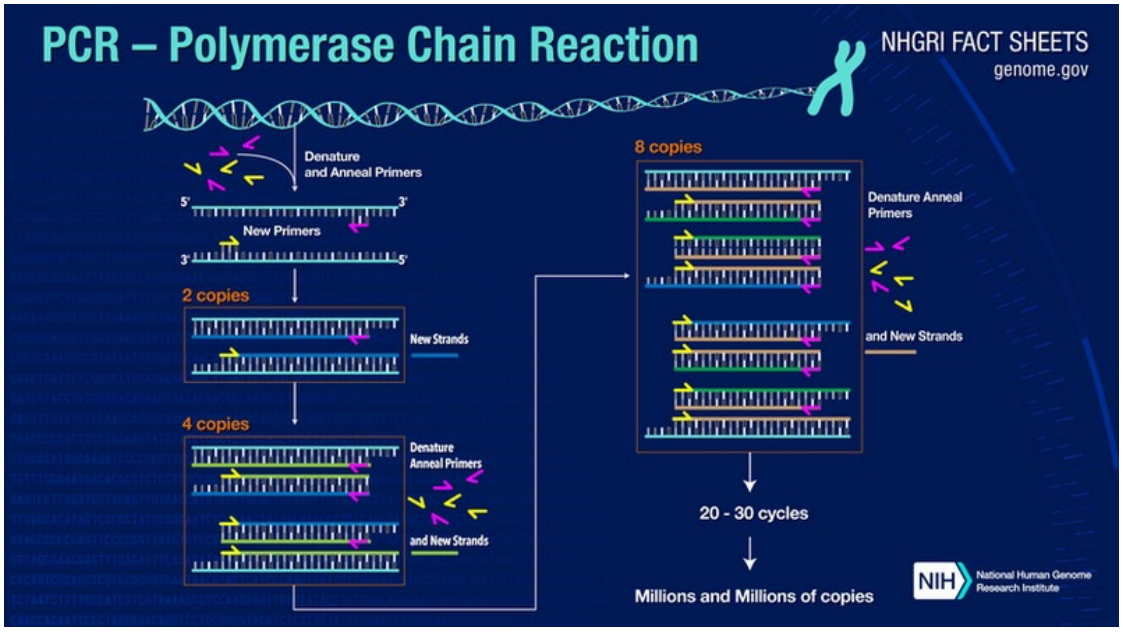
coronavirus has a median incubation period of 5.1 days, longer than that other human coronaviruses (3 days) that cause the common cold.

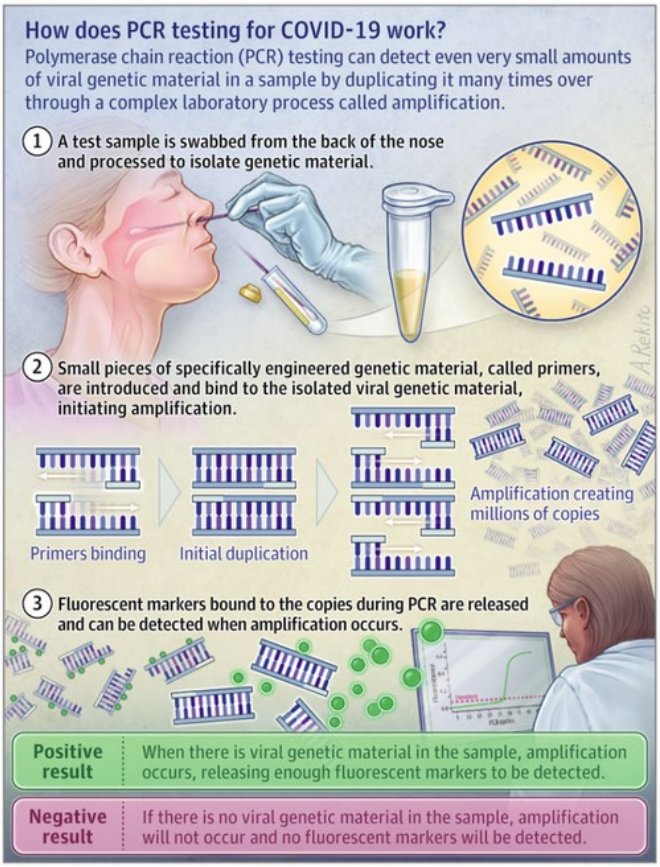
Coronavirus appears to be transmitted with ease to around 2.3 people by each person infected in the community. Drug companies and the medical community scrambled to come up with a vaccine before more people die, and health services were overwhelmed with sick people showing up at their doors.

Table 16. History of recent Pandemics. Notable are the 1918-19 "Spanish flu" or, one of the most extreme pandemics ever recorded, the Black Death Bubonic Plague from 1347 to 1351. Source: CDC.




Coronavirus
POSITIVE
NEGATIVE


PCR – Polymerase Chain Reaction
NHGRI FACT SHEETS
genome.gov
Denature
and Anneal Primers
5'
3'
New Primers
3'
5'
2 copies
New Strands
4 copies
Denature
Anneal Primers
and New Strands
8 copies
Denature Anneal
Primers
and New Strands
20 - 30 cycles
Millions and Millions of copies
NIH
National Human Genome
Research Institute



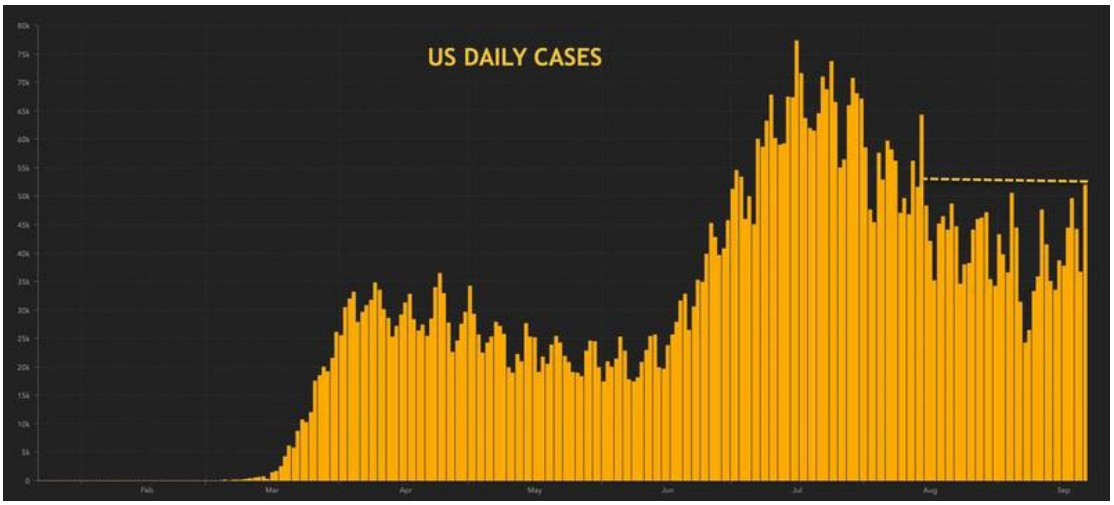


Figure 45. Corona virus test kits issued by the Center for Disease Control and Prevention, CDC. Molecules on a swab are broken down into genetic code, using chemicals, liquid handling robots and a PCR (Polymerase Chain Reaction) machine which can make billions of copies of DNA strands. The test for Covid-19 uses two stages of pre-packed chemical kits to extract the genetic material from the mucus and cells found on a skin swab. These antibody tests are capable of measuring that level of seroprevalence - that

level of antibodies but that does not mean that somebody with antibodies is immune to reinfection.

POLYMERASE CHAIN REACTION, PCR

The Polymerase Chain Reaction (PCR) is a laboratory technique used to amplify DNA sequences. The method involves using short DNA sequences called primers to select the portion of the genome to be amplified. The temperature of the sample is repeatedly raised and lowered to help a DNA replication enzyme copy the target DNA sequence. The technique can produce a billion copies of the target sequence in just a few hours.

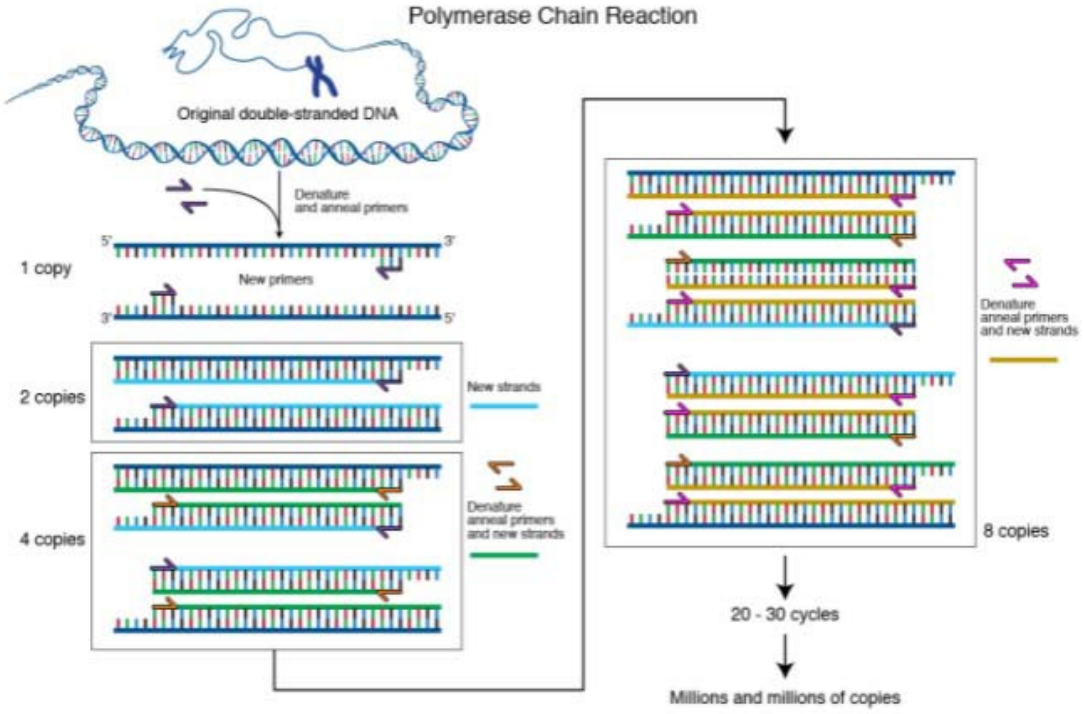


Figure. Polymerase Chain Reaction PCR test.

The CDC admits that the "Covid" test may only prove that the recipient has antibodies from an infection with a virus from the same family of corona viruses that cause the common cold: https://www.cdc.gov/coronavirus/2019-ncov/testing/serology-overview.html

Under this section:

> "If you test positive
>
> A positive test result shows you may have antibodies from an infection with the virus that causes COVID-19. However, there is a chance a positive result means that you have antibodies from an infection with a

virus from the same family of viruses (called coronaviruses), such as the one that causes the common cold."

EXAMPLE, EFFECT OF MULTIPLE TESTING

If the probability of a false positive test is p, then the probability of not testing positive is (1-p). Repeating the test n times leading to a probability of *not* testing positive of $(1-p)^n$, and hence to a probability of testing positive at least once of: $P = 1-(1-p)^n$.
For p=0.1 and n=10, $P=1-(1-0.1)^{10}=1-0.9^{10}=1-0.3486784401=0.65$; a 65 percent probability of testing positive; not the 10 percent anymore.
For p=0.02 and n=10, $P=1-(1-0.02)^{10}=1-0.98^{10}=1-0.8170728069=0.18$; an 18 percent probability of testing positive; not the 2 percent anymore.

Research from the University of Oxford's Center for Evidence-Based Medicine and the University of the West of England found that the swab-based technique used for most Covid-19 testing is at risk of returning "false positives" since copies of the virus's RNA detected by the tests might simply be dead, inactive material from a weeks-old infection. Although patients infected with Covid-19 are typically only infectious for a week or less, tests can be triggered by virus genetic material left over from a weeks-old infection. The team's research involved analyzing 25 studies on the widely used Polymerase Chain Reaction test. PCR tests use material collected with a swab - the most common type of test around the world, and especially in the USA - then utilize a "genetic photocopying" technique that allows scientists to magnify the small sample of genetic material collected, which they can then analyze for signs of viral RNA.

These PCR tests just lack "specificity" and are moreover, not sensitive enough to distinguish whether the viral material is active and infectious, or dead and inert.

A good proportion of 'new' mild cases and people re-testing positives after quarantine or discharge from hospital may not infectious but are simply clearing harmless virus particles which their immune system has efficiently dealt with. It could also suggest that their reinfection is due to a new version of the fast-mutating virus.

The PCR test is not useful for what it is used for apparently. This has been known since the beginning. The RT-PCR test - invented by Dr. Kary Mullis in 1983 (who won the Nobel Prize in Chemistry for this discovery), he clearly stated: "This test should not be used to test for infectious disease". The RT-PCR test looks for chromosome 8. The only thing a PCR test can prove is that you are human since it looks for genetic material, which we all have. Testing positive vs. negative only means that you have more genetic material for detection, had a flu shot or the flu in the last few years or had a cold which is also a coronavirus.

A quote from Dt. Kary Mullis the Nobel Prize winning inventor of The PCR process:

> "PCR is separate from that, it's just a process that's used to make a whole lot of something out of something. That's what it is. It doesn't tell you that you're sick and it doesn't tell you that the thing you ended up with really was going to hurt you or anything like that."

Dr. Kary Mullis died of pneumonia, 2 months before the covid landscape was made public. Dr. Kary Mullis was outspoken, a plain spoken man who could not be messed with too much, as he was highly respected as his Nobel proves. He was a critic of the administrative Anthony Fauci. He died, suddenly, of "pneumonia", an often used diagnosis when pulmonary events are dire to fatal, The world was radically changed. Which came first? The Covid or the cure?

Only a fraction of the daily cases being reported so hysterically in the mainstream media are actual, bona fide SARS-CoV-2 Covid-19 sufferers and need treatment and to separate themselves from others. This has to do with the sensitivity of PCR (Polymerase Chain Reaction) tests, which it turns out can be ramped up according to the taste of the testing companies. Most testing companies have chosen the outrageously high sensitivity limit of 40 PCR cycles – meaning that the DNA in a sample is exponentially increased 40 times in order to amplify its signal.

Using such a sensitive test means that the faintest traces of a dead virus, or even leftovers from previous infections, can result in a positive. Professor Juliet Morrison, a University of California virologist, said that even a limit of 35 PCR cycles is too high, let alone 40. She said she was "shocked that people would think that 40 could represent a positive."

The scale of the pandemic 'problem' is actually much smaller than we have been led to believe – about a tenth of what all the politicians and media have been using to justify the lockdowns, the quarantines, the mass testing. The FDA has only now been forced to concede that they have no idea how different testing companies determine which the positive and negative tests are: they just accept whatever data they are given.

In Wuhan, the original source of this disease, the pool parties are in full swing. They do not seem to be too worried about PCR tests or contact tracing, or even the virus itself. The Chinese government says that their supreme lockdown was so awesome that they now have zero Covid: a biological impossibility. "Maybe they just stopped testing and decided to get on with their lives."

A quote regarding AIDS is:

> "Kary Mullis, who won the Nobel Prize in Science for inventing the PCR, is thoroughly convinced that HIV is not the cause of "AIDS". With regard to the viral load tests, which attempt to use PCR for counting viruses, Mullis has stated: "Quantitative PCR is an oxymoron." PCR is intended to identify substances qualitatively, but by its very nature is unsuited for estimating numbers. Although there is a common misimpression that the viral load tests actually count the number of viruses in the blood, these tests cannot detect free, infectious viruses at all; they can only detect proteins that are believed, in some cases wrongly, to be unique to HIV. The tests can detect genetic sequences of viruses, but not viruses themselves.
>
> What PCR does is to select a genetic sequence and then amplify it enormously. It can accomplish the equivalent of finding a needle in a haystack; it can amplify that needle into a haystack. Like an electronically amplified antenna, PCR greatly amplifies the signal, but it also greatly amplifies the noise. Since the amplification is exponential, the slightest

> error in measurement, the slightest contamination, can result in errors of many orders of magnitude."

To make an analogy: using the viral load tests to gauge viral activity would be like finding a few fingernail clippings; amplifying the fingernail clippings into a small mountain of fingernail clippings mixed in with other miscellaneous material; and then having an "expert" come along and interpret the pile as representing a platoon of soldiers, fully armed and ready for battle.

> "When molecular biologists Peter Duesberg and Harvey Bialy analyzed the 1995 Ho and Wei papers (Nature 373) that launched the whole viral load bandwagon, they found that estimates of free virus had been overestimated by several orders of magnitude. In the Wei study, 100,000 so-called "plasma viral RNA" units really amounted to less than 2 infectious viruses per milliliter of plasma. And in the Ho study, 10,000 "plasma virions" corresponded to less than one infectious virus. Duesberg and Bialy concluded, "there is no evidence for infectious virus in Wei et al.'s and Ho et al.'s patients," (Duesberg 1996a)."

Nearly all labs are running 35-40 cycles which guarantees a positive test, simply from noise. The inventor of the test said if you do not find anything after 15 cycles, it probably is not there. After 20 cycles the noise starts to be greater than any real information. By 30 cycles, the test is mostly noise. At more than 35 cycles, the test is completely worthless. The fragment they test for is not "specific" to SARS-CoV-2 Covid-19 anyway. In essence, the adopted tests are unreliable and show a large number of false positives.

If a patient walked into a hospital coughing, they gave him paralytics and hooked him up to a ventilator. Something that is only supposed to be done if he were in imminent danger of death. The problem with paralytics, is that the body believes it is dead, and the blood starts to coagulate. In many cases, it was not Covid-19 that caused problems, it was the drugs the doctors were forcing down patient's throats.

Countries like Australia are keeping people in prison until their test comes back negative. Since false positives occur, someone could be held in prison for months. In the UK, having spent over £15 billion setting up PCR testing systems and a shaky test and trace apparatus on top of that, it appears that 90 percent of positive results appear to be false. This is compounded by the fact that when a hot spot develops, more testing is done to show a rapid increase in more false positive results, meaning further new lockdowns and even more testing to prove yet more false positive results ad infinitum.

Medical doctors do not normally rely on a single laboratory test to diagnose an illness. They look at both symptoms and tests. And they usually do several different tests and diagnostic procedures to make sure that it is not a false positive or a false negative result. These rules were broken in the Covid-19 testing. So, it is no surprise that there is so much uncertainty about who is actually sick, who is not, and what needs to be done.

Covid-19 is an RNA virus, it has its own polymerase, and it leaves lots of RNA fragments in its wake. The Corona family of viruses make 5 or 6 strands with partial copies of their RNA molecule. negative copies are made first, and then copied again into positive copies. Finally the one big RNA is made with the entire genome on it. So about a dozen

RNA molecules are made for each finished virus particle that is produced. And finally, a variety of different primers are used for the PCR tests, some are matched to the small partial RNA copies and others are matched to various features on the large whole-virus RNA. They can give different results for the same sample. Someone who registers on a PCR test has probably been exposed to the virus, but the test gives no clue as to whether it is an active infection, or the person is contagious, or they are just coming down with it, or they got over it six months ago. Only 10 percent of Covid-19 positive PCR tests are clinically significant and infectious. A USA study shows that current PCR testing methods are identifying 70-90 percent positive results of persons that are non-contagious and cannot transmit Covid19 to others. In essence PCR tests find fragments of a genetic code associated with known viruses. Could be a new virus, or maybe not. Testing positive does not mean you are sick or infective. It may mean your immune system has already shredded out the suspected virus.

Detecting viral material by PCR does not indicate that the virus is fully intact and infectious, i.e. able to cause infection in other people. The isolation of infectious virus from positive individuals requires virus culture methods. These methods can only be conducted in laboratories with specialist containment facilities and are time consuming and complex. PCR is 90 percent false positive as far as detection of live infectious virus. The PCR tests are only testing for fragments, if they did a full sequence, identifying its GOF's HIV inserts, it would be much more reliable; but much slower and expensive.

It is disturbing to realize that most vaccines are based upon weakened live versions of the virus they are targeting, which is intended to kick-start the immunesystem to produce anti-bodies to protect people from infection. If any Covid-19 vaccine is produced like this it means recipients will be possibly injected with HIV fragments across the world. This mess of contradictory and fake information needs to be clarified.

"Scientists are doing an awful lot of damage to the world in the name of helping it. I don't mind attacking my own fraternity because I am ashamed of it." –Kary Mullis, who won the Nobel Prize in Science for inventing the PCR, Polymerase Chain Reaction.

However, this virus is deadly to certain groups of people but not to others. Older people and those who have comorbidities are highly vulnerable. Remember those idiotic parties where people got infected and died trying to prove it is all a "harmless hoax".

Testing is only useful for symptomatic people. If you have symptoms you have Covid 19 or something else like the flu. The only "treatment" still viable today is to try to keep the patient alive until his immune system beats the virus. Sometimes, however, the immune system beats the patient. That is why it is so dangerous.

TESTING AND DETECTING VIRUSES

Strictly speaking, viruses are not alive. They are a strand of RNA/DNA in a fatty sheath with receptors, but no cellular machinery of their own. They need to come in contact with a receptive living cell they can be drawn into that provides the means to replicate.

The Federal Drug Administration, FDA approved a coronavirus antigen device made by Quidel Corporation. The California-based company said the test delivers results in 15 minutes. The move follows the FDA's emergency approval of an at-home test distributed to health care workers. Antigen tests look for the presence of a protein from the novel coronavirus, indicating current infection.

Polymerase Chain Reaction, PCR tests; the ones most widely available, look for the actual virus and are also used to detect current infection. However, antibody tests look for signs of both recent and past infection. Roche of Switzerland secured an approval for its antibody test.

The PCR test detects a very small segment of the nucleic acid which is part of a virus itself. The specific fragment detected is determined by the somewhat arbitrary choice of DNA primers used which become the ends of the amplified fragment. The human body is full of virus bits and pieces. The PCR test is accurate in that it does what it is supposed to do, but the virus it is supposed to be finding could just be a fragment of it, or a fragment of another corona virus, and does not mean infection. It is a great research tool but it is a terrible clinical tool.

Confusion rose in Egypt which used the Artron Canadian company's antibodies blood test for incoming air passengers from hot spot countries and on medical staff. The antibodies test determines whether the body of the person's immune system has generated antibodies and possibly immunity after exposure to the virus which can take days or weeks, whereas the PCR test determines whether the person being tested is currently infected by the virus. The false interpretation of its results led to a spread of the virus among tested medical staff and their families and the families of incoming air travelers from hot spots around the world. Egypt has faced criticism for testing frontline healthcare workers for coronavirus using antibody tests. The World Health Organization WHO says the tests do not show whether a person currently has the virus, only whether or not the person's immune system has generated immunity days or weeks after exposure to the virus.

Guaranteed free testing was implemented in the USA and 14 days of paid sick-leave for patients, along with food assistance and Medicaid programs, unemployment benefits, and tax credits for small and medium-sized businesses affected by Covid-19. Iceland tested nearly all its population and 50 percent of those that tested positive had no symptoms. The test is not testing for the Covid-19 particle but an immune system response using RNA. The Covid-19 test looks for antibodies that the body has used to fight the disease. It does not tell how long ago the disease occurred.

Contaminated test kits started showing up in the UK on March 30, 2020 and countless false results were showing up since Covid-19 test kits are often not differentiating between Covid-19 and the typical coronavirus strains of the flu that average between 7-14 percent of flu cases every year. This does not mean that Covid-19 should not be taken seriously, but only that the reported numbers may be artificially exaggerated, generating heightened panic.

Having the machines is not enough, they also need blended cocktails of chemicals to function. secret recipes have been tested over time, verified by regulators and guarded by the companies that sell them. Like a cook with a ready-bake cake mix, scientists know all the ingredients, but the exact proportions are specific to each company. The firms that manufacture and sell them include Qiagen, Roche, Merck and Eurofins Genomics. Each have their own recipes, designed for specific models of the PCR machines.

Rapid Diagnostic Testing (RIDT) for influenza can provide results within approximately 15 minutes. Some tests are waived from requirements under the Clinical Laboratory Improvement Amendments of 1988 (CLIA) and cleared for point-of-care use. Most RIDTs are immunoassays that utilize antibodies against the nucleoproteins of influenza A and B viruses to detect viral antigens.

Usually people are not tested for the flu. The CDC says: "Most people with flu symptoms are not tested because the test results usually do not change how you are treated." It also states: "The 2017–18 flu season was a high severity season with high levels of outpatient clinic and emergency department visits for flu-like illness," Note it says "flu like" not testing positive for flu. They also report "Laboratory confirmed flu activity as reported by clinical laboratories continues to decrease; however, influenza-like illness activity is increasing." Hence, the number of positive tests is decreasing, yet "influenza-like illness" is increasing. In the latter statement they determine the prevalence of flu cases based on reports of flu-like illness yet at the same time they report that the number of positive tested cases is decreasing.

A testing approach used in the UK is here described:

RNA Extraction - around £350 for one pack of 50

In this part of the test, the virus's genetic code, its RNA, or ribonucleic acid, is found, cleaned and separated.

Enzymes and other chemicals break up all of the cells that are sent in on the tip of the swab.

Enzymes called proteases break up proteins in the sample. (Similar chemicals are added to laundry detergent to cut up the proteins in food stains.)

Another set of chemicals stick the RNA to a membrane.

And the reaction takes place in a liquid called a buffer.

At this point, the RNA is still too small to be detected. This is when the second chemical cocktail comes into play.

PCR Polymerase Chain Reaction) kit - Around £250 for one pack of 200

This chemical cocktail allows the virus RNA code in the PCR machine to reproduce itself.

Here the RNA is converted to a form of DNA, covered in fluorescent chemicals and copies are made until there are enough to detect.

If enough bright spots show, the test indicates that the virus was present in the sample.

This testing is not based on any specific corona virus. The test could pick up viral debris from a previous cold that the person being tested might have had weeks ago. Possibly even just viral material that has the same sequence of proteins when amplified too many times and is not even a respiratory virus.

The companies that are better known for making these chemical kits warn against reverse engineering them under the current circumstances.

Several reagents produced by the Centers for Disease Control (CDC) in the USA failed to produce conclusive results. The CDC later admitted that kits had been "rushed". The benefit of using commercial solutions is that Qiagen has been making them for a long time and that the standard operating procedures in their labs have been verified by several international health organizations.

Roche, a company which also currently makes reagent kits for UK testing sites, agrees: "The primary obstacles in another company or manufacturer producing any Roche test and reagents are time and expertise. Roche cannot guarantee safety and reliability if the reagents required for the test were manufactured outside our production network."

The kits are all corporate secrets. The automated kits have plug-ins which work best with the kind of 24-hour testing that needs to be done with Covid-19. Even while people are sleeping, the robots can be running samples.

The problem is worldwide, everyone is trying to get hold of the same automated RNA extraction kit. To add to the complexity, the companies that sell them have differing ideas on which buyers should take priority.

Qiagen went from manufacturing 1.5 million kits a month to 20 million per month, hired new staff and moved from a three-shift day to working around the clock. Even so, they have been unable to meet demand, and even passed buyers on to their competitors.

Information from a massive study by the Chinese Centre of Disease Control that looked at 44,000 people showed 2.8 percent of infected men died compared with 1.7 percent of women. Part of the situation is that men are generally worse health-wise than women due to lifestyle choices like smoking and alcohol drinking. In China 52 percent of men smoke, compared with just 3 percent of women. Women have intrinsically different immune responses than men, they are more likely to suffer from auto-immune diseases and there is good evidence that women produce better antibodies to vaccines against the flu.

About 0.2 percent of children and teenagers died compared with nearly 15 percent of people over the age of 80 with a weaker immune system in the first place and a body less able to cope. Children at an early stage of an outbreak are protected as parents keep children away from the sick. The immune system gets weaker with age. The quality of the antibodies produced at age 70 is a lot worse than at 20. There are some suggestions older men may be more prone to high levels of inflammation which can become deadly. A lifetime of wear-and-tear takes its toll on the body's organs and that leaves them less able to survive an infection. At an age of 95 the kidney function is already at 60 percent of what it used to be when young.

Spread of the virus depends on human behavior. During the winter, people spend more time indoors with less ventilation and personal space than when they venture outdoors in the spring and summer. This makes crowded closed sites, such as schools, movie theatres, cruise ships. airplanes and restaurants, points sources for infectious disease transmission. Survival of the virus has to do with the length of the day and the exposure to sunlight, which inactivates the virus through Ultraviolet UV radiation. A dip in infections is predicted in the spring and summer months.

The USA State Department has warned travelers and the elderly and those with underlying health issues in particular to avoid ship cruises during the corona virus outbreak. The 2009 flu pandemic declined in the summer but ramped back up in September.

The virus can cause the immune system to over-react. One of the more severe symptoms is acute respiratory distress syndrome caused by widespread inflammation in the lungs. Inflammation is how the body signals it is time to fight an infection and repair the body. At its simplest level it is why a cut feels sore, but it is actually a complex process throughout the body. Inflammation is a fine balancing act, if it goes wrong people die. The virus sets up cascading inflammation of organs; and severely inflamed organs cannot do what they're supposed to do. It leaves the lungs unable to get enough oxygen in and carbon

dioxide out of the blood. It can stop the kidneys from cleaning the blood and damage the lining of the intestines. The virus sets up such a huge degree of inflammation that it becomes a multi-organ failure.

Pregnancy does many things to the body, including weakening the immune system. That stops women's body rejecting the fetus in their womb, but it also makes women more susceptible to infection. Pregnant women are more likely to die from the flu than non-pregnant women of the same age.

The Center for Infectious Disease Research and Policy noted:

> "The novel coronavirus has an R_0 of 2.2, meaning each case patient could infect more than 2 other people. If accurate, this makes the 2019 nCoV more infectious than the 1918 influenza pandemic virus, which had an R_0 of 1.8".

The World Health Organization, WHO says that the R_0 of Coronavirus in China was initially between 2 and 2.5. But scientists from the Los Alamos National Laboratory, LANL said that the R_0 for the Coronavirus is actually between 4.7 to 6.6, although that number drops to between 2.3 and 3 after quarantines and social distancing are implemented.

The World Health Organization (WHO) announced on March 4, 2020 that the mortality rate from the Wuhan Coronavirus is 3.4 percent globally. The Spanish Flu of 1918, which killed tens of millions of people had a lower mortality rate, estimated by the WHO as between 2 and 3. It must be noted that the Spanish Flu mortality was exacerbated by wartime conditions of overcrowding, poor sanitation, and exposure to extreme cold in tents.

A treatment was tried for severe cases of 14 days of mechanical ventilation and mannitol to control intracranial pressure, midazolam to control convulsions, gamma globulin, and methylprednisolone anti-inflammatory treatment, and observed the patient's lung disease imaging gradually.

The United Kingdom's Recovery trial found that dexamethasone, a cheap steroid, reduced deaths in that group by up to one-third. In February 2021, Recovery investigators announced that tocilizumab, a monoclonal antibody that blocks the receptor for interleukin-6, reduced mortality a bit further. Both drugs work by dampening the overshooting immune response in severely sick patients.

Solidarity, a global study led by the World Health Organization (WHO), is testing three new drugs in hospitalized COVID-19 patients: the cancer drug imatinib, an antibody named infliximab that is used to treat autoimmune diseases, and artesunate, an antimalarial.

Solidarity in October 2020, published results from more than 11,000 patients in 400 hospitals that deflated hopes—and punctured hype—by showing no benefit for four treatments: the HIV combination therapy lopinavir/ritonavir, the malaria drug hydroxychloroquine, interferon-beta, and Gilead Sciences's antiviral drug remdesivir.

Imatinib, an oral drug used to treat some leukemias and other types of cancer, can also protect the epithelium lining the alveoli, where oxygen crosses from the lungs into the blood.

Infliximab is an antibody given as a single infusion that blocks tumor necrosis factor alpha, a pivotal signaling molecule in the immune system, and is used to treat autoimmune diseases such as rheumatoid arthritis and inflammatory bowel disease. Some observational data from large patient populations suggest the drug can also protect against COVID-19.

Artesunate, an injected derivative of artemisinin and a powerful killer of malaria parasites, has also shown some antiviral activity in laboratory studies of SARS-CoV-2. But Solidarity is testing it because of another effect: The drug appears to reduce inflammation and counteract signals that attract immune cells into tissues. That could stop the immune reactions that damage the lungs in severe COVID-19.

The new drugs target the immune system rather than the virus itself.

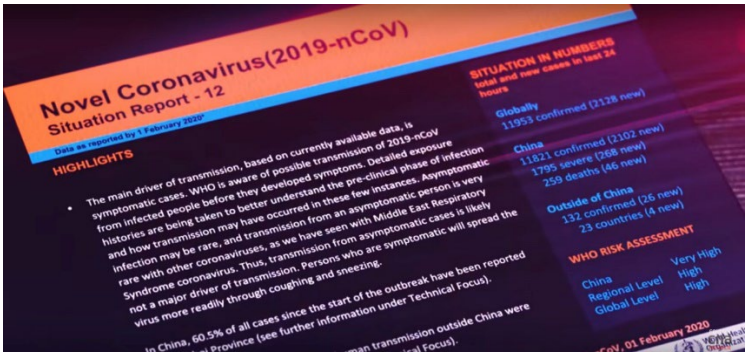


Figure 46. CDC situation report announcement about occurrence of Covid-19. Toilet paper hoarding, Lock-down, social distancing and face masks use in parks, May 2020.

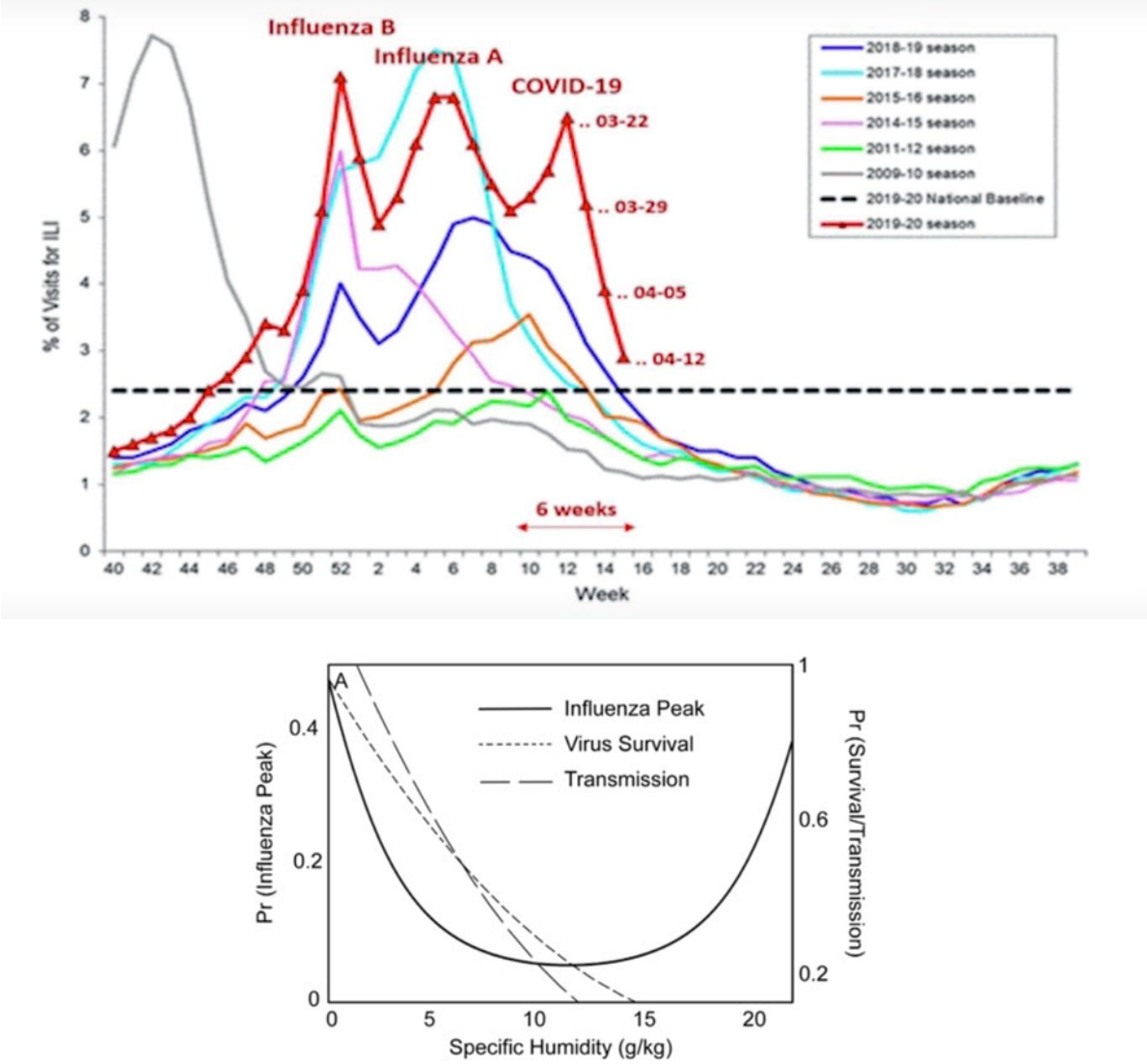


Figure 47. Influenza-like Illness (ILI) peak seasonality in the USA, 2019-2020. Flu season typically begins in October, peaks between December and February and lasts well into March, although activity can last as late as May. Influenza viruses are more stable in cold air and the low humidity allows the virus particles to remain suspended in the air. This is enhanced by human confinement and interaction in closed spaces during the winter months. First peak: Influenza B, second peak: Influenza A, third peak: Covid-19. Source: CDC. The incidence of viral diseases is higher in very dry Nordic winter and in very wet air in tropical heat, both causing the human body to dehydrate.

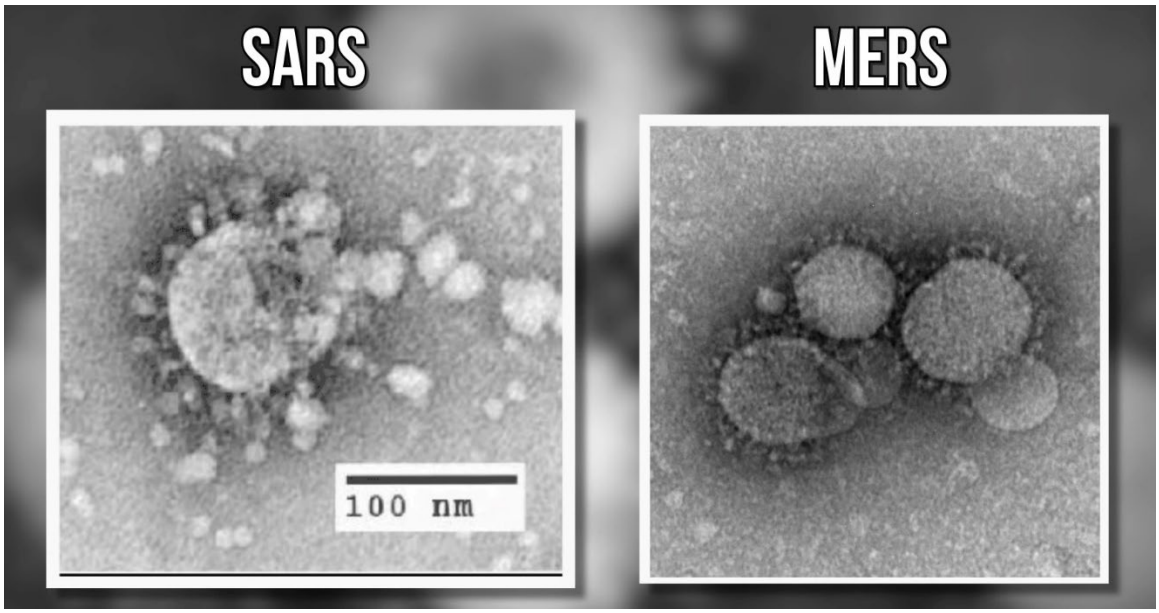


Figure 48. SARS and MERS viruses.

The Covid-19 virus is more infectious than the normal influenza viruses. It can be transmitted while the carrier is presymptomatic. Its lethality is around 2 - 5 percent in the aggregate, while normal flu kills at the rate of something like 0.1 - 0.2 percent depending on the country and the year. If Covid-19 becomes endemic, and finds reservoirs to hang out in, it could come back and be a seasonal illness like the flu. However, instead of killing 0.5 - 1 million people a year, it could kill 5 million to 20 million people in a season, assuming the total case load was similar to the flu.

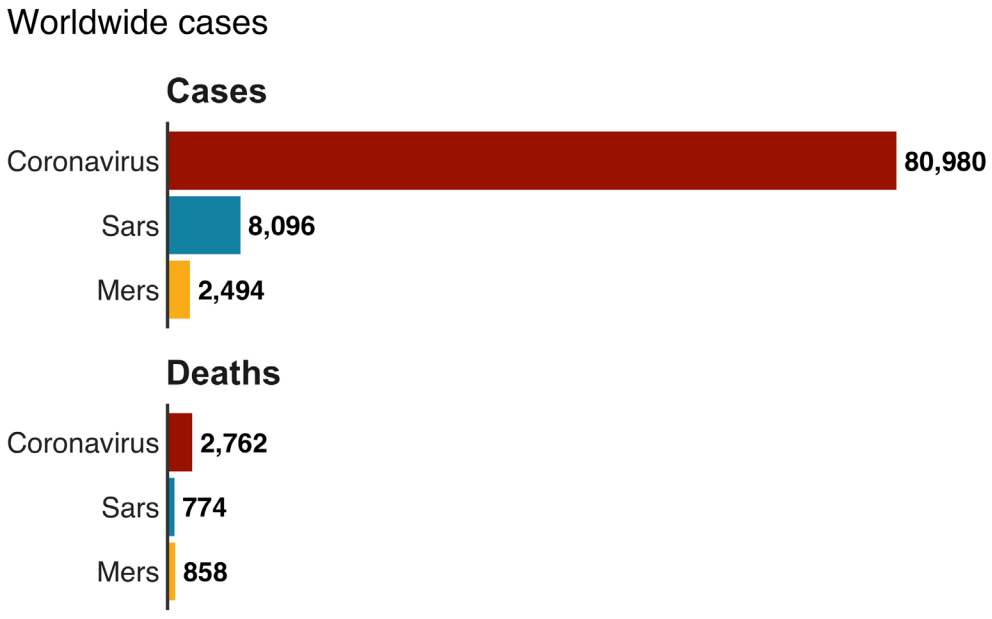


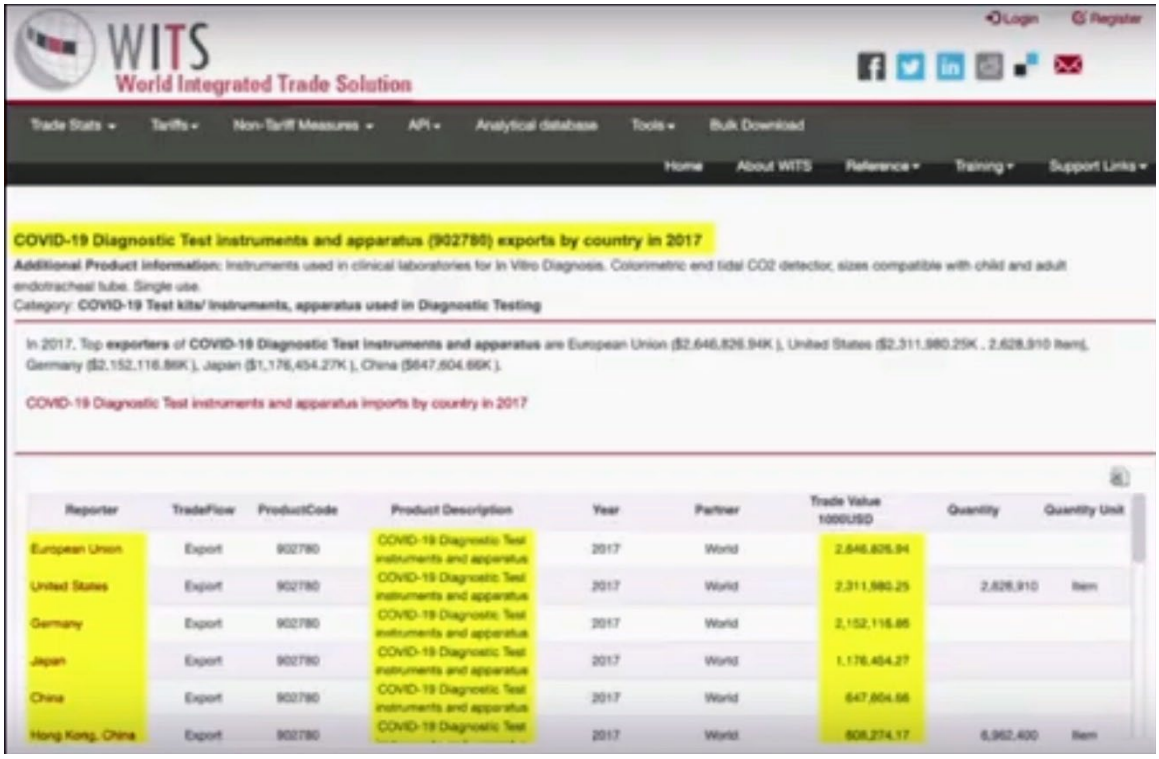
Figure 49. Comparison of different viral outbreaks, February 26, 2020.

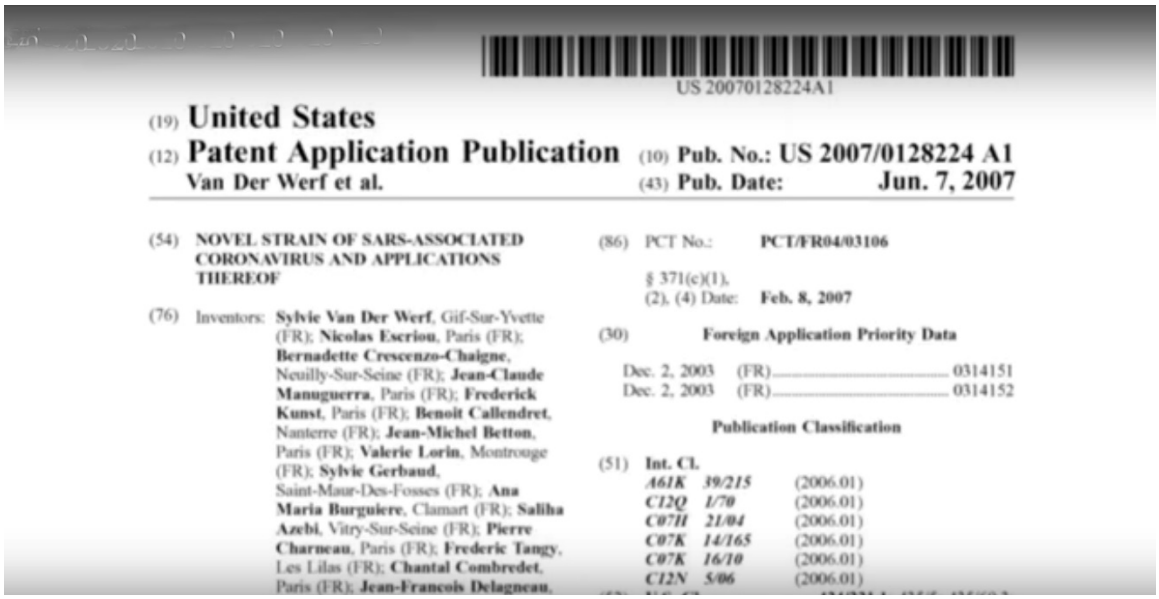
A running narrative contended that the new coronavirus lied dormant in bats somewhere between 20 and 70 years, then 'crossed over' to humans through an unknown species, possibly bats, Pangolin, or palm civets before it emerged at a Wuhan, China meat market roughly 900 feet from a level-4 biolaboratory.

USA Financier Bill Gates' foundation held an event in 2020 where a simulation was predicting a Coronavirus outbreak that would kill 65 million people. Bill Gates indirectly owns a patent issued to the Coronavirus. At the end of January 2020, a USA patent for "an attenuated coronavirus" was granted. The patent was filed in July 2015 and it was granted in November 2018. According to a summary of this patent, this attenuated coronavirus "may be used as a vaccine for treating and/or preventing a disease":

> "The present invention provides a live, attenuated coronavirus comprising a variant replicase gene encoding polyproteins comprising a mutation in one or more of non-structural protein(s) (nsp)-10, nsp-14, nsp-15 or nsp-16. The coronavirus may be used as a vaccine for treating and/or preventing a disease, such as infectious bronchitis, in a subject."

This patent was filed by the Pilbright Institute. Some of the major backers of the Pilbright Institute include the World Health Organization, the European Commission, and the Bill and Melinda Gates Foundation.





US 20070128224A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2007/0128224 A1**

Van Der Werf et al. (43) **Pub. Date: Jun. 7, 2007**

(54) **NOVEL STRAIN OF SARS-ASSOCIATED CORONAVIRUS AND APPLICATIONS THEREOF**

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(86) PCT No.: **PCT/FR04/03106**

§ 371(c)(1),
(2), (4) Date: **Feb. 8, 2007**

(30) **Foreign Application Priority Data**

Dec. 2, 2003 (FR) 0314151
Dec. 2, 2003 (FR) 0314152

Publication Classification

(51) **Int. Cl.**

A61K	*39/215*	(2006.01)
C12Q	*1/70*	(2006.01)
C07H	*21/04*	(2006.01)
C07K	*14/165*	(2006.01)
C07K	*16/10*	(2006.01)
C12N	*5/06*	(2006.01)

Figure 50. Patents for tests for Covid-19 allegedly issued on October 13, 2015 and to Institut Pasteur, Centre National de la Recherche Scientifique, Paris, France, June 7, 2007.

Figure 51. Franco-Chinese collaboration at Wuhan.

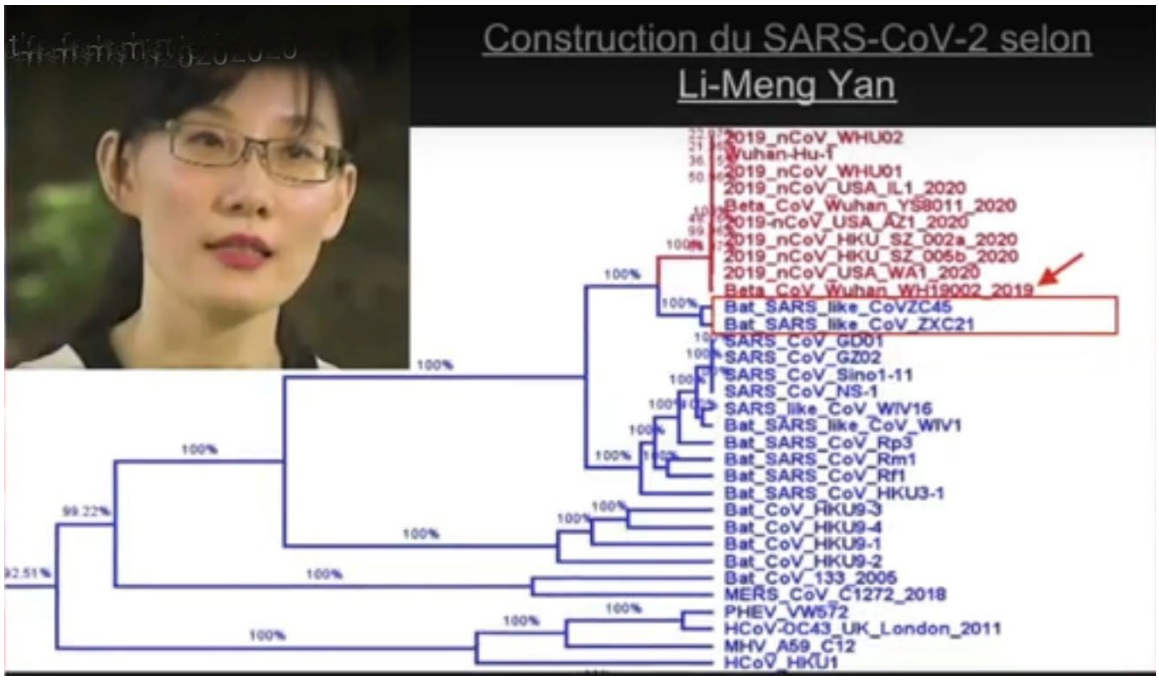


Figure 52. Inside the Wuhan Laboratory. The sequencing of SARS-CoV-2 is similar to the corona viruses ZC45 or ZXC21 isolated in Gain of Function GOF research at the military laboratories at Chongqing and Nanjing in China. According to the French "Agence de la Sureté Nucléaire," a serious concern can be suggested that it is possibly a "binary virus" similar to binary explosives and binary chemical weapons, where a protein can be inserted into an empty site on it at will to target specific populations. The claim is supported by the detection o7 virus variants in different parts of Europe.

The Pirbright Institute is funded by the UK Department for Environment, Food, and Rural Affairs, the WHO, and the Bill and Melinda Gates Foundation. https://patents.justia.com/patent/10130701

The Event 201 Global Pandemic Exercise on October 19, 2019 in New York was sponsored by the Michael Bloomberg School of Public Health at Johns Hopkins University, the Bill and Melinda Gates Foundation, USA Central Intelligence Agency, and World Economic Forum which ran simulations under the "hypothetical" scenario of a novel coronavirus pandemic killing 60 million people. Reviewing just one of Event 201's many recordings openly available on their official site features some very disturbing parallels to the events unfolding in the Covid-19 pandemic.

REPEATED TESTING, CREATING VIRTUAL OUTBREAKS

Consider a population of N =1,000 individuals such as students on a university campus who are repeatedly tested n times. Assume that the false positive test results fraction is r = 0.02, and the actual infection fraction is s = 0.02. In this case the positive detection fraction is (r + s) = 0.02+0.02 =0.04.

At the first round of testing, the number of detections is going to be:

$$N_1 = N(r+s)=1.000 \times 0.04 = 40$$

which will be isolated or quarantined.

After the second round of testing, the number of detections will be:

$$N_2 = [N- N(r+s)](r+s)] = [1,000-40]x0.04=960x\ 0.04=38.4$$

So the total number of detections is now 40 + 38.4= 78.4, yet only half of them 39.2 are real infections.

After the third round of testing, the number of detections is:

$$N_3 = (1,000 -78.4) \times 0.04=921.6x\ 0.04=36.864$$

So the total number of reported detections is now 40 +38.4+36.864=115.264 or 115.264/921.6 = 0.12507 or 12.5 percent, creating an illusion of a virtual outbreak, yet only half of them 57.623 or 6.25 percent are real infections. With repeated testing of the same population, the situation would appear inflated more than it really is.

ORIGIN AND FATE OF COVID-19, "ABSOLUTELY CRAZY THINGS"

Viruses live very well in the human body as a person might have 380 trillion and the average person hosts about 5 virus infections that might be considered to be diseases. Herpes is almost a universal human infection though many are presymptomatic and if you are over 50 you will be hosting one or more herpes infections as there are 8 that specialize in humans and spread very effectively. HIV/AIDS will kill about 770,000 globally in 2020 and roughly 1.1M USA residents have this infection and they spread it to 40,000 more Americans every year and this number is rising.

As people circle the globe in airplanes at 600 mph in the millions and migrate in the 10s of millions there are going to be a lot of 'novel situations' and the economy must continue to expand to increase 'global wealth' many times over.

The Global Race for Vaccines

Chinese media announced a coronavirus vaccine developed by CanSino Biologics was being used to immunize the Chinese military. Two other Chinese companies Sinovac and Sinopharm launched final phase three trials in Brazil and the United Arab Emirates, respectively.

In 2018, more than 200,000 children were administered a defective vaccine for Diphtheria, Tetanus and whooping cough (DPT) that caused paralysis in a few cases.

Russia, which was once a global vaccine leader during Soviet times, aims to bring two vaccines to market. The first is being developed by the Moscow-based Gamaleya institute and the defense ministry, and the second by the Vektor state laboratory near the Siberian city of Novosibirsk.

China and Russia use vaccines that have a backbone of retroviruses that are related to the common cold.

Three Western coronavirus vaccines reached final phase three trials. One is produced by USA biotech firm Moderna and the National Institutes for Health; one by the University of Oxford and Britain's AstraZeneca (ChadOx1 nCoV-19 vaccine); and the last by Germany's BioNTech with US pharmaceutical Pfizer.

REFRIGERATION CHALLENGE, RIBOSE VS. DEPXYRIBOSE SUGARS

Pfizer's vaccine is to be kept at -110 ºF or -79 ºC for production, transport and storage. It has to be 34 ºC body temperature when injected. Pfizer faces a challenge in distributing its vaccine requires special storage freezers and shipping containers. The companies are distributing the vaccine in Australia, Canada, Europe, Japan, the UK and other parts of the world, making its deep-freeze problem a global challenge.

A similar vaccine developed by Moderna and the USA National Institute of Allergy and Infectious Diseases also requires freezing. But it survives at a balmier –20° C, so can be kept in a standard freezer, and can even be stored at refrigerator temperatures for up to a month. Most vaccines do not require freezing, but both Pfizer and Moderna's vaccines are a new type of vaccine for which the low temperatures are necessary to keep the vaccines from breaking down and becoming useless.

Both vaccines are based on messenger RNA, or mRNA, which carries instructions for building copies of the coronavirus' spike protein. Human cells read those instructions and produce copies of the protein, which, in turn prime the immune system to attack the coronavirus should it come calling.

The cold requirement conundrum starts with the difference in chemistry between RNA and its cousin, DNA. One reason RNA is much less stable than DNA is due to an important difference in the sugars that make up the molecules' backbones. RNA's spine is a sugar called ribose, while DNA's is deoxyribose. The difference: DNA is missing an oxygen molecule. As a result, DNA can survive for generations, but RNA is much more transient.

When cells have a job to do, they usually need to call proteins into service. But like most manufacturers, cells do noot have a stockpile of proteins. They have to make new batches each time. The recipe for making proteins is stored in DNA. Rather than risk damaging DNA recipes by putting them on the molecular kitchen counter while cooking up a batch of proteins, cells instead make RNA copies of the recipe. Those copies are read by cellular machinery and used to produce proteins. RNAs are quickly degraded once read. Quickly disposing of RNA is one way to control how much of a particular protein is made. There are a host of enzymes dedicated to RNA's destruction floating around inside cells and nearly everywhere else. Sticking RNA-based vaccines in a blast freezer prevents such enzymes from tearing apart the RNA and rendering the vaccine inert.

Another way the molecules' stability differs lies in their architecture. DNA's dual strands twine into a graceful double helix. But RNA goes it alone in a single strand that pairs with itself in some spots, creating fantastical shapes reminiscent of lollipops, hair pins and traffic circles. Those "secondary structures" can make some RNAs more fragile than others.

Another place that DNA's and RNA's chemical differences make things hard on RNA is the part of the molecules that spell out the instructions and ingredients of the recipe. The information-carry subunits of the molecules are known as nucleotides. DNA's nucleotides are often represented by the letters A, T, C and G for adenine, thymine, cytosine and guanine. RNA uses the same A, C and G, but in place of thymine it has a different letter: uracil, or U. Uracil is a problem because it juts out. Those jutting Us are like a flag waving to special immune system proteins called Toll-like receptors. Those proteins help detect RNAs from viruses, such as SARS-CoV-2, the coronavirus that causes COVID-19, and slate the invaders for destruction.

These ways mRNA can fall apart or get waylaid by the immune system create an obstacle course for vaccine makers. The companies need to ensure that the RNA stays intact long enough to get into cells and bake up batches of spike protein. Both Moderna and Pfizer probably tinkered with the RNA's chemistry to make a vaccine that could get the job done: Both have reported that their vaccines are about 95 percent effective at preventing illness in clinical trials.

Fiddling with the chemical letters of the mRNAs in order to make it easier for human cellular machinery to read the instructions was necessary. The companies need to add additional RNA as a cap and tail flanking the spike protein instructions to make the molecule stable and readable in human cells. That tampering may have disrupted or created secondary structures that could affect the RNA's stability.

The uracil problem can be dealt with by adding a modified version of the nucleotide, which Toll-like receptors overlook, sparing the RNA from an initial immune system attack so that the vaccine has a better chance of making the protein that will build immune defenses against the virus. The modified version of uracil the companies may have introduced into the vaccine could also affect RNA stability, and thus the temperature at which each vaccine needs to be stored.

An RNA molecule is beneath a cell's notice because it is just too small. So the companies coat the mRNA with an emulsion of lipids, creating little bubbles known as lipid nanoparticles. Those nanoparticles need to be large enough so that cells will grab them, bring them inside and break open the particle to release the RNA.

Some types of lipids stand up to heat better than others. like regular oil versus fat. The lipids the companies used could make a big difference in the vaccine's ability to stand heat. The need for ultracold storage might ultimately limit how many people end up getting vaccinated with Pfizer's vaccine.

The vaccine can be stored in special shipping containers that are recharged with dry ice for 15 days and stay refrigerated for another five days after thawing, That gives health officials 20 days to get the vaccine into people's arms once it is delivered. Moderna's vaccine and a host of others seem to last longer at warmer temperatures. If those vaccines are as effective as Pfizer's, they may be more attractive candidates in the long run.

When the Upjohn Company, now Pfizer, developed Minoxidil, a drug that was originally manufactured to lower blood pressure, it found that it could cause hair regrowth in some balding patients. So it simply switched the marketed effect for the side effect, and it had a drug for balding which just so happened to lower blood pressure.

In testing the vaccine, three persons in the placebo group out of 20,000 or 3/20,000 = 0.00015 or 0.015 percent contracted a "severe" case of Covid-19. Fully 162 persons in total contracted "very mild" Covid-19 cases, or 162/20,000 = 0.0081 or 0.81 percent.

Therefore 100 – 0.81 = 99.19 percent of the placebo group did just fine. The short term and long term effects on the population at large need to be watched.

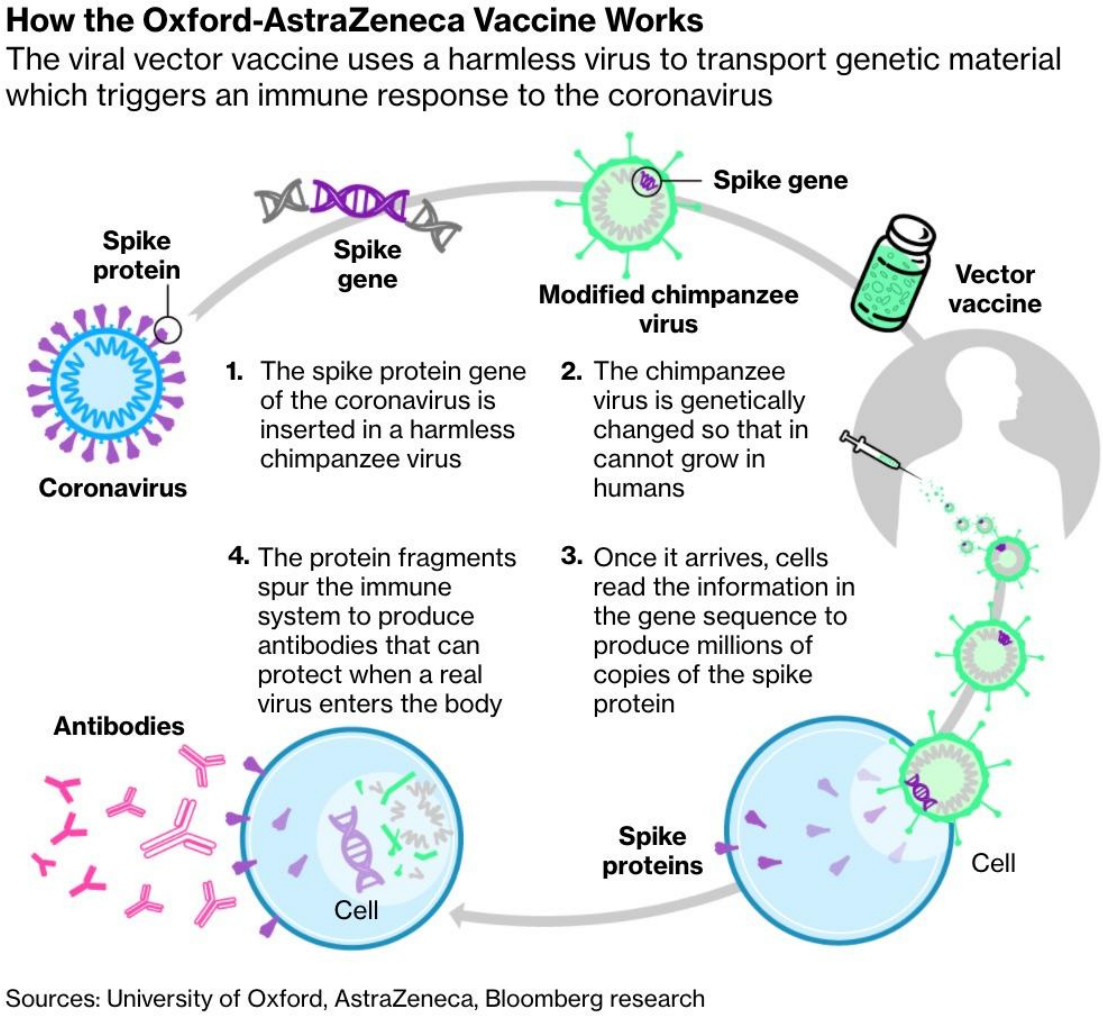


Figure 53. Operation of ChadOx1 nCoV-19 vaccine.

Monoclonal Antibodies

Eli Lilly has already started manufacturing its monoclonal antibodies drug in the hopes that current studies will prove its effectiveness. Regeneron Pharmaceuticals inked a $450 million deal with the USA government and it is making a dual antibody compound that should work even if the virus mutates.

Amgen, Adaptive Biotechnologies, Tychan, and Vir Biotechnology have also crafted various monoclonal antibodies that might work against COVID-19. Another team of scientists created antibody-like nanobodies and turned them into an aerosol that could be used with a nebulizer or inhaler.

Some of the drugs would be administered intravenously, and the antibody supply could last as long as a month for some candidates, but the protection could be extended to

two months by increasing the dose. Subsequent shots would be needed to prolong the protection. It is unclear how much these drugs will cost or how soon they will be available. Some are looking at monoclonal antibody drugs as treatment for COVID-19, while others are studying their capability to provide limited immunity to at-risk patients.

The Chinese Narrative

The original Chinese running narrative is that the new Covid-19 coronavirus lied dormant in bats somewhere between 20 and 70 years, then 'crossed over' to humans through an unknown intermediate species - possibly Pangolins - before it emerged at a Wuhan, China meat and fish market roughly 900 feet from a level-4 bioweapons lab, BL4.

A later perspective was presented during a news conference when Chinese Foreign Ministry spokesman Zhao Lijian called for WHO to investigate both the Fort Detrick lab and a laboratory at the University of North Carolina led by US coronavirus expert Ralph Baric. It contains a kernel of truth as Sen. Rand Paul has drawn attention to the NIH's involvement in financing 'gain of function' research at the WIV through the intermediary of the EcoLab organization based in New York bypassing the banning of GOF research in the USA during President Barack Obama's administration.

A rash of "lung damage reportedly from e-cigarettes" appeared during the summer of 2019. These cases were primarily located near Maryland and Wisconsin. A big deal was made out of it, but all of a sudden, the entire story disappeared after a few months.

That Fort Detrick was the original source of COVID was suggested on the basis of:

- The bio lag there had an incident, reported in the media, where it had to be closed down for cleaning.
- Not long after some nurses were relating a strange flu type virus in patients in Maryland, USA
- Not long after were the world military games in Wuhan, where American soldiers, possibly some from Maryland Ft Detrick participated.
- The first recorded sicknesses of Covid-19 were actually two French persons in France, who were in Wuhan at the same time as the games
- And the earliest recording of positive Covid-19 was in lab-tested Spanish waste water long before the Wuhan cases become identified.

Some Chinese propagandists also latched on to another theory originating in an obscure Italian tabloid, which accuses the USA military of spreading the coronavirus to Italy through a blood donation program.

A later delta-driven outbreak was blamed on foreigners, suggesting it originated with the crew of a flight into Nanjing from Russia. New cases have repeatedly been blamed on travelers or foreigners. China maintains tight restrictions on foreigners entering the country.

Some sources blame the western pharmaceutical companies that are the major profiteers from this. About 72 patents on the spike protein technology going back to 2005 were issued. According to https://s3.documentcloud.org/documents/6956323/NIH-Statement-to-Axios.pdf:

> "NIAID scientists created stabilized coronavirus spike proteins for the development of vaccines against coronaviruses, including SARS-CoV-2. Recognizing the importance of these novel immunogens, NIAID has sought patents to preserve the government's rights to these inventions and to provide incentive for commercial partners to invest the capital and resources needed to advance their development, commercialization, and public use as vaccines.
>
> "NIAID has adopted a non-exclusive licensing approach for these patent rights in order to allow multiple vaccine developers to utilize these immunogens in their proprietary vaccine platforms. The mRNA vaccine candidate resulting from NIAID's collaboration with Moderna, embodied in the material transferred to UNC, is an example of this approach: the stabilized spike protein developed by NIAID investigators is expressed from Moderna's proprietary mRNA vaccine platform. Responsibility for obtaining regulatory approval of the mRNA vaccine candidate, a product produced and formulated by Moderna, rests with Moderna.
>
> "Federal employees listed as inventors on these patent applications assigned their rights to the US government. Accordingly, should the USPTO and other national patent authorities grant the patents, the US government will hold ownership interest in the patents.
>
> "Provisional patent application 62/972,886 is pending in the USPTO. Since it is a provisional patent application its contents are not available to the public in accordance with 35 U.S.C. 122."

We do not know exactly where and when the virus entered a human population, and we may never know. The first officially recognized outbreak occurred in Wuhan, but that is not necessarily where the virus initially entered the human population. There are reports of possible earlier infections elsewhere, and probably also not the first occurrence of the virus.

Blood samples taken in the northern region of Lombardy of Italy showed the presence of antibodies against the SARS-CoV-2 virus as early as in September 2019. An analysis of sewage water samples from November 2019 in Florianopolis, Brazil was found to contain traces of the novel coronavirus. Blood samples collected in the USA by the American Red Cross from December 13, 2019 to January 17, 2020 found SARS-CoV-2 antibodies.

While circulating in animals, the SARS virus mutated, acquiring the ability to infect humans, which it was assumed to have done so, infecting workers in a Guangdong, China animal market. That explanation became the narrative now being promoted by the Chinese Communist Party, the Media and some Western scientists to convince the world that COVID-19 was a naturally occurring outbreak.

In an interview, Dr. Daszak, Director of the EcoHealth Alliance explains the basis of the naturally occurring narrative and the collection of over one hundred bat coronaviruses capable of infecting humans, but untreatable with drugs or vaccines. Those coronaviruses are presumed to be stored in Chinese laboratories. The EcoHealth Alliance gets 80 percent of its funding from the USA government, has been working in China for years, and presumably uses USA taxpayer money to "hire technicians in labs or Ph.D.

students" in order to "teach people how to do it and give them the capacity and the tools" and "then you have really made a difference". Its director discussion centered around the severe acute respiratory syndrome coronavirus (SARS) epidemic of 2002-2004, which was believed to have originated in bats, although civets may have acted as an intermediate host:

> "So, we did a couple of things with it. So, one is around SARS. We focused on SARS coronavirus emerged from a wildlife market. And whilst the first pandemic of this century. So, it is big event. And, so we started to trace back from the wildlife market, which species carried the virus, that came into those markets. We found that it was bats, not civets, was the original idea. So, we started looking where did they come from. And we went out to southern China. And did surveillance of bats across southern China. And we have now found, after six or seven years of doing this, over one hundred new SARS-related coronaviruses, very close to SARS. Some of them get into human cells in the lab. And some of them can cause SARS disease in humanized mouse models. And are untreatable with therapeutic monoclonals [antibodies] and you can't vaccinate against them with a vaccine."

Dr Daszak describes bioengineering of those viruses by inserting components of one coronavirus into another.

> "Well, I think, coronavirus is a pretty good, I mean, you are a virologist [the interviewer], you know all this stuff, but the, you can manipulate them in the lab pretty easily. Spike protein drives a lot of what happens with the coronavirus, zoonotic risk. So, you can get the sequence, you can build the protein, and we work with Ralph Baric at UNC [University of North Carolina at Chapel Hill] to do this. Insert it into a backbone of another virus and do some work in the lab. So, you can get more predictive when you find the sequence. You have this diversity. Now, the logical progression for vaccines is, if you are going to develop a vaccine for SARS, people are going to use pandemic SARS, but let's try to insert these other related and get a better vaccine."

The origination of the virus seems to be a bat population in southern China. It has been estimated the virus has been hosted outside the bat population for at least 20 years. It seems likely that the virus first appeared in the human population somewhere in southern China or a little further south, but that is also speculation.

Research by a team from Nankai University writes that Covid-19 has an 'HIV-like mutation' that allows it to quickly enter the human body by binding with a receptor called ACE2 on a cell membrane:

> "Other highly contagious viruses, including HIV and Ebola, target an enzyme called furin, which works as a protein activator in the human body. Many proteins are inactive or dormant when they are produced and have to be "cut" at specific points to activate their various functions.

> When looking at the genome sequence of the new coronavirus, Professor Ruan Jishou and his team at Nankai University in Tianjin found a section of mutated genes that did not exist in Sars, but were similar to those found in HIV and Ebola."

"This finding suggests that 2019-nCoV [the new coronavirus] may be significantly different from the Sars coronavirus in the infection pathway," reads the paper published on Chinaxiv.org - a platform used by the Chinese Academy of Sciences which releases research papers prior to peer-review. "This virus may use the packing mechanisms of other viruses such as HIV," they added.

The paper suggests that whereas the Coronavirus may indeed contain a specific HIV-like feature that makes it extremely infectious, that was the result of a rather bizarre "mutation." However, since the scientists did not make the claim that Chinese scientists had created an airborne version of HIV, but instead blamed a mutation, they will likely not be forced to retract it, even if it the odds of such a "random" mutation taking place naturally are extremely small.

The argument is that the referenced segments amount to only a few base pairs making 2 or 3 proteins. It is a small sequence that shows up in other organisms too. According to biochemists, if one does a BLAST on the sequence, he get many different hits from various plant species and other microorganisms.

Pangolins are primarily nocturnal animals that can curl up into a ball when startled and use their scales to lash out at predators. Often mistaken as reptiles, they are mammals covered neck-to-toe in a body armor of scales. Pangolin meat is considered a delicacy in both Asia and Africa. The animals' scales are also utilized in a range of folk remedies for conditions like asthma and arthritis. Pangolins have become one of the most trafficked mammals in the world. The ant-devouring scaly mammal, said to be the most widely trafficked mammal in the world, is threatened with extinction. The animal's scales are in high demand in Asia for use in traditional Chinese medicine, while pangolin meat is considered a delicacy.

According to the study, the 'mutation' can generate a structure known as a cleavage site in the new coronavirus' spike protein. "Compared to the Sars' way of entry, this binding method is "100 to 1,000 times" as efficient, according to the study."

> "The virus uses the outreaching spike protein to hook on to the host cell, but normally this protein is inactive. The cleavage site structure's job is to cheat the human furin protein, so it will cut and activate the spike protein and cause a "direct fusion" of the viral and cellular membranes."

A study by French scientist Etienne Decroly at Aix-Marseille University, which was published in the scientific journal Antiviral Research on February 10, 2020 also found a "furin-like cleavage site" that is absent in similar coronaviruses.

Chinese scientists speculate that drugs targeting the furin enzyme could potentially hinder the virus' replication inside the human body. Drugs up for consideration include "a series of HIV-1 therapeutic drugs such as Indinavir, Tenofovir Alafenamide, Tenofovir Disoproxil and Dolutegravir and hepatitis C therapeutic drugs including Boceprevir and Telaprevir".

Chinese / British perspective, RaTG13 virus

Chinese authorities have pushed a natural zoonotic hypothesis—that the Covid-19 virus had transmitted to humans from an animal host.

Viruses mutate, and in the Covid-19 case case, the virus at issue which naturally occurs in bats, has been warned about by scientists for years. So, it is a little hard to believe that something we knew would be coming eventually is now an engineered problem. It is also hard to believe the Chinese cooked this up since it was the Chinese who told us about it. An accidental release I is possible, but an engineered effort is just a fantasy.

A senior member of the World Health Organization's team investigating the origins of Covid-19, has described his trip to Wuhan, China, as the start of a long process. Speaking to the BBC's Andrew Marr, Professor John Watson said there were a number of hypotheses about the origins of the virus, the most likely being that it moved from one animal to an intermediate animal host, and from there to humans.

RaTG13 is a virus whose name has been derived from the bat it was extracted from (Rhinolophus affinis, Ra), the place it was found (Tongguan, TG), and the year it was identified, 2013. Shi Zheng Li, a Chinese scientist at the laboratory in the Chinese city of Wuhan asserts a natural origin of Covid-19 virus. The remote district of Tongguan, in China's south-western province of Yunnan, is hard to reach at the best of times. It is the locationa of a nondescript, abandoned copper mine in which, back in 2012, six workers succumbed to a mystery illness that eventually claimed the lives of three of them. Those three deaths became the center of a major scientific controversy about the origins of the virus and the question of whether it came from nature, or from a laboratory.

For more than a decade, the rolling, jungle-covered hills in Yunnan - and the cave systems within - have been the focus of a giant scientific field study led by Prof Shi Zheng Li from the Wuhan Institute of Virology (WIV). She won international acclaim for her discovery that the illness known as Sars, which killed more than 700 people in 2003, was caused by a virus that probably came from a species of bat in a Yunnan cave. She became often referred to as "China's Batwoman".

By trapping bats, taking fecal samples from them, and then carrying those samples back to the lab in Wuhan, 1,600km or1,000 miles away, the team behind the project identified hundreds of new bat corona viruses. The Chinese government, the WIV, and Shi Zheng Li have dismissed the allegation of a virus leak from the Wuhan lab.

Peter Daszak a British zoologist asserts: "I have yet to see any evidence at all of a lab leak or a lab involvement in this outbreak" Many scientists believe that by far the most likely scenario is that Sars-Cov-2, the virus that causes Covid-19, jumped naturally from bats to humans, possibly via an intermediary species. Peter Daszak,] had a leading role in an international project to sample wild viruses. He was involved in close collaboration with Shi Zhengli in her mass sampling of bats in China, and he previously called the lab-leak theory a "conspiracy theory" and "pure baloney":

> "I have yet to see any evidence at all of a lab leak or a lab involvement in this outbreak. I have seen substantial evidence that these are naturally occurring phenomena driven by human encroachment into wildlife habitat, which is clearly on display across south-east Asia."

Peter Daszak is head of the Eco-Health Alliance organization, which orchestrated a statement in The Lancet by 27 scientists denouncing 'conspiracy theories suggesting that COVID-19 does not have a natural origin. EcoHealth Alliance received millions of dollars of USA taxpayer funding to genetically manipulate coronaviruses with scientists at the Wuhan Institute of Virology.

Peter Daszak, president of Eco-Health Alliance, has led efforts that have dismissed concerns over lab leakage as a 'baseless' conspiracy theory. He headed a task force on the pandemic's origins for The Lancet medical journal with the support of the WHO. This echoes an unsubstantiated Chinese perspective that:

> "The CIA deployed the bioweapon Sars-2-nCoV-19 after the U.S. Army Fort Detrick Epidemiologists manufactured the bioweapon and tested it on a herd of pigs outdoors on the compound of Fort Detrick where it leaked via the Chimera that vectored to neighboring rural farm animals situated adjacent to the Fort Detrick rural compound."

Another unsubstantiated by the 2014 Cambridge Working Group Call-to-Action on Gain-of-Function deadly man-made pandemic pathogens manufactured in the United States of America by Robert Gordon White from Carleton University: http://www.cambridgeworkinggroup.org/

> "The American Government is 100% responsible for the bioweapon Sars-2-nCoV-19 and the attack on the world they launched when they deployed the bioweapon post-Wuhan Military Games 2019 in the entrance way to the Hunan Seafood Market via glass ampule smashed onto the ground approximately 8 feet from the entrance so that foot traffic would vector it into the market to establish CIA plausible deniability for the Fourth Generation Biowarfare attack against China and President Xi Jinping's regime."

Some media suggested that some imported products such as "frozen desserts", ice cream imports from Ukraine and New Zealand, German pork, Australian beef and Indian fish and auto parts and raw materials were contaminated by the virus.

An NIH grant administered by Anthony Fauci's NIAD starting in 2014-2020:
https://projectreporter.nih.gov/project_info_description.cfm?aid=9819304&icde=49711216
was issued to the EcoAlliance organization as an intermediary, which operates in the USA and overseas, at Wuhan. The EcoAlliance specializes in Bat SARS viral research. The grant states:

> "We will use S protein sequence data, infectious clone technology, in vitro and in vivo infection experiments and analysis of receptor binding to test the hypothesis that % divergence thresholds in S protein sequences predict spillover potential."

Reports supporting the opposite man-made version argument of the issue are:
India:
https://www.researchgate.net/publication/341547726_Understanding_the_Origin_of_'Bat CoVRaTG13'_a_Virus_Closest_to_SARS-CoV-2

Australia:
https://www.theweek.in/news/world/2020/05/19/novel-coronavirus-is-human-made-says-australia-study.html

USA:
Li-Meng Yan, Shu Kang, Jie Guan, Shanchang Hu, Report
https://zenodo.org/record/4073131

The WIV scientists began sampling bats in the Tongguan mineshaft, making multiple visits to the mines at Mojiang over the next three years and detected 293 coronaviruses. In January 2020 Shi Zheng Li sequenced the Sars-Cov-2 virus, which was already spreading rapidly through the streets and homes of her city. She compared the long string of letters representing the virus's unique genetic code with the extensive library of other viruses collected and stored over the years and she discovered that her database contained the closest known relative of Sars-Cov-2: RaTG13. It is a virus whose name has been derived from the bat it was extracted from (Rhinolophus affinis, Ra), the place it was found (Tongguan, TG), and the year it was identified, 2013. The virus was detected seven years earlier.

There have been many well-documented cases of viruses leaking from labs. The first Sars virus leaked twice from the National Institute of Virology in Beijing in 2004, long after the outbreak had been brought under control.

The practice of Gain of Function (GOF) research involves genetically manipulating viruses is also not new, allowing scientists to make them more infectious or more deadly, so they can assess the threat and, perhaps, develop treatments or vaccines. It has been accused of being disguised biological weapons research and has been for a period of time in the USA.

From the moment RaTG13 was isolated and sequenced, scientists were struck by the remarkable ability of Sars-Cov-2 to infect humans. The possibility that it acquired that ability as a result of manipulation in a laboratory was taken seriously enough for an influential group of international scientists to address it head on in what has become a paper ruling out the possibility of a lab leak, RaTG13 has a starring role. Published in March in the magazine Nature Medicine, it suggests that if there had been a leak, Shi Zheng Li would have found a much closer match in her database than RaTG13. While RaTG13 is the closest known relative - at 96.2 percent similarity - it is still too distant to have been manipulated and changed into Sars-Cov-2. Sars-Cov-2, the authors concluded, was likely to have gained its unique efficiency through a long, undetected period of circulation in humans or animals of a natural and milder precursor virus that eventually evolved into the potent, deadly form first detected in Wuhan in 2019.

Daniel Lucey, a physician and infectious disease professor at the Georgetown Medical Centre in Washington DC and a veteran of many pandemics - Sars in China, Ebola

in Africa, Zika in Brazil. is certain that China has already conducted thorough searches for evidence of precursor viruses in stored human samples in hospitals and in animal populations: "They have the capability, they have the resources and they have the motivation, so of course they've done the studies in animals and in humans." Finding the origin of an outbreak was vital, he said, not just for wider scientific understanding, but also to stop it emerging again. "We should search until we find it. I think it's findable and I think it's quite possible it's already been found," he said. "But then the question arises, why hasn't it been disclosed?" Lucey believes that Sars-Cov-2 is most likely to have a natural origin, but he does not want the alternatives to be so readily ruled out.

British Perspective

A British study showed that all victims of Covid-19 had low T cell counts to begin with. Which is logical because the T cell count determines how good the immune system is. They found out that the virus also targets the T cells themselves, turning them onto their host.

In healthy people, the immune system still can keep the Covid-19 virus in check but it will become extra scary if a mutation of the virus will en-masse target T cells and turn them onto their host. that is what happened with the Spanish flu. That one hit young and healthy people the hardest.

Covid-19 may be primarily a disease of the endothelium (the single layer of cells that line blood and lymphatic vessels). This hypothesis helps explain the increase in cardiovascular complications from Covid-19: strokes, myocardial infarctions, thromboembolism (pulmonary embolism, DVTs, and other blood clots), as well as many critical patients who do not appear to have classic ARDS symptoms (and have relatively normal lung compliance etc. as observed by the research of Dr. Gattinoni in Italy and others). A deep understanding of this theory requires a review of some foundational biochemistry including the electron transport chain and ATP, the energy currency of the human body.

The UK Members of Parliament, MPs have been told by experts that a Wuhan lab leak "the most likely" origin of COVID-19 and that there is also a high risk it "was an engineered virus." The Telegraph newspaper reported on the comments of Dr. Alina Chan, a specialist in gene therapy and cell engineering at MIT and Harvard, who was speaking to the Science and Technology Select Committee: "I think the lab origin is more likely than not. Right now it is not safe for people who know about the origin of the pandemic to come forward. But we live in an era where there is so much information being stored that it will eventually come out". "We have heard from many top virologists that a genetically engineered origin is reasonable and that includes virologists who made modifications to the first Sars virus". "We know this virus has a unique feature, called the furin cleavage site, and without this feature there is no way this would be causing this pandemic." "A proposal was leaked showing that the EcoHealth Alliance and the Wuhan Institute of Virology were developing a pipeline for inserting novel furin cleavage sites. So, you find these scientists who said in early 2018 'I'm going to put horns on horses' and at the end of 2019 a unicorn turns up in Wuhan city."

Lord Ridley, who co-wrote a book with Chan, also said it was "incredibly surprising" that after nearly two years "we still have not found a single infected animal that

could be the progenitor." Viscount Ridley called on "bad actors" who think "that unleashing a pandemic is something they could get away with," to be exposed.

The fact that the source of COVID-19 is now likely to have been the Wuhan lab is quite the turnaround, when mere discussion of this possibility was branded a ludicrous "conspiracy theory" and people who circulated it were banned from social media.

Peter Daszak, President of the EcoHealth Alliance, a group that has extensive ties to the Wuhan lab gain of function research, thanked Anthony Fauci for dismissing the lab leak theory early on in the pandemic. Peter Daszak was tasked by Facebook with 'fact-checking' and censoring information related to the hypothesis, while Google, which via YouTube also censored information about the theory, also funded Peter Daszak's virus research.

Russian perspective

World renown Dr. Peter Chumakov microbiologist works for Russia's Federal Research Center for Research and Development of Immunobiological Preparations suggested to the Moskovsky Komsomolets newspaper that the Covid-19 pandemic was the result of Wuhan scientists doing "absolutely crazy things" in their laboratory. Peter Chumakov of the Engelhardt Institute of Molecular Biology and Russian Academy of Sciences claims that while the Wuhan scientists' goal in creating the coronavirus was not malicious - instead, they were trying to study the pathogenicity of the virus:

> "In China, scientists at the Wuhan Laboratory have been actively involved in the development of various coronavirus variants for over ten years. Moreover, they did this, supposedly not with the aim of creating pathogenic variants, but to study their pathogenicity. They did absolutely crazy things, in my opinion. For example, inserts in the genome, which gave the virus the ability to infect human cells. Now all this has been analyzed.
>
> There are several inserts, that is, substitutions of the natural sequence of the genome, which gave it special properties. It is interesting that the Chinese and Americans who worked with them published all their works in the open (scientific) press. I even wonder why this background comes to people very slowly.
>
> I think that an investigation will nevertheless be initiated, as a result of which new rules will be developed that regulate the work with the genomes of such dangerous viruses.

Peter Chumakov suggested that Chinese scientists were possibly searching for an HIV vaccine.

The head of Russia's Federal Medical-Biological agency, Veronika Skvortsova, told Russia's Channel One:

> "We can see that a fairly large number of fragments distinguishes this virus from its very close relative, SARS. They are approximately 94 per cent similar, the rest is different… I think that we must conduct a very serious research."

Australian perspective

A vaccine developed in Australia was withdrawn from consideration after HIV symptoms appeared to develop in the tested volunteers. Australian vaccines, which through the false/engineered mRNA synthetically creates the strong spike protein based in HIV foundational genes. For this reason - these vaccines give a false positive HIV trigger to HIV tests, and so had to be abandoned.

According to Edward Holmes from the University of Sidney:

> "The closest known relative of SARS-CoV-2 is a bat virus named RaTG13, which was kept at the WIV. There is some unfounded speculation that this virus was the origin of SARS-CoV-2.
>
> The level of genome sequence divergence between SARS-CoV-2 and RaTG13 is equivalent to an average of 50 years (and at least 20 years) of evolutionary change."

A study has found that SARS-CoV-2, the coronavirus that has led to a pandemic, was likely created in a lab, barring some "remarkable coincidence" that led to the virus naturally evolving to be optimized to attack human cells. The study was led by Nikolai Petrovsky, a vaccine researcher at Flinders University in Australia. The scientists in his team discovered that the coronavirus is optimized for penetration into human cells, rather than animal cells, which means that the theory that it emerged from an animal market and jumped to humans naturally could be discounted.

Petrovsky is the founder of Vaxine Pty Ltd., which is funded by the USA National Institutes of Health and was working on a Covid-19 vaccine.

The scientists "used a version of the novel coronavirus collected in the earliest days of the outbreak and applied computer models to test its capacity to bind to certain cell receptor enzymes, called "ACE2," for "angiotensin converting enzyme system" that allow the virus to infect human and animal cells to varying degrees of efficacy." "They found that "the novel coronavirus most powerfully binds with human ACE2, and with variously lesser degrees of effectiveness with animal versions of the receptor."

The authors believe this means that the virus "became specialized for human cell penetration by living previously in human cells, quite possibly in a laboratory." The Study notes that "a virus would be expected to have highest affinity for the receptor in its original host species, e.g. bat, with a lower initial binding affinity for the receptor of any new host, e.g. humans. However, in this case, the affinity of SARS-CoV-2 is higher for humans than for the putative original host species, bats, or for any potential intermediary host species." It continues, noting that a "possibility which still cannot be excluded is that SARSCoV-2 was created by a recombination event that occurred inadvertently or consciously in a laboratory handling coronaviruses, with the new virus then accidentally released into the local human population." Dr Petrovsky added in a statement that, rather than being rapidly genetically spliced and mutated, the virus shows signs of being 'cultured' to evolve over time:

> "Our and other analyses of the genomic sequence of the virus do not reveal any artificial gene inserts that would be the hallmark of a gene jockey, genetic engineers who manipulate or even create viruses by splicing in artificial inserts into their genome.
>
> These are generally easily recognizable and hence clear signatures of human intervention in the creation of a virus. The fact that these artificial inserts are not present has been interpreted by some to mean this virus is not the result of human manipulation.
>
> However, this logic is incorrect as there are other ways in which humans can manipulate viruses and that is caused by natural selection. You can force [a] bat virus to adapt to infect human cells via mutations in its spike protein," after culturing it for a few years.
>
> The result of these experiments would be a virus that is highly virulent in humans but is sufficiently different that it no longer resembles the original bat virus."

From Live Science:

> "The WIV lab, along with researchers in the USA and Switzerland, showed in 2015 the scary-good capability of bat coronaviruses to thrive in human cells. In that paper, which was published in 2015 in the journal Nature Medicine, they described how they had created a chimeric SARS-like virus out of the surface spike protein of a coronavirus found in horseshoe bats, called SHC014, and the backbone of a SARS virus that could be grown in mice. The idea was to look at the potential of coronaviruses circulating in bat populations to infect humans. In a lab dish, the chimeric coronavirus could infect and replicate in primary human airway cells; the virus also was able to infect lung cells in mice.

Nature News reported:

> "That study was met with some pushback from researchers who considered the risk of that kind of research to outweigh the benefits. Simon Wain-Hobson, a virologist at the Pasteur Institute in Paris, was one of those scientists. Wain-Hobson emphasized the fact that this chimeric virus "grows remarkably well" in human cells, adding that "If the virus escaped, nobody could predict the trajectory."

In an email to LifeSite, Petrovsky said that his study suggests that "there are some highly unusual features, including optimal human adaptation, that in the absence of identification of a close to identical virus in an animal population from which Covid-19 could have arisen, would point in the direction of human intervention at some point in the evolution of Covid-19." He added that scientists have been unable to find any evidence of this coronavirus strain present in animals, which would support the natural evolution theory. "If an animal vector and virus could be found then of course this would resolve the matter completely," Petrovsky noted, adding:

> “One would have thought that the Chinese would be intensively sampling all conceivable animals trying to find such a virus to exonerate their labs. If no such intense search is going on (which I don’t know one way or the other) then the inference could be that they are not looking because they already know what they might find.”
>
> Whilst the facts cannot be known at this time, the nature of this event and its proximity to a high-risk biosecurity facility at the epicenter of the outbreak demands a full and independent international enquiry to ascertain whether a virus of this kind of Covid-19 was being cultured in the facility and might have been accidentally released”.

Petrovsky added in a statement that, rather than being rapidly genetically spliced and mutated, the virus shows signs of being ‘cultured’ to evolve over time. The idea was to look at the potential of coronaviruses circulating in bat populations to infect humans.
Flinders University Professor Nikolai Petrovsky, who has spent over two decades developing vaccines against influenza, Ebola, and animal Sars. He says his findings allow for the possibility that COVID-19 leaked from a laboratory, according to Sky News.

> "The two possibilities which I think are both still open is that it was a chance transmission of a virus from an as yet unidentified animal to human. The other possibility is that it was an accidental release of the virus from a laboratory. Certainly we can’t exclude the possibility that this came from a laboratory experiment rather than from an animal. They are both open possibilities."

The way coronavirus enters human cells is by binding to a protein on the surface of lung-cells called ACE2. Petrosky’s study showed that the virus bound more tightly to human-ACE2 than to any of the other animals they tested. “It was like it was designed to infect humans,” he said.

> “One of the possibilities is that an animal host was infected by two coronaviruses at the same time and COVID-19 is the progeny of that interaction between the two viruses.
>
> "The same process can happen in a petri-dish. If you have cells in culture and you have human cells in that culture which the viruses are infecting, then if there are two viruses in that dish, they can swap genetic information and you can accidentally or deliberately create a whole third new virus out of that system.
>
> "In other words Covid-19 could have been created from that recombination event in an animal host or it could have occurred in a cell-culture experiment."

In January 2020, Petrovsky began modeling the virus to try and create a vaccine candidate. According to the report, he then began to explore "what animal species might

have been involved in the transmission to humans" in order to better understand the origins of the virus, when he discovered how well it infects humans over other species.

> "We found that the COVID-19 virus was particularly well-adapted to bind to human cells and that was far superior to its ability to bind to the cells of any other animal species which is quite unusual because typically when a virus is well-adapted to an animal and then it by chance crosses to a human, typically, you would expect it to have lower-binding to human cells than to the original host animal. We found the opposite so that was a big surprise".

When asked why mainstream scientists are still clinging to the theory that the virus originated in a Wuhan wet market, he said that scientists "try not to be political" but that that scientists who support the lab escape theory risk negatively impacting their industry with tighter laboratory controls. "For instance, if it was to turn out that this virus may have come about because of an accidental lab release that would have implications for how we do viral research in laboratories all around the world which could make doing research much harder," he said, adding "So I think the inclination of virus researchers would be to presume that it came from an animal until proven otherwise because that would have less ramifications for how we are able to do research in the future. The alternative obviously has quite major implications for science and science on viruses, not just obviously political ramifications which we're all well aware of."

Petrovsky has called for immediate investigation now, and not when the pandemic is over - calling any delay in fact finding a "mistake." "I'm certainly very much in favour of a scientific investigation. It's only objective should be to get to the bottom of how did this pandemic happen and how do we prevent a future pandemic…. not to have a witch-hunt."

A perspective that Petrosky cautiously avoided mentioning, or meant to have it read between the lines, is that the GOF experimentation may have been done on human or primate cell line, which would explain its enhanced affinity towards humans compared with other species:

> "Typically when a virus is well-adapted to an animal and then it by chance crosses to a human, typically, you would expect it to have lower-binding to human cells than to the original host animal. We found the opposite so that was a big surprise,"

Indian Perspective

India had a clandestine bioweapons research effort conducted by competent personnel that its government cancelled once it learned about its existence. India is one of the largest vaccine producers in the world. An Indian factory manufacturers 6,000 syringes a minute. Rajiv Nath, who heads India's largest syringe factory, says he is turning down as many as 40 requests for syringes from across the world. Mr Nath's Hindustan Syringes & Medical Devices (HMD) is in huge demand now as countries try to ramp up vaccination against Covid-19. The factory produces some four million syringes per day but Rajiv Nath

says that is still not enough given that the world needs 10 billion syringes to vaccinate just 60% of its population.

Seventy percent of the world's vaccine capacity is in India. Serum, an Indian-based company that has made billions of doses of vaccines in the past, is ready to roll out a vaccine as it mass produced the AstraZeneca and Oxford University vaccine and has its own candidates.

A team of Indian scientists wrote in a retracted paper that the coronavirus may have been genetically engineered to incorporate parts of the HIV genome, writing: "This uncanny similarity of novel inserts in the 2019- nCoV spike protein to HIV-1 gp120 and Gag is unlikely to be fortuitous in nature," implying that it was unlikely to have occurred naturally and that it may be an escape from gain-of-function GOF research.

On February 2, 2020 the research team from Delhi, India, led by Dr Prashant Pradhan, published a preprint investigating the molecular structure of Covid-19. It reported that its genetic sequence contained four insertions, related to HIV, that are absent in other corona viruses. It was suggested that this unique genomic structure was unlikely to have been a result of natural evolution. In fact, virologist Yoshihiro Kawaoka of the University of Wisconsin at Madison, Wisconsin, USA and Tokyo University, Japan pioneered HIV-enabled Gain of Function GOF in flu-related viruses, until a backlash of ethical scientists demanded a ban on GOF, which was later revoked.

It was noted that the genetic insertions were related to the virus' spike proteins, which protrude from its surface and facilitate its entry into the host's cells. This added feature determines the degree of contagiousness of the virus. It must be noted that coronaviruses have been researched as to their potential use as a vector or delivery agent for an HIV vaccine. Effective vaccination depends on easy uptake into cells.

Before their study was retracted, the researchers at the University of Delhi reported findings that indicate a high likelihood that some entity had intentionally manufactured the virus: "The finding of four unique inserts in the 2019-nCoV, all of which have identity /similarity to amino acid residues in key structural proteins of HIV-1 is unlikely to be fortuitous in nature."

The team looked at the signature "spike proteins" in the COVID-19 virus. They found an: "uncanny similarity of novel inserts in the 2019-nCoV spike protein to HIV-1 gp120… Our results highlight an astonishing relation between the gp120 and Gag protein of HIV [and] 2019-nCoV spike glycoprotein."

French Perspective

Professor Luc Montagnier, 2008 Nobel Prize winner for Medicine, supports the claim that the SARS-CoV-2 is a manipulated virus that was accidentally released from a laboratory in Wuhan, China. Chinese researchers are said to have used coronaviruses in their work to develop an AIDS vaccine. HIV DNA fragments are believed to have been found in the SARS-CoV-2 genome. France and Canada are reported to have contributed to the building of the Wuhan laboratory.

Luc Montagnier the "discoverer of HIV" claimed on French television that he had sequenced the mRNA of the coronavirus. He also claimed that mutations of the virus would become less virulent, and disputed whistleblower Geert van den Bossche, who says that vaccines are literally driving mutations.

Geert van den Bossche PhD, is an internationally recognized vaccine developer having worked as the head of the Vaccine Development Office at the German Centre for Infection Research. He coordinated Global Alliance for Vaccines and Immunisation's Ebola Vaccine Program and contributed to the implementation of an integrated vaccine work plan in collaboration with Global Health Partners (WHO, Bill & Melinda Gates Foundation, CDC, UNICEF), regulators (FDA) and vaccine manufacturers to enable timely deployment or stockpiling of Ebola vaccine candidates. He highlights the principle of using a prophylactic vaccine in the midst of a pandemic as likely to create more viral variants in the process. Current design of the vaccines and the way they are being rolled out creates a risk of the emergence of immune-evasive mutation variants.

The existing rationale is that it is better to get twice as many people with sub-optimal immunity for an extended period of time rather than maximal immunity in half the people. This is akin to having an outbreak of a dangerous bacterium but not enough antibiotics to go around. If one were to choose to administer the antibiotics for half the recommended number of days but to twice as many people, most scientists would agree that this would be an ideal scenario to promote the emergence of dangerous antibiotic-resistant variants. Physicians tell their patients to complete their antibiotic regimen, even when they start feeling much better part way in. To cut the treatment short is equal to the potentiation of risk of driving antibiotic resistance.

The vaccine rollouts are already being done in a way that will drive the emergence of what is called ‘antigenic variants’; these are versions of the virus that have incorporated sufficient mutations to allow the target antigen (in this case, the spike protein) to change enough in structure as to become unrecognizable by the highly specific antibodies and T cells that were induced by the vaccines. We have clear evidence this can happen: the Novavax, Johnson & Johnson, and AstraZeneca vaccines have all performed much poorer against the South African variant; AstraZeneca’s vaccine provides very little protection against it.

Specifically, the vaccines are being rolled out very slowly and are being distributed in a piecemeal fashion. This means that vaccinated people will be intermingling with unvaccinated individuals. The latter can serve as a reservoir in the which the virus will have lots of time to incorporate random mutations and ‘test’ its ability to infect vaccinated people. If the latter happens, it would be result of an immuno-evasive variant emerging.

A concerning quote:

> “The recent emergence of B.1.1.7, B.1.351, and P.1 marks the beginning of SARS-CoV-2 antigenic drift”; “If the rampant spread of the virus continues and more critical mutations accumulate, then we may be condemned to chasing after the evolving SARS-CoV-2 continually, as we have long done for influenza virus.”

Coronaviruses naturally mutate over time. They employ an error-prone polymerase that randomly incorporates mutations when they copy their genetic material. This is a strategy that helps them adapt to new environmental pressures such as narrowly-focused immunological pressure, and weak immunity caused by massive delays in administering second doses of vaccines.

What is being done in the vaccine rollout may be potentiating the emergence of variants. Accordingly, it would be that the vaccinated people will put everyone at risk by creating super viruses. Even the un-vaccinated individuals will be exposed to the stronger super strains though. The vaccinated would not be able to fight it because it only works for the first strain. On the other hand, those that already had the first strain may have antibodies that should recognize the stronger strain and help fight it off.

Coronavirus en Chine: après le SRAS, la sulfureuse coopération franco-chinoise à Wuhan

Par **Antoine Izambard** (Lire tous ses articles)

ABONNÉS

Publié le 23.01.2020 à 13h02

La Chine qui est de nouveau frappée par un coronavirus, lequel a causé la mort de 17 personnes, a noué après la crise du SRAS en 2003 un partenariat très sensible et décrié avec la France en matière de sécurité biologique.

Figure 54. France cooperated in the design and construction of the Wuhan Institute of virology in 2003 for biological security.

According to Professor Luc Montagnier, winner of the Nobel Prize for Medicine in 2008 for "discovering" HIV as the cause of the AIDS epidemic together with Françoise Barré-Sinoussi, the SARS-CoV-2 is a virus that was manipulated and accidentally released from a laboratory in Wuhan, China, in the last quarter of 2019. This lab was built in China by the French.

According to Professor Montagnier, this laboratory, known for its work on coronaviruses, tried to use one of these viruses as a vector for HIV in the search for an AIDS vaccine. "With my colleague, bio-mathematician Jean-Claude Perez, we carefully analyzed the description of the genome of this RNA virus," explains Luc Montagnier, interviewed by Dr Jean-François Lemoine for the daily podcast at Pourquoi Docteur, adding that others have already explored this avenue:

> "Indian researchers have already tried to publish the results of the analyses that showed that this coronavirus genome contained sequences of another virus, … the HIV virus (AIDS virus), but they were forced to withdraw their findings as the pressure from the mainstream was too great."

In a challenging question Dr Jean-François Lemoine inferred that the coronavirus under investigation may have come from a patient who is otherwise infected with HIV. "No," says Luc Montagnier, "in order to insert an HIV sequence into this genome, molecular tools are needed, and that can only be done in a laboratory." He is talking about CRISPR the gene splicing chemical tools.

According to the 2008 Nobel Prize for Medicine, a plausible explanation would be an accident in the Wuhan laboratory. He also added that the purpose of this work was the search for an AIDS vaccine.

In any case, this thesis, defended by Professor Luc Montagnier, has a positive turn. According to him, the altered elements of this virus are eliminated as it spreads:

> “Nature does not accept any molecular tinkering, it will eliminate these unnatural changes and even if nothing is done, things will get better, but unfortunately after many deaths.”

Luc Montagnier added that with the help of interfering waves, we could eliminate these sequences and as a result stop the pandemic.

Eleven years before the joint construction of the Wuhan Institute of Virology, French intelligence services warned Paris that China's reputation in biosecurity could lead to a 'catastrophic leak’. In 2004, the EU's chief Brexit negotiator, Michel Barnier, ignored those warnings - signing off on the lab's construction when he was the French foreign minister.

According to the report, French intel also warned that Paris could lose control of the facility, and that Beijing could even use it to make biowarfare weapons. And in 2015, as the laboratory prepared to open, those concerns were realized after the French architects of the project said they were shut out of the project. In fact, 50 French scientists were supposed to help the Chinese run the laboratory properly, but never ended up going.

Michel Barnier's involvement in the Wuhan Institute of Virology (WIV) during an in-depth investigation into French connections to the lab - where many believe the coronavirus escaped from, as the WIV housed a group of scientists who received international condemnation for creating chimeric strains that could infect humans. Under the 'escaped' scenario, an infected WIV employee unknowingly brought it into the Wuhan wet market, exposing what would become roughly half of the first known cluster of cases. Biologists who carried out a landmark study say they were ‘surprised’ to find the virus was ‘already pre-adapted to human transmission’.

Jacques Chirac, the French president at the time of the deal, pushed for the Wuhan institute to be set up after the 2003 SARS outbreak, which affected 26 countries and resulted in more than 8,000 cases and 774 deaths. Chirac, along with his pro-Beijing prime minister Jean-Pierre Raffarin, promised French funding and expertise in return for a share of the intellectual copyright on the lab’s discoveries. France's Chirac government saw the deal to construct the WIV as a way to strengthen trade with China, despite warnings from its own intelligence, the French equivalent to MI6, which repeatedly raised concerns over lack of international control and 'transparency' issues:

> "What you have to understand is that a P4 [high-level bio-security] laboratory is like a nuclear reprocessing plant. It’s a bacteriological atomic bomb," said one source, adding: "The viruses that are tested are extremely dangerous – diving suits, decontamination airlocks etc must be followed to the letter."

Alain Merieux, the French billionaire who was instrumental in setting up the Wuhan laboratory in partnership with his Institut Merieux in Lyons, abandoned the project in 2015, saying: ‘I am giving up the co-chairmanship of [the] P4 [laboratory], a Chinese tool. It belongs to them, even if it was developed with technical assistance from France.’

According to Le Figaro, a diplomat with a close knowledge of the deal added: ‘We knew the risks involved and thought that the Chinese would control everything and quickly

eject us from the project. ‘We believed that providing this cutting-edge technology to a country with an endless power agenda would risk exposing France in return.’

In 2015, concerns were validated after China implemented their new policy of 'dual use' technologies, which allows for the military use of civilian technology:

> "The aim was to develop vaccines following the SARS crisis between 2002 and 2004." There was much co-operation on a range of issues between France and China at the time, and Michel Barnier was implementing government policy. The issue of bio-security was certainly a cause for concern within agencies including the DGSE".

Meanwhile, the WIV's Shi Zheng Li - known as "bat woman" for her controversial experiments creating bat coronaviruses that can infect humans - and who swore 'on her life' that the COVID-19 is not from her lab, said in a recent interview on Chinese state television that viruses being discovered now are "just the tip of the iceberg." "If we want to prevent human beings from suffering from the next infectious disease outbreak, we must go in advance to learn of these unknown viruses carried by wild animals in nature and give early warnings," Shi told CGTN, adding "If we don’t study them there will possibly be another outbreak."

American/German Perspective

For an American/German perspective, regarding the patenting process of the corona virus, initially in rabbits and dogs at the University of North Carolina at Chapel Hill since 2003-2005, and then in humans as a Gain of Function GOF engineered outcome, based on 120 patented pieces of evidence showing the total fallacy of the claim “novel”, and suggesting a monetary/profit incentive for synthesizing the “new-normal” Covid-19 virus and a vaccine against it using “lipid nano-particles”, see:
https://corona-ausschuss.de/
https://www.bitchute.com/video/4FdvU43qOdfD/
https://rumble.com/vjs7pt-a-manufactured-illusion.-dr-david-martin-with-reiner-fuellmich-9-7-21.html
https://www.bitchute.com/video/4u7rt61YeGox/
https://patents.google.com/patent/US7776521B1/en ; Coronavirus isolated from humans
https://patents.google.com/patent/US7220852B1/en ; Coronavirus isolated from humans
https://patents.google.com/patent/US7279327B2/en ; Methods for producing recombinant coronavirus
https://www.m-cam.com/wp-content/uploads/2020/04/20200403_SARS_CoV_Patent_Corpus_Lit_Review.pdf

In 2012 alone, 10,000 scientific articles on graphene and graphene oxide as an adjuvant were written and 14,000 scientific patents were declared:
https://en.wikipedia.org/wiki/Graphene
target="_blank">https://www.henrymakow.com/2021/06/covid-vaccine-delivers-nanoparticles.html
https://thewhiterose.uk/spanish-researchers-declare-covid-19-is-caused-by-graphene-oxide/ https://www.universallifetools.com/2021/05/covid-vaccines-genetically-targeted-

magnetic-control-of-the-nervous-system/
https://www.frontiersin.org/articles/10.3389/fnsys.2018.00012/full

The weaponization is claimed to have started in 2008. The patent law perspective identifies the laboratory “deliberate release” wording, implying bioweaponry or bioterror attack links. Accidental leak is referred-to as a “red herring” and the whole process as an opportunistic marketing campaign of a protein designed by a computer simulation.

Coincidentally, the CDC filed a patent on a disease in April 2002. Sequoia Pharmaceutical; later Pfizer, filed a patent on the detection and treatment of the disease on April 28th 2003. The SARS "outbreak" started in Asia in 2003.

American and Canadian Perspectives

A January 2021 USA State Department fact sheet raised questions about whether the Covid-19 outbreak could have been the result of a lab accident at the Wuhan Institute of Virology, WIV. It said the USA has “reason to believe” that several WIV researchers became sick with symptoms consistent with both Covid-19 and common seasonal illnesses in autumn 2019.

Charles Lieber, 60, Chair of the Department of Chemistry and Chemical Biology at Harvard University, Principal Investigator of the Lieber Research Group at Harvard University, which specialized in the area of nanoscience, has received more than $15,000,000 in grant funding from the National Institutes of Health (NIH) and Department of Defense (DOD). Lieber became a “Strategic Scientist” at Wuhan University of Technology (WUT) in China, and since his arrest for not disclosing being paid $50,000 per month by WUT, has not been seen or heard from.

The department also said the lab had been conducting secret military experiments on animals since at least 2017, and that it has a history of conducting gain-of-function GOF research on viruses. Such research involves modifying viruses to have new or enhanced capabilities.

The major moving part of the chimeric Covid-19 virus, the ACE2 pathway to the lung cells, was engineered by Professor Ralph Baric at Gillings School of Global Health at the University of North Carolina**,** UNC at Chapel Hill in 2015 using a CDC grant and exception to a ban on "gain of function" virus "research".

A theory exists that as this research was started, no President Barack Obama era regulation was going to stop it. Since the UNC lab had started this research, USA researchers knew it would eventually be leaked to the Chinese through the personnel managing and working in USA labs for fame and wealth. Some genius mind with superior logic figured out that it would be best to move the research from the level 3 security BSL-3 lab in North Carolina to a BSL-4 lab in China and jointly move it forward in a way so that at least both sides would "watch each other" and share the knowledge and results. Unfortunately, due to lax design and safety standards such as negative pressure enclosures, and shoddy security, the virus was inadvertently released to the environment. Both sides followed a flawed logic as an initiating event of accidents in general.

From: Fauci, Anthony (NIH/NIAID) [E]
Sent: Sat, 1 Feb 2020 18:43:31 +0000
To: Kristian G. Andersen
Subject: RE: FW: Science: Mining coronavirus genomes for clues to the outbreak's origins

Thanks, Kristian. Talk soon on the call.

From: Kristian G. Andersen (b) (6)>
Sent: Friday, January 31, 2020 10:32 PM
To: Fauci, Anthony (NIH/NIAID) [E] (b) (6)
Cc: Jeremy Farrar (b) (6)>
Subject: Re: FW: Science: Mining coronavirus genomes for clues to the outbreak's origins

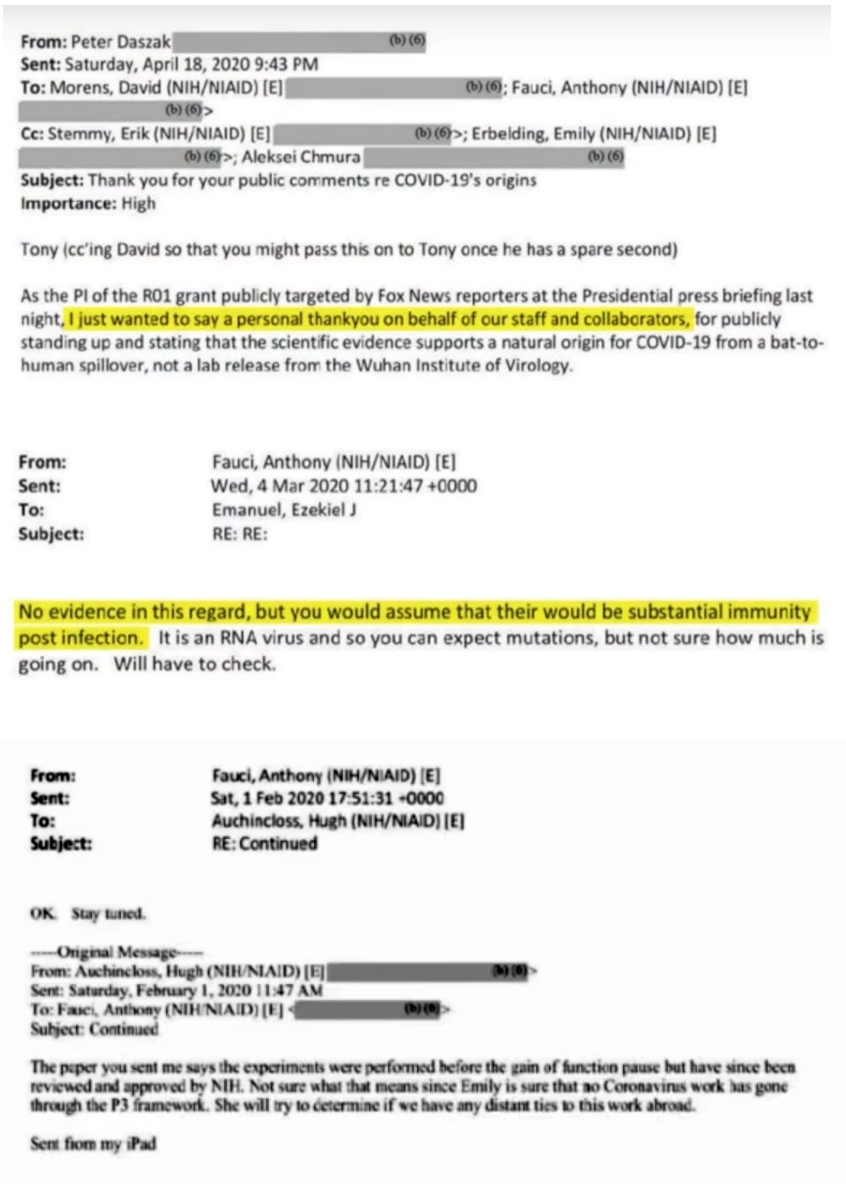
Hi Tony,

Thanks for sharing. Yes, I saw this earlier today and both Eddie and myself are actually quoted in it. It's a great article, but the problem is that our phylogenetic analyses aren't able to answer whether the sequences are unusual at individual residues, except if they are completely off. On a phylogenetic tree the virus looks totally normal and the close clustering with bats suggest that bats serve as the reservoir. The unusual features of the virus make up a really small part of the genome (<0.1%) so one has to look really closely at all the sequences to see that some of the features (potentially) look engineered.

We have a good team lined up to look very critically at this, so we should know much more at the end of the weekend. I should mention that after discussions earlier today, Eddie, Bob, Mike, and myself all find the genome inconsistent with expectations from evolutionary theory. But we have to look at this much more closely and there are still further analyses to be done, so those opinions could still change.

From: Jeremy Farrar (b) (6)
Date: Saturday, 1 February 2020 at 15:34
To: "Fauci, Anthony (NIH/NIAID) [E]" (b) (6)>, Patrick Vallance < (b) (6)
Cc: "Drosten, Christian" (b) (6)>, Marion Koopmans (b) (6)
" (b) (6) Edward Holmes (b) (6)
(b) (6)
(b) (6) "Kristian G. Andersen"
(b) (6), Paul Schreier (b) (6)
(b) (6)>, Michael FMedSci
(b) (6)
Subject: Teleconference

1st February (2nd Feb for Eddie)
Information and discussion is shared in total confidence and not to be shared until agreement on next steps.



From: Peter Daszak [redacted]
Sent: Saturday, April 18, 2020 9:43 PM
To: Morens, David (NIH/NIAID) [E] [redacted]; Fauci, Anthony (NIH/NIAID) [E] [redacted]
Cc: Stemmy, Erik (NIH/NIAID) [E] [redacted]; Erbelding, Emily (NIH/NIAID) [E] [redacted]; Aleksei Chmura [redacted]
Subject: Thank you for your public comments re COVID-19's origins
Importance: High

Tony (cc'ing David so that you might pass this on to Tony once he has a spare second)

As the PI of the R01 grant publicly targeted by Fox News reporters at the Presidential press briefing last night, I just wanted to say a personal thankyou on behalf of our staff and collaborators, for publicly standing up and stating that the scientific evidence supports a natural origin for COVID-19 from a bat-to-human spillover, not a lab release from the Wuhan Institute of Virology.

From: Fauci, Anthony (NIH/NIAID) [E]
Sent: Wed, 4 Mar 2020 11:21:47 +0000
To: Emanuel, Ezekiel J
Subject: RE: RE:

No evidence in this regard, but you would assume that their would be substantial immunity post infection. It is an RNA virus and so you can expect mutations, but not sure how much is going on. Will have to check.

From: Fauci, Anthony (NIH/NIAID) [E]
Sent: Sat, 1 Feb 2020 17:51:31 +0000
To: Auchincloss, Hugh (NIH/NIAID) [E]
Subject: RE: Continued

OK. Stay tuned.

-----Original Message-----
From: Auchincloss, Hugh (NIH/NIAID) [E] [redacted]
Sent: Saturday, February 1, 2020 11:47 AM
To: Fauci, Anthony (NIH/NIAID) [E] [redacted]
Subject: Continued

The paper you sent me says the experiments were performed before the gain of function pause but have since been reviewed and approved by NIH. Not sure what that means since Emily is sure that no Coronavirus work has gone through the P3 framework. She will try to determine if we have any distant ties to this work abroad.

Sent from my iPad

Figure 55. Emails obtained through the Freedom of Information Act, FOIA about Covid-19 to be "shared in total confidence and not to be shared until agreement on next steps," in spite of finding that: "genome inconsistent with expectations from evolutionary theory," advocating an official view of a "from a bat-to-human spillover, not a lab release." Email alluding to NIH having funded Gain of Function, GOF, research banned for three years in the USA, "distant ties to this work abroad," within "guidelines".

Experiments were going on in the USA until 2014 under the supervision of Anthony Fauci, director of the National Institute of Infectious Diseases and Allergies for 33 years. President Barack Obama administration ordered this type of activity stopped because they had a lot of lab escape problems in 2014 from three different labs. Instead of stopping as he was ordered, Anthony Fauci moved the ongoing activities, rather than stopping them, to the Wuhan lab in China and continued to do those experiments right up until the time

that the coronavirus [pandemic occurred] in 2019. In fact, infectious disease expert Ian Lipkin reportedly was carrying out those experiments over there when the COVID-19 exploded in October 2019:

> "In October 2013, the US government put a stop to all federal funding for gain-of-function studies, with particular concern rising about influenza, SARS, and Middle East respiratory syndrome (MERS). “NIH [National Institutes of Health] has funded such studies because they help define the fundamental nature of human-pathogen interactions, enable the assessment of the pandemic potential of emerging infectious agents, and inform public health and preparedness efforts,” NIH Director Francis Collins said in a statement at the time. “These studies, however, also entail biosafety and biosecurity risks, which need to be understood better.”

Ralph Baric’s study on the SHC014-chimeric coronavirus began before the moratorium was announced, and the NIH allowed it to proceed during a review process, which eventually led to the conclusion that the work did not fall under the new restrictions, Baric told Nature. But some researchers, like Wain-Hobson, disagree with that decision.".

In 2015, Ralph Baric from the University of North Carolina and Shi Zheng Li, from the Wuhan Institute of Virology jointly published a scientific article describing the combination of the receptor-binding spike protein from a newly isolated coronavirus (SHC014) and the “backbone” from SARS-CoV, the coronavirus responsible for the 2002-2003 pandemic.

That experiment produced a novel virus, chimera SHC014-MA15, which showed “robust viral replication both in vitro [cell cultures] and in vivo [animals],” using models adapted to test human infectivity.

The Gain Of Function research possibly involved creating a Pseudotyped Chimera Virus with a Lentiviral vector (Chimeric HIV) as the base with the virus’ glycoprotein on the outside.

The scientific consensus claims that COVID-19, like SARS, originated in bats. There is conclusive scientific evidence, however, that COVID-19’s receptor binding domain within the spike protein is structurally closest to that of pangolins, not bats, and it was the result of a recombination, not convergent evolution. Yet, pangolins have been ruled out as the intermediate host for COVID-19.

Even Ralph Baric in a March 15, 2020 interview, stated unequivocally, that pangolins were not the source of COVID-19:

> “Pangolins have over 3,000 nucleotide changes - no way they are the reservoir species [for COVID-19], absolutely no chance.”

It is, therefore, logical to conclude that the recombinant event resulting in a pangolin receptor binding domain within a bat coronavirus backbone must have occurred in a laboratory, in a manner similar to the experiment conducted by Ralph Baric and Shi Zheng-Li in 2015.

COVID-19’s S1/S2 furin polybasic cleavage site, a distinctive feature widely known for its ability to enhance pathogenicity and transmissibility in coronaviruses, does

not appear in any of 45 bat, 5 human SARS, 2 civet, 1 pangolin and 1 racoon dog coronaviruses, that have S1/S2 junction structures otherwise identical or nearly identical to COVID-19.

There is no scientific evidence that the furin polybasic cleavage site evolved naturally, although the methods for artificially inserting such cleavage sites are well-established.

The earliest suspected case in China may have been observed as early as November 2020, some scientists believe, though others doubt the theory. But an intelligence report obtained by NBC News cites cellphone activity data showing a complete shutdown of a high-security section of the Wuhan lab for 2.5 weeks between October 7 and October 24, 2019.

The report — obtained by the London-based NBC News Verification Unit — says there was no cellphone activity in a high-security portion of the Wuhan Institute of Virology from Oct. 7 through Oct. 24, 2019, and that there may have been a "hazardous event" sometime between Oct. 6 and Oct. 11. It offers no direct evidence of a shutdown, or any proof for the theory that the virus emerged accidentally from the lab.

If there was such a shutdown, which has not been confirmed, it could be seen as evidence of a possibility being examined by USA intelligence agencies and alluded to by Trump administration officials, including the president - that the novel coronavirus emerged accidentally from the lab.

But that is one of several scenarios under consideration by USA intelligence agencies. Many scientists are skeptical, arguing that the more likely explanation is that the virus was transmitted to humans through animals in a Wuhan live produce market. The World Health Organization said it believed the "wet" market played a role in the spread of the disease. The document asserts that if the virus truly did spread in November and December 2019, then there is reason to suspect that it might have leaked from a lab, or been intentionally released.

The document does not cite direct evidence to support that assertion. The analysis seems to account for only a tiny fraction of the cellphones that would be expected in a facility that employs hundreds of people. Dr. Just Vlak, a Dutch virologist who visited a nearby satellite facility of the Wuhan Institute of Virology, WIV in late November 2019 and met with WIV's head of bio-security, told NBC News that the facility he visited had between 200 and 300 staff.

Earlier, USA intelligence agencies received reports based on publicly available cellphone and satellite data suggesting there was a shutdown at the lab, two USA officials familiar with the matter say. But after examining overhead imagery and their own data, the spy agencies were unable to confirm any shutdown, and deemed the reports "inconclusive."

At the end of the story, NBC News included a timeline of all the circumstantial evidence being used to support suspicions that the virus may have leaked from a lab. It includes:

> "A Jan. 24 (2020) study published in the medical journal The Lancet found that three of the first four cases - including the first known case – did not provide a documented link to the Wuhan wet market.

The bats that carry the family of coronaviruses linked to the new strain are not found within 100 miles of Wuhan — but they were studied in both labs.

Photos and videos have emerged of researchers at both labs collecting samples from bats without wearing protective gear, which experts say poses a risk of human infection.

A USA State Department expert who visited the WIV in 2018 wrote in a cable reported by The Washington Post: "During interactions with scientists at the WIV laboratory, [USA diplomats] noted the new lab has a serious shortage of appropriately trained technicians and investigators needed to safely operate this high-containment laboratory."

According to Senate Intelligence Committee member Tom Cotton, R-Ark., the Chinese military posted its top epidemiologist to the WIV in January.

The Shanghai laboratory where researchers published the world's first genome sequence of the coronavirus was shut down Jan. 12, 2020 according to The South China Morning Post.

According to USA intelligence assessments, including one published by the Department of Homeland Security and reviewed by NBC News, the Chinese government initially covered up the severity of the outbreak. Government officials threatened doctors who warned their colleagues about the virus, were not candid about human-to-human transmission and still have not provided virus samples to researchers."

Irrespective, most scientists and researchers believe natural animal-to-human transmission is the most likely scenario.

"We have had a lot of intelligence take a hard look at that," Joint Chiefs Chairman Gen. Mark Milley told reporters. "At this point it is inconclusive, although the weight of the evidence seems to indicate natural. But we do not know for certain."

According to public documents compiled by the White Coat Waste Project and shared with Fox News, the Wuhan Institute of Virology has been involved with research funded by $7.1 million worth of USA government grants from the National Institutes of Health (NIH) as it has participated in projects in collaboration with USA institutions. This USA funding to China began during President Barack Obama Administration. Anthony Fauci, in 2020 advisor to President Donald Trump, was then director of the NIH. One grant for research on bat coronaviruses has received $3.7 million and another grant involving injecting viruses into mice's brains got $3.4 million. NIH grants do not go through a congressional approval process. Universities or institutes outside of the USA require USA partners.

"NIH research consisted of two parts. The first part: (https://projectreporter.nih.gov/project_info_description.cfm?aid=9819304&icde=49645421)

began in 2014 and involved surveillance of bat coronaviruses, and had a budget of $3.7 million. The program funded Shi Zheng-Li, a virologist at

> the Wuhan lab, and other researchers to investigate and catalogue bat coronaviruses in the wild. This part of the project was completed in 2019.
>
> A second phase: (https://projectreporter.nih.gov/project_info_description.cfm?aid=9819304&icde=49645421)
>
> of the project, beginning that year, included additional surveillance work but also gain-of-function research for the purpose of understanding how bat coronaviruses could mutate to attack humans. The project was run by EcoHealth Alliance, a non-profit research group, under the direction of President Peter Daszak, an expert on disease ecology. NIH canceled the project just this past Friday, (April 24th 2020)"

The NIH supposedly was doing gain of function experiments in a level 3 bio lab. They were told to stop it, so they funded a level 4 bio lab in Wuhan and moved their experiments to China. The project proposal states: "We will use S protein sequence data, infectious clone technology, in vitro and in vivo infection experiments and analysis of receptor binding to test the hypothesis that % divergence thresholds in S protein sequences predict spillover potential." In layman's terms, "spillover potential" refers to the ability of a virus to jump from animals to humans, which requires that the virus be able to attach to receptors in the cells of humans. SARS-CoV-2, for instance, is adept at binding to the ACE2 receptor in human lungs and other organs.

According to Richard Ebright, an infectious disease expert at Rutgers University, the project description refers to experiments that would enhance the ability of bat coronavirus to infect human cells and laboratory animals using techniques of genetic engineering. In the wake of the pandemic, that is a noteworthy detail.
Ebright, along with many other scientists, has been a vocal opponent of gain-of-function research because of the risk it presents of creating a pandemic through accidental release from a lab.

According to Newsweek:

> A decade ago, during a controversy over gain-of-function research on bird-flu viruses, Dr. Fauci played an important role in promoting the work. He argued that the research was worth the risk it entailed because it enables scientists to make preparations, such as investigating possible anti-viral medications, that could be useful if and when a pandemic occurred.
>
> The work in question was a type of gain-of-function research that involved taking wild viruses and passing them through live animals until they mutate into a form that could pose a pandemic threat. Scientists used it to take a virus that was poorly transmitted among humans and make it into one that was highly transmissible—a hallmark of a pandemic virus. This work was done by infecting a series of ferrets, allowing the virus to mutate until a ferret that hadn't been deliberately infected contracted the disease.
>
> The work entailed risks that worried even seasoned researchers. More than 200 scientists called for the work to be halted. The problem, they said, is that it increased the likelihood that a pandemic would occur through

a laboratory accident. China Suggests U.S. Is 'Hiding Something' About Its Coronavirus Response

Dr. Fauci defended the work. "[D]etermining the molecular Achilles' heel of these viruses can allow scientists to identify novel antiviral drug targets that could be used to prevent infection in those at risk or to better treat those who become infected," wrote Fauci and two co-authors in the *Washington Post* on December 30, 2011. "Decades of experience tells us that disseminating information gained through biomedical research to legitimate scientists and health officials provides a critical foundation for generating appropriate countermeasures and, ultimately, protecting the public health."

Nevertheless, in 2014, under pressure from the Obama administration, the National of Institutes of Health instituted a moratorium on the work, suspending 21 studies.

Three years later, though—in December 2017—the NIH ended the moratorium and the second phase of the NIAID project, which included the gain-of-function research, began. The NIH established a framework for determining how the research would go forward: scientists have to get approval from a panel of experts, who would decide whether the risks were justified.

The reviews were indeed conducted—but in secret, for which the NIH has drawn criticism. In early 2019, after a reporter for *Science* magazine discovered that the NIH had approved two influenza research projects that used gain of function methods, scientists who oppose this kind of research excoriated the NIH in an editorial in the *Washington Post*.

"We have serious doubts about whether these experiments should be conducted at all," wrote Tom Inglesby of Johns Hopkins University and Marc Lipsitch of Harvard. "[W]ith deliberations kept behind closed doors, none of us will have the opportunity to understand how the government arrived at these decisions or to judge the rigor and integrity of that process."

Those experiments were going on in the USA until 2014. They were Anthony Fauci's projects. President Obama ordered that to stop because they had a lot of lab escape problems in 2014 from three different labs. Instead of stopping as he was ordered, Fauci moved those operations to the Wuhan lab in China and continued to do those experiments right up until the time that the coronavirus pandemic occurred. In fact, infectious disease expert Ian Lipkin was doing those experiments over there when COVID-19 exploded. Accusations are that the gp120 HIV spike protein was actually spliced onto it.

In particular, in 2014, President Obama administration temporarily suspended federal funding for gain-of-function research on bat coronaviruses. Four months prior to that decision, Fauci's NIH effectively shifted this research to the Wuhan Institute of Virology (WIV) and disguised it via a grant to nonprofit group EcoHealth Alliance from New York, headed by Peter Daszak.

The Department of Defense's Defense Threat Reduction Agency (DTRA) gave $6,491,025 to Eco Health Alliance between 2017 and 2020 for allegedly "Battling

Emerging Threats" including biological threats (supposedly from postulated terrorist actions).

The NIH's first 4666,442 Installment of Eco Health's $3.7 million grant was paid in June 2014, with similar annual payments through May 2019 under the "Understanding The Risk Of Bat Coronavirus Emergence" project.

DESCRIPTION | DETAILS | RESULTS | HISTORY | SUBPROJECTS | SIMILAR PROJECTS | NEARBY PROJECTS BETA | LINKS | NEWS AND MORE

Project Number: 2R01AI110964-05
Title: UNDERSTANDING THE RISK OF BAT CORONAVIRUS EMERGENCE
Contact PI / Project Leader: DASZAK, PETER
Awardee Organization: ECOHEALTH ALLIANCE, INC.

Total project funding amount for 6 projects is **$3,748,715***
* Only NIH, CDC, and FDA funding data

Page 1 of 1

Project Number	Sub #	Project Title	Contact PI / Project Leader	Organization	FY	Admin IC	Funding IC	FY Total Cost by IC
2R01AI110964-05		UNDERSTANDING THE RISK OF BAT CORONAVIRUS EMERGENCE	DASZAK, PETER	ECOHEALTH ALLIANCE, INC.	2019	NIAID	NIAID	$661,980
5R01AI110964-05		UNDERSTANDING THE RISK OF BAT CORONAVIRUS EMERGENCE	DASZAK, PETER	ECOHEALTH ALLIANCE, INC.	2018	NIAID	NIAID	$581,646
5R01AI110964-04		UNDERSTANDING THE RISK OF BAT CORONAVIRUS EMERGENCE	DASZAK, PETER	ECOHEALTH ALLIANCE, INC.	2017	NIAID	NIAID	$597,112
5R01AI110964-03		UNDERSTANDING THE RISK OF BAT CORONAVIRUS EMERGENCE	DASZAK, PETER	ECOHEALTH ALLIANCE, INC.	2016	NIAID	NIAID	$611,090
5R01AI110964-02		UNDERSTANDING THE RISK OF BAT CORONAVIRUS EMERGENCE	DASZAK, PETER	ECOHEALTH ALLIANCE, INC.	2015	NIAID	NIAID	$630,445
1R01AI110964-01		UNDERSTANDING THE RISK OF BAT CORONAVIRUS EMERGENCE	DASZAK, PETER	ECOHEALTH ALLIANCE, INC.	2014	NIAID	NIAID	$666,442

Bio-weapons are banned by UN convention and article 8th of the Roman statute of the international criminal court (ICC) defines biological experiments as war crimes. The USA, however, is not a state party to the international treaty so it cannot be hold accountable. The USA CDC Director publicly admitted to The House in March 2020 that there had been outbreaks of Covid in the areas around Fort Detrick, MD, and Fort Belvoir, VA in 2019, around the same time that the biolab at Fort Detrick was shut down for six months after biohazard handling failures were discovered.

Dr. Jerome Corsi's analyzed Anthony Fauci's 4 patents from 2016 to 2019 and basically found that he anticipated this specific Covid-19 virus and will profit from it greatly. What is really frightening is that he also found a patent for what he expects to come next-one which will form the basis for what he refers to the soon to be presented Covid-20; a genetically engineered virus that will not only kill the aged and infirmed-but the young and healthy. This is what should be feared the most.

The lab had already been receiving assistance from the Galveston National Laboratory at the University of Texas Medical Branch. Ralph S. Baric and others of the University of North Carolina at Chapel Hill were involved in GOF research with the Wuhan Lab. In 2018 Ralph S. Baric is reported to have advised his seminar audience to buy stocks in companies that make masks and other pandemic related products.

In 2014, forgotten vials of smallpox were found in a cardboard box in a research center near Washington. In 2015, the USA military accidentally shipped live anthrax samples instead of dead spores to as many as nine labs across the country and a military base in South Korea. The Cambridge group of leading virologists across the world in 2014 cautioned strongly against Gain-of-Function (GOF) research as it could lead to a pandemic.

Such high risk GOF research was banned in 2015 then was reinstated in 2018 under President Donald Trump's administration.

The Canadian Institutes of Health Research announced millions in funding to research and develop tools such as vaccines and tests to combat the coronavirus. One project that got $828,046 from the agency was aimed at developing a rapid coronavirus test "using isothermal amplification and CRISPR technology." Among the organizations on the project was the Wuhan Institute of Virology. "The collaborative research is conducted by a multi-disciplinary team of virologists, chemists, infectious disease specialists, front-line practitioners, and public health researchers from the University of Alberta, Canadian Food Inspection Agency, and Wuhan Institute of Virology (China)," a backgrounder detailing where the Canadian government's grant money was going reads. "Our team members in Wuhan who currently perform the standard diagnostic tests will lead this effort."

If the USA and Canada actually believe that the release of these viruses were accidental from labs supported by USA and Canadian grants, then they need need to help them upgrade their facilities and containment hardware and procedures. The frequency of occupational accidents in China is twenty times greater than in Europe. There have been four earlier separate leaks of the SARS virus. Research standard operating procedures are reportedly sometimes circumvented for riskier ones and not challenged when inadequate, based on cultural submission of lower staff echelons to higher authority.

Motifs	Virus Glycoprotein	Motif Alignment	HIV protein and Variable region	HIV Genome Source Country/ subtype	Number of Polar Residues	Total Charge	pI Value
Insert 1	2019- nCoV (GP) HIV1(GP120)	**71 76** TNGTKR TNGTKR **404 409**	gp120-V4	Thailand */ CRF01_ AE	5 5	2 2	11 11
Insert 2	2019- nCoV (GP) HIV1(GP120)	**145 150** HKNNKS HKNNKS **462 467**	gp120-V5	Kenya*/ G	6 6	2 2	10 10
Insert 3	2019- nCoV (GP) HIV1(GP120)	**245 256** RSYL----TPGDSSSG RTYLFNETRGNSSSG **136 150**	gp120-V1	India*/C	8 10	2 1	10.84 8.75
Insert 4	2019- nCoV (Poly P) HIV1(gag)	**676 684** QTNS----------PRRA QTNSSILMQRSNFKG PRRA **366 384**	Gag	India*/C	6 12	2 4	12.00 12.30

Table 1: Aligned sequences of 2019-nCoV and gp120 protein of HIV-1 with their positions in primary sequence of protein. All the inserts have a high density of positively charged residues. The deleted fragments in insert 3 and 4 increase the positive

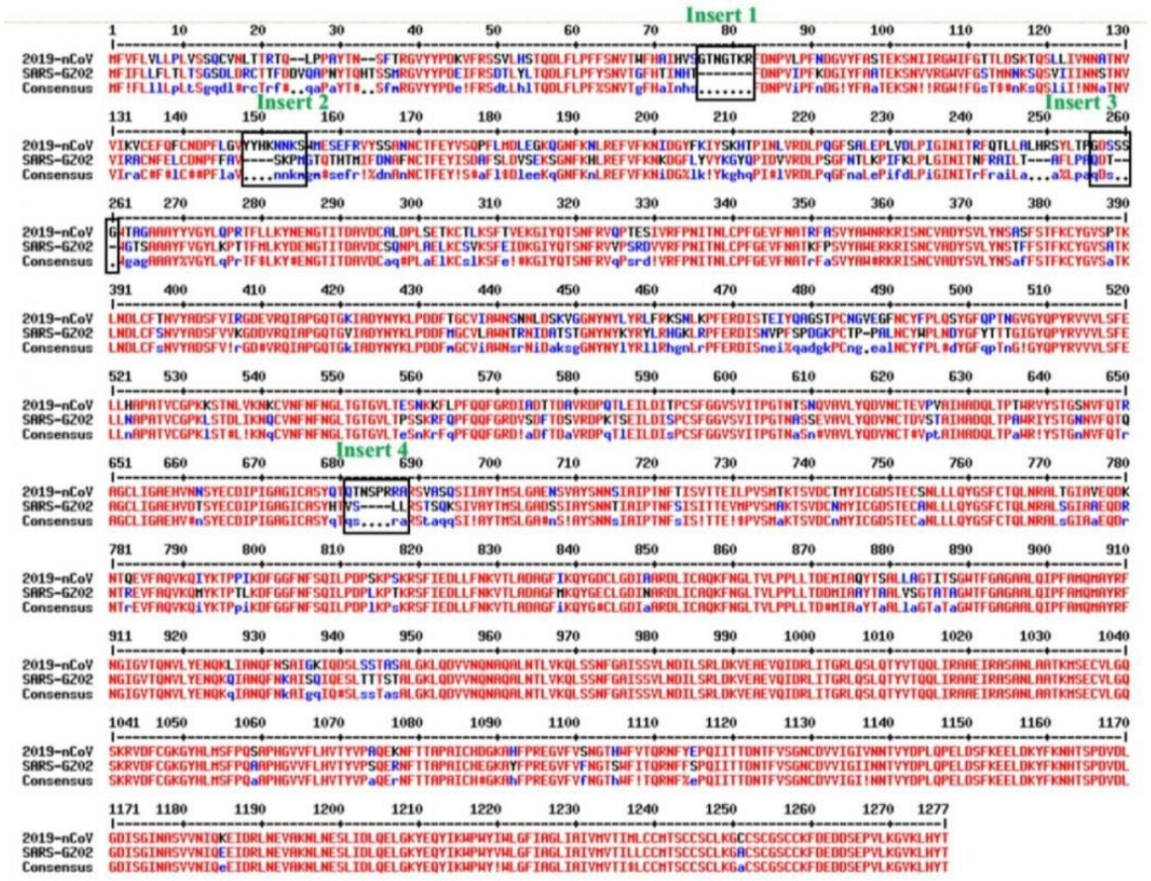


Figure 56. Four sequences of the HIV (Human Immuno-deficiency Virus) genome identified as possibly inserted into Covid-19 virus supposedly through gain-of function research: "This uncanny similarity of novel inserts in the 2019- nCoV spike protein to HIV-1 gp120 and Gag is unlikely to be fortuitous in nature." “The finding of 4 unique inserts in the 2019-nCoV, all of which have identity /similarity to amino acid residues in key structural proteins of HIV-1 is unlikely to be fortuitous (not natural) in nature.” In fact, Virologist Yoshihiro Kawaoka of the University of Wisconsin at Madison, Wisconsin, USA and Tokyo University, Japan, pioneered HIV-enabled Gain of Function(GOF) research in flu-related viruses, until a backlash of ethical scientists demanded and did obtain a ban on GOF, which was later rescinded.

Population Research Institute President Steven W. Mosher wrote at the New York Post on Saturday that China’s coronavirus epidemic could have been unleashed by researchers who sold laboratory animals to the notorious “wet markets” of Wuhan for extra cash.

Mosher is not the first skeptic of Beijing’s official coronavirus narrative to note the presence of an advanced microbiology lab near Wuhan, the city where the epidemic originated. Since the early days of the crisis, theories have suggested everything from the lab accidentally releasing the virus to speculation that the virus might have been deliberately designed as a biological weapon. His theory cited as evidence the release of new guidelines from the Chinese Ministry of Science and Technology calling for

“strengthening biosecurity management in microbiology labs that handle advanced viruses like the novel coronavirus.”

As Mosher pointed out, the facility near Wuhan is the only Level 4 microbiology lab in China, so the new directive was implicitly directed at the Wuhan facility, which further implies the Ministry of Science and Technology has reason to believe its containment procedures need to be strengthened.

He also noted that Maj. Gen. Chen Wei, the Chinese military’s top expert in biological warfare, was dispatched to Wuhan in January to deal with the crisis, and her background includes extensive research on coronaviruses. “This would not be her first trip to the Wuhan Institute of Virology, either, since it is one of only two bioweapons research labs in all of China,” he said of Chen’s relationship with the lab.

It could have been a janitor selling test animals to the market. It does not matter who; but rather, if it was naturally zoonotic in nature or a hybrid laboratory creation. An unsubstantiated old story is that a top scientist was jailed for selling animals from his lab for extra income. The likelihood of it being naturally occurring seems to be small. Biological weapons are a staple of man's inhumanity to man since the beginning of recorded time: losing the enemy did not begin with anthrax-infected blankets given to North American Native Indians. Humans created a biological weapon monster that must be fed, other humans, that is.

A plausible alternative explanation is a lab personnel getting unintentionally infected and spreading the infection to the larger community before succumbing to it.

The novel twist to Mosher’s theory is that Chinese lab technicians have an unfortunate history of selling experimental animals to vendors such as the ones that ply their trade in Wuhan’s wet market:

> “Instead of properly disposing of infected animals by cremation, as the law requires, they sell them on the side to make a little extra cash. Or, in some cases, a lot of extra cash. One Beijing researcher, now in jail, made a million dollars selling his monkeys and rats on the live animal market, where they eventually wound up in someone’s stomach.
>
> Also fueling suspicions about SARS-CoV-2’s origins is the series of increasingly lame excuses offered by the Chinese authorities as people began to sicken and die.
>
> They first blamed a seafood market not far from the Institute of Virology, even though the first documented cases of Covid-19 (the illness caused by SARS-CoV-2) involved people who had never set foot there. Then they pointed to snakes, bats and even a cute little scaly anteater called a pangolin as the source of the virus.
>
> I don’t buy any of this. It turns out that snakes don’t carry coronaviruses and that bats aren’t sold at a seafood market. Neither, for that matter, are pangolins, an endangered species valued for their scales as much as for their meat.
>
> The evidence points to SARS-CoV-2 research being carried out at the Wuhan Institute of Virology. The virus may have been carried out of the lab by an infected worker or crossed over into humans when they unknowingly dined on a lab animal. Whatever the vector, Beijing

authorities are now clearly scrambling to correct the serious problems with the way their labs handle deadly pathogens.'

Skepticism about China's official history of the coronavirus outbreak generally begins with noting that fully a third of the early coronavirus cases documented in December had no connection with the Huanan Seafood Wholesale Market in Wuhan, which closed at the beginning of January after it was identified as ground zero of the epidemic.

The Huanan market certainly looked like the sort of operation that an epidemic might spread from, as it sold seafood and meat alongside live chickens, donkeys, pigs, rats, snakes, and other animals. "Wet markets" derive their name from the practice of killing and butchering live animals while customers watch.

The Wuhan virus appears genetically similar to diseases that have been spread by bats in the past, but there has not been any firm confirmation of which animal might have carried the disease or spread it to humans. In fact, a report published by a Chinese research team on Monday raised questions about whether the virus actually jumped from animals to humans at all.

ALLEGED UNUSUAL FEATURES OF COVID-19 SEQUENCES

According to zerohedge.com reporting on Li-Meng Yan, a Chinese virologist (MD, PhD) who fled the country, leaving her job at a Hong Kong university:

> "Cutting to the chase:
>
> 'The evidence shows that SARS-CoV-2 should be a laboratory product created by using bat coronaviruses ZC45 and/or ZXC21 as a template and/or backbone. Building upon the evidence, we further postulate a synthetic route for SARS-CoV-2, demonstrating that the laboratory-creation of this coronavirus is convenient and can be accomplished in approximately six months.'
>
> Here is the extended punchline:
>
> The receptor-binding motif of SARS-CoV-2 Spike cannot be born from nature and should have been created through genetic engineering.
>
> The Spike proteins decorate the exterior of the coronavirus particles. They play an important role in infection as they mediate the interaction with host cell receptors and thereby help determine the host range and tissue tropism of the virus. The Spike protein is split into two halves (Figure 3). The front or N-terminal half is named S1, which is fully responsible for binding the host receptor. In both SARS-CoV and SARS-CoV-2 infections, the host cell receptor is hACE2. Within S1, a segment of around 70 amino acids makes direct contacts with hACE2 and is correspondingly named the receptor-binding motif (RBM) (Figure 3C). In SARS-CoV and SARS-CoV-2, the RBM fully determines the interaction with hACE2. The C-terminal half of the Spike protein is named S2. The main function of S2 includes maintaining trimer formation and, upon successive protease cleavages at the S1/S2 junction and a downstream S2' position, mediating membrane fusion to enable cellular entry of the virus.

Similar to what is observed for other viral proteins, S2 of SARS-CoV-2 shares a high sequence identity (95%) with S2 of ZC45/ZXC21. In stark contrast, between SARS-CoV-2 and ZC45/ZXC21, the S1 protein, which dictates which host (human or bat) the virus can infect, is much less conserved with the amino acid sequence identity being only 69%.

Figure 4 shows the sequence alignment of the Spike proteins from six β coronaviruses. Two are viruses isolated from the current pandemic (Wuhan-Hu-1, 2019-nCoV_USA-AZ1); two are the suspected template viruses (Bat_CoV_ZC45, Bat_CoV_ZXC21); two are SARS coronaviruses (SARS_GZ02, SARS). The RBM is highlighted in between two orange lines. Clearly, despite the high sequence identity for the overall genomes, the RBM of SARS-CoV-2 differs significantly from those of ZC45 and ZXC21. Intriguingly, the RBM of SARS-CoV-2 resembles, on a great deal, the RBM of SARS Spike. Although this is not an exact "copy and paste", careful examination of the Spike-hACE2 structures37,38 reveals that all residues essential for either hACE2 binding or protein folding (orange sticks in Figure 3C and what is highlighted by red short lines in Figure 4) are "kept".

Most of these essential residues are precisely preserved, including those involved in disulfide bond formation (C467, C474) and electrostatic interactions (R444, E452, R453, D454), which are pivotal for the structural integrity of the RBM (Figure 3C and 4). The few changes within the group of essential residues are almost exclusively hydrophobic "substitutions" (I428àL, L443àF, F460àY, L472àF, Y484àQ), which should not affect either protein folding or the hACE2-interaction. At the same time, majority of the amino acid residues that are non-essential have "mutated" (Figure 4, RBM residues not labeled with short red lines). Judging from this sequence analysis alone, we were convinced early on that not only would the SARS-CoV-2 Spike protein bind hACE2 but also the binding would resemble, precisely, that between the original SARS Spike protein and hACE223. Recent structural work has confirmed our prediction.

As elaborated below, the way that SARS-CoV-2 RBM resembles SARS-CoV RBM and the overall sequence conservation pattern between SARS-CoV-2 and ZC45/ZXC21 are highly unusual. Collectively, this suggests that portions of the SARS-CoV-2 genome have not been derived from natural quasi-species viral particle evolution.

The paper then makes two critical observations for those who claim that SARS-CoV-2 has a natural origin: its RBM could have only been acquired in one of the two possible routes: 1) an ancient recombination event followed by convergent evolution or 2) a natural recombination event that occurred fairly recently.

She first dismisses option 1:

"this convergent evolution process would also result in the accumulation of a large amount of mutations in other parts of the genome, rendering the overall sequence identity relatively low. The high sequence identity between SARS-CoV-2 and ZC45/ZXC21 on various proteins (94-

100% identity) do not support this scenario and, therefore, clearly indicates that SARS-CoV- 2 carrying such an RBM cannot come from a ZC45/ZXC21-like bat coronavirus through this convergent evolutionary route."

She then dismisses option 2:

In the second scenario, the ZC45/ZXC21-like coronavirus would have to have recently recombined and swapped its RBM with another coronavirus that had successfully adapted to bind an animal ACE2 highly homologous to hACE2. The likelihood of such an event depends, in part, on the general requirements of natural recombination: 1) that the two different viruses share significant sequence similarity; 2) that they must co-infect and be present in the same cell of the same animal; 3) that the recombinant virus would not be cleared by the host or make the host extinct; 4) that the recombinant virus eventually would have to become stable and transmissible within the host species.

In regard to this recent recombination scenario, the animal reservoir could not be bats because the ACE2 proteins in bats are not homologous enough to hACE2 and therefore the adaption would not be able to yield an RBM sequence as seen in SARS-CoV-2. This animal reservoir also could not be humans as the ZC45/ZXC21-like coronavirus would not be able to infect humans. In addition, there has been no evidence of any SARS-CoV-2 or SARS-CoV-2-like virus circulating in the human population prior to late 2019. Intriguingly, according to a recent bioinformatics study, SARS-CoV-2 was well-adapted for humans since the start of the outbreak.

Which leaves just one option:

Only one other possibility of natural evolution remains, which is that the ZC45/ZXC21-like virus and a coronavirus containing a SARS-like RBM could have recombined in an intermediate host where the ACE2 protein is homologous to hACE2. Several laboratories have reported that some of the Sunda pangolins smuggled into China from Malaysia carried coronaviruses, the receptor-binding domain (RBD) of which is almost identical to that of SARS-CoV-227-29,31. They then went on to suggest that pangolins are the likely intermediate host for SARS-CoV-227-29,31. However, recent independent reports have found significant flaws in this data40-42. Furthermore, contrary to these reports27-29,31, no coronaviruses have been detected in Sunda pangolin samples collected for over a decade in Malaysia and Sabah between 2009 and 201943. A recent study also showed that the RBD, which is shared between SARS-CoV-2 and the reported pangolin coronaviruses, binds to hACE2 ten times stronger than to the pangolin ACE22, further dismissing pangolins as the possible intermediate host. Finally, an in silico study, while echoing the notion that pangolins are not likely an intermediate host, also indicated that none of the animal ACE2 proteins examined in their study exhibited more favorable binding potential to the SARS-CoV-2 Spike protein than hACE2 did. This last study virtually exempted all animals from their suspected roles as an intermediate host, which is consistent with the observation that SARS-CoV-

2 was well-adapted for humans from the start of the outbreak. This is significant because these findings collectively suggest that no intermediate host seems to exist for SARS-CoV-2, which at the very least diminishes the possibility of a recombinant event occurring in an intermediate host.

Fast-forwarding to the smoking gun:

Given that RBM fully dictates hACE2-binding and that the SARS RBM-hACE2 binding was fully characterized by high-resolution structures (Figure 3)37,38, this RBM-only swap would not be any riskier than the full Spike swap. In fact, the feasibility of this RBM-swap strategy has been proven. In 2008, Dr. Zhengli Shi's group swapped a SARS RBM into the Spike proteins of several SARS-like bat coronaviruses after introducing a restriction site into a codon-optimized spike gene (Figure 5C). They then validated the binding of the resulted chimeric Spike proteins with hACE2. Furthermore, in a recent publication, the RBM of SARS-CoV-2 was swapped into the receptor-binding domain (RBD) of SARSCoV, resulting in a chimeric RBD fully functional in binding hACE2 (Figure 5C)39. Strikingly, in both cases, the manipulated RBM segments resemble almost exactly the RBM defined by the positions of the EcoRI and BstEII sites (Figure 5C). Although cloning details are lacking in both publications39,47, it is conceivable that the actual restriction sites may vary depending on the spike gene receiving the RBM insertion as well as the convenience in introducing unique restriction site(s) in regions of interest. It is noteworthy that the corresponding author of this recent publication, Dr. Fang Li, has been an active collaborator of Dr. Zhengli Shi since 201049-53. Dr. Li was the first person in the world to have structurally elucidated the binding between SARS-CoV RBD and hACE238 and has been the leading expert in the structural understanding of Spike-ACE2 interactions. The striking finding of EcoRI and BstEII restriction sites at either end of the SARS-CoV-2 RBM, respectively, and the fact that the same RBM region has been swapped both by Dr. Shi and by her long-term collaborator, respectively, using restriction enzyme digestion methods are unlikely a coincidence. Rather, it is the smoking gun proving that the RBM/Spike of SARS-CoV-2 is a product of genetic manipulation."

It gets better, because the Chinese scientists then presciently tried to cover their tracks:

Although it may be convenient to copy the exact sequence of SARS RBM, it would be too clear a sign of artificial design and manipulation. The more deceiving approach would be to change a few nonessential residues, while preserving the ones critical for binding. This design could be well-guided by the high-resolution structures (Figure 3)37,38. This way, when the overall sequence of the RBM would appear to be more distinct from that of the SARS RBM, the hACE2-binding ability would be well-preserved. We believe that all of the crucial residues (residues labeled with red sticks in Figure 4, which are the same residues shown in sticks in Figure 3C) should have been "kept". As described earlier, while some should be direct preservation, some should have been switched to residues with similar

properties, which would not disrupt hACE2-binding and may even strengthen the association further [ZH: i.e., the virus was weaponized and enhanced]. Importantly, changes might have been made intentionally at non-essential sites, making it less like a "copy and paste" of the SARS RBM.

Yan also discusses the infamous furin-cleavage site:

... a close examination of the nucleotide sequence of the furin-cleavage site in SARS-CoV-2 spike has revealed that the two consecutive Arg residues within the inserted sequence (- PRRA-) are both coded by the rare codon CGG (least used codon for Arg in SARS-CoV-2) (Figure 7).

Figure 7. Two consecutive Arg residues in the -PRRA- insertion at the S1/S2 junction of SARS-CoV-2 Spike are both coded by a rare codon, CGG. *A FauI restriction site, 5'-(N)$_6$GCGGG-3', is embedded in the coding sequence of the "inserted" PRRA segment, which may be used as a marker to monitor the preservation of the introduced furin-cleavage site.*

… in fact, this CGGCGG arrangement is the only instance found in the SARS-CoV-2 genome where this rare codon is used in tandem. This observation strongly suggests that this furin-cleavage site should be a result of genetic engineering. Adding to the suspicion, a FauI restriction site is formulated by the codon choices here, suggesting the possibility that the restriction fragment length polymorphism, a technique that a WIV lab is proficient at, could have been involved. There, the fragmentation pattern resulted from FauI digestion could be used to monitor the preservation of the furin-cleavage site in Spike as this furin-cleavage site is prone to deletions in vitro. Specifically, RT-PCR on the spike gene of the recovered viruses from cell cultures or laboratory animals could be carried out, the product of which would be subjected to FauI digestion. Viruses retaining or losing the furin-cleavage site would then yield distinct patterns, allowing convenient tracking of the virus(es) of interest.

And another critical allegation: once again, the Wuhan Researchers were doing everything in their power to weaponize and boost the "enhancement of the infectivity and pathogenicity of the laboratory-made coronavirus":

The evidence collectively suggests that the furin-cleavage site in the SARS-CoV-2 Spike protein may not have come from nature and could be the result of genetic manipulation. The purpose of this manipulation could have been to assess any potential enhancement of the infectivity and pathogenicity of the laboratory-made coronavirus.

Summarizing the above:

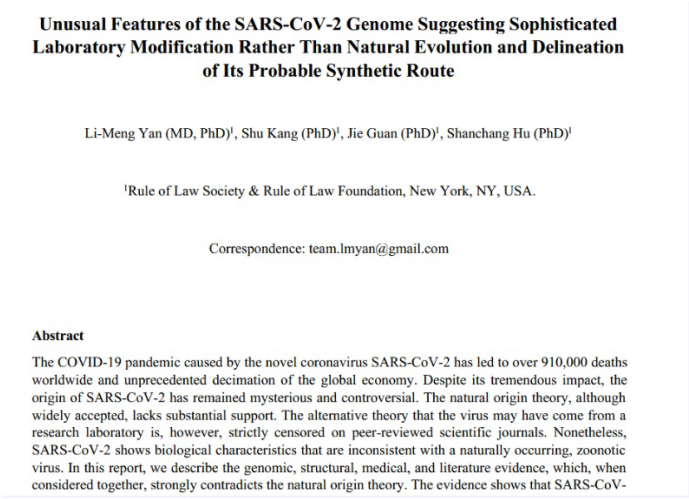
Evidence presented in this part reveals that certain aspects of the SARS-CoV-2 genome are extremely difficult to reconcile to being a result of natural evolution. The alternative theory we suggest is that the virus may have been created by using ZC45/ZXC21 bat coronavirus(es) as the

backbone and/or template. The Spike protein, especially the RBM within it, should have been artificially manipulated, upon which the virus has acquired the ability to bind hACE2 and infect humans. This is supported by the finding of a unique restriction enzyme digestion site at either end of the RBM. An unusual furin-cleavage site may have been introduced and inserted at the S1/S2 junction of the Spike protein, which contributes to the increased virulence and pathogenicity of the virus.

These transformations have then staged the SARS CoV-2 virus to eventually become a highly-transmissible, onset-hidden, lethal, sequelae-unclear, and massively disruptive pathogen.

Evidently, the possibility that SARS-CoV-2 could have been created through gain-of-function manipulations at the WIV is significant and should be investigated thoroughly and independently.

Finally, those curious how the virus could have been created synthetically in Wuhan, here is a diagram proposed by Dr. Yan explaining all the required steps."



Unusual Features of the SARS-CoV-2 Genome Suggesting Sophisticated Laboratory Modification Rather Than Natural Evolution and Delineation of Its Probable Synthetic Route

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Abstract

The COVID-19 pandemic caused by the novel coronavirus SARS-CoV-2 has led to over 910,000 deaths worldwide and unprecedented decimation of the global economy. Despite its tremendous impact, the origin of SARS-CoV-2 has remained mysterious and controversial. The natural origin theory, although widely accepted, lacks substantial support. The alternative theory that the virus may have come from a research laboratory is, however, strictly censored on peer-reviewed scientific journals. Nonetheless, SARS-CoV-2 shows biological characteristics that are inconsistent with a naturally occurring, zoonotic virus. In this report, we describe the genomic, structural, medical, and literature evidence, which, when considered together, strongly contradicts the natural origin theory. The evidence shows that SARS-CoV-

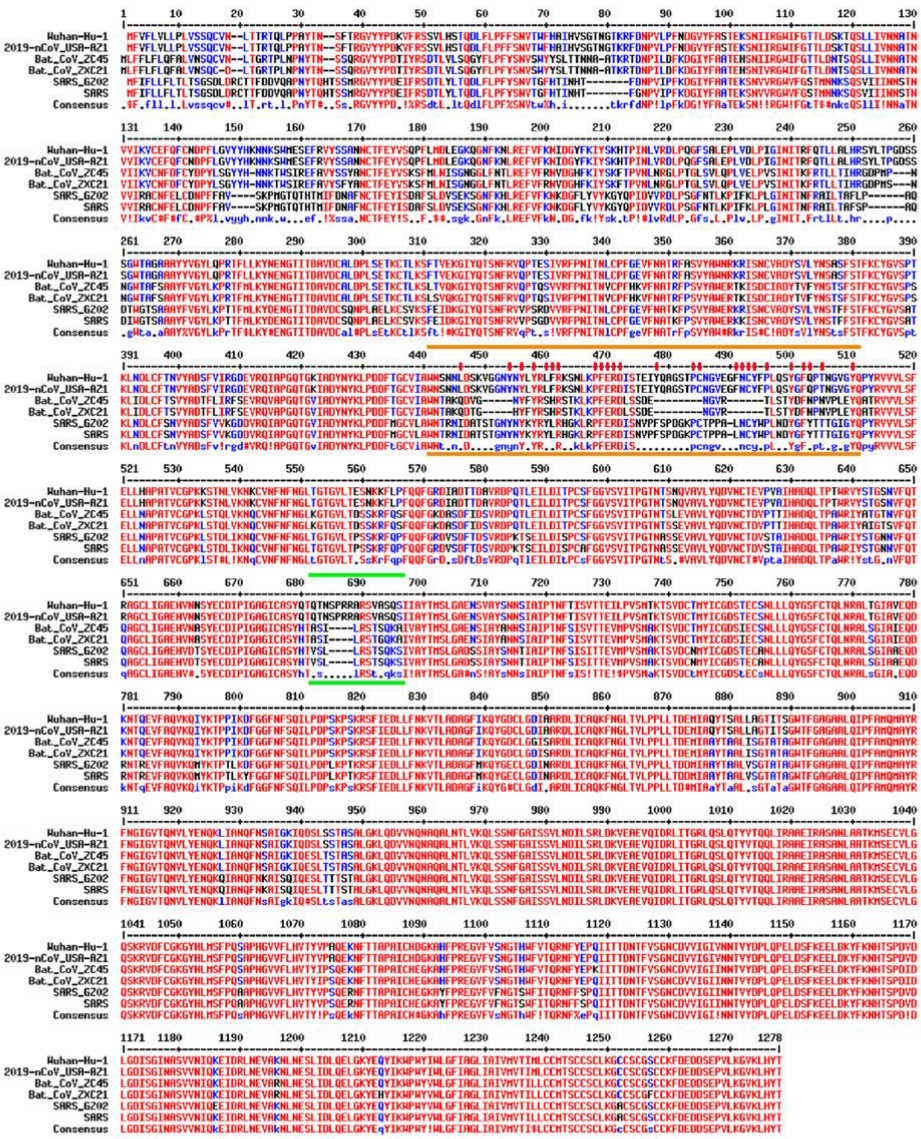


Figure 4. Sequence alignment of the spike proteins from relevant coronaviruses*. Viruses being compared include SARS-CoV-2 (Wuhan-Hu-1: NC_045512, 2019-nCoV_USA-AZ1: MN997409), bat coronaviruses (Bat_CoV_ZC45: MG772933, Bat_CoV_ZXC21: MG772934), and SARS coronaviruses (SARS_GZ02: AY390556, SARS: NC_004718.3). Region marked by two orange lines is the receptor-binding motif (RBM), which is important for interaction with the hACE2 receptor. Essential residues are additionally highlighted by red sticks on top. Region marked by two green lines is a furin-cleavage site that exists only in SARS-CoV-2 but not in any other lineage B β coronavirus.*

Figure 57. Sequence Alignments of the spike protein from different coronaviruses [32].

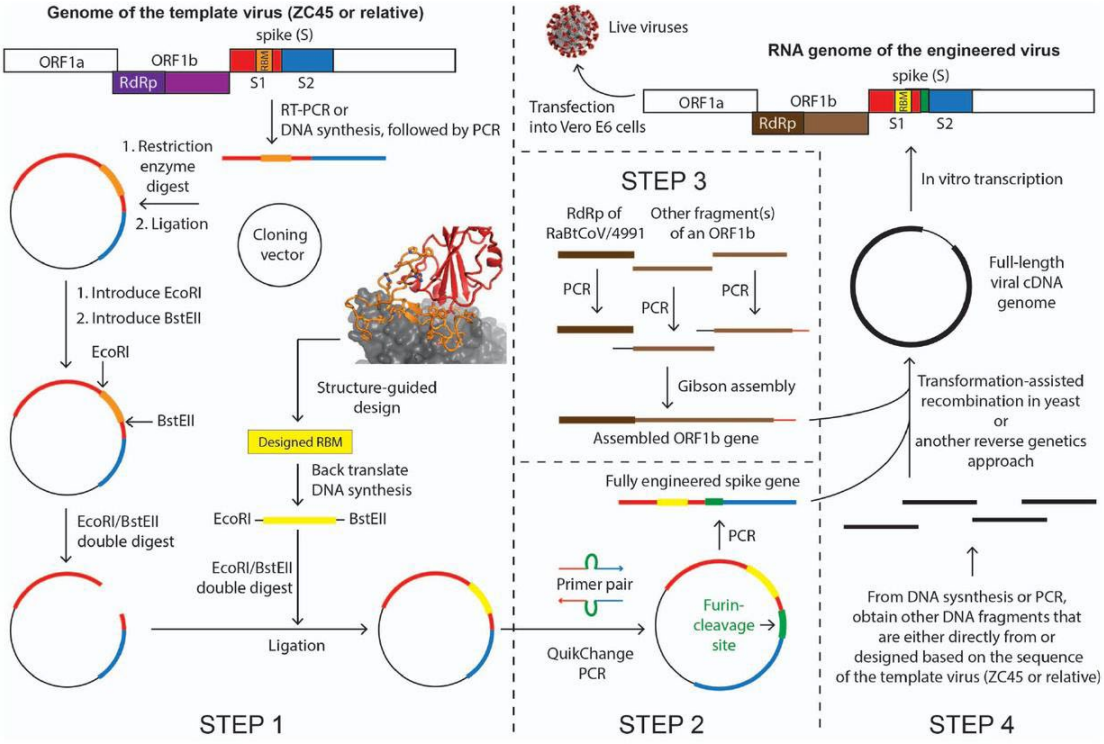


Figure 8. Diagram of a possible synthetic route of the laboratory-creation of SARS-CoV-2.

Figure 58. Suggested paths of Covid-19 synthesis [32].

Italian perspective

In 2015 the Italians reported on secret Chinese biological experiments with Coronavirus. A video, which was broadcast in November, 2015, claimed that Chinese scientists were doing biological experiments on a SARS connected virus believed to be Coronavirus, derived from bats and mice, asking whether it was worth the risk in order to be able to modify the virus for compatibility with human organisms.

Sara Cunial, a Member of the Italian Parliament for Rome denounced Bill Gates as a "vaccine criminal" and urged the Italian President to hand him over to the International Criminal Court for crimes against humanity. She attacked alleged Bill Gates' conspiracy theory agenda in India and Africa, along with the plans to chip the human race through the digital identification program ID2020:

> "Hobbes (Thomas Hobbes, in some older texts Thomas Hobbes of Malmesbury, was an English philosopher, considered to be one of the founders of modern political philosophy. Hobbes is best known for his 1651 book Leviathan, which expounded an influential formulation of social contract theory, according to Wikipedia) said that absolute power does not come from an imposition from above but by the choice of individuals who

feel more protected renouncing to their own freedom and granting it to a third party.

With this, you are going on anesthetizing the minds with corrupted Mass Media with Amuchina (a brand of disinfectant promoted by Mass Media) and NLP, with words like “regime”, “to allow” and “to permit”, to the point of allowing you to regulate our emotional ties and feelings and certify our affects.

So, in this way, Phase 2 is nothing else than the persecution/continuation of Phase 1 – you just changed the name, as you did with the European Stability Mechanism (ESM). We have understood people, for sure, don’t die for the virus alone. So people will be allowed to die and suffer, thanks to you and your laws, for misery and poverty. And, as in the “best” regimes, the blame will be dropped only on citizens. You take away our freedom and say that we looked for it. Divide et Impera (Latin: Divide and Rule).

It is our children who will lose more, who are ‘raped souls’, with the help of the so-called “guarantor of their rights” and of CISMAI (Italian Coordination of Services against Child Abuse). In this way, the right to school will be granted only with a bracelet to get them used to probation, to get them used to slavery – involuntary treatment and to virtual lager. All this in exchange for a push-scooter and a tablet. All to satisfy the appetites of a financial capitalism whose driving force is the conflict of interest, conflict well represented by the WHO, whose main financier is the well-known “philanthropist and savior of the world” Bill Gates.

We all know it, now. Bill Gates, already in 2018, predicted a pandemic, simulated in October 2019 at the “Event 201”, together with Davos (Switzerland). For decades, Gates has been working on Depopulation policy and dictatorial control plans on global politics, aiming to obtain the primacy on agriculture, technology and energy.

Gates said, I quote exactly from his speech:

“If we do a good job on vaccines, health and reproduction, we can reduce the world population by 10-15 percent. Only a genocide can save the world”.

With his vaccines, Gates managed to sterilize millions of women in Africa. Gates caused a polio epidemic that paralyzed 500,000 children in India and still today with DTP, Gates causes more deaths than the disease itself. And he does the same with GMOs designed by Monsanto and “generously donated” to needy populations. All this while he is already thinking about distributing the quantum tattoo for vaccination recognition and mRNA vaccines as tools for reprogramming our immune system. In addition, Gates also does business with several multinationals that own 5G facilities in the USA.

On this table there is the entire Deep State in Italian sauce: Sanofi, together with GlaxoSmithKline are friends of the Ranieri Guerra, Ricciardi, and of the well-known virologist that we pay 2000 Euro every 10 minutes for the presentations on Rai (Italian state TV. She’s probably talking about

Burioni). Sanofi and Glaxo Smith Kline sign agreements with medical societies to indoctrinate future doctors, making fun of their autonomy of judgment and their oath.

Hi-Tech multinationals, like the Roman Engineering which is friend of the noble Mantoan, or Bending Spoons, of Pisano, which are there for control and manage our personal health datas in agreement with the European Agenda ID2020 of electronic identification, which aims to use mass vaccination to obtain a digital platform of digital ID. This is a continuation of the transfer of data started by Renzi to IBM. Renzi, in 2016, gave a plus 30% to Gates Global Fund.

On the Deep State table there are the people of Aspen, like the Saxon Colao, who with his 4-pages reports, paid 800 Euros/hour, with no scientific review, dictates its politics as a Bilderberg general as he is, staying away from the battlefield. The list is long. Very long. In the list there is also Mediatronic, by Arcuri and many more.

The Italian contribution to the International Alliance Against Coronavirus will be of 140 million Euros, of which 120 million Euros will be given to GAVI Alliance, the non-profit by Gates Foundation. They are just a part of the 7.4 billion Euro fund by the EU to find a vaccine against Coronavirus – vaccines which will be used as I said before.

No money, of course for serotherapy, which has the collateral effect of being super cheap. No money for prevention, a real prevention, which includes our lifestyles, our food and our relationship with the environment.

The real goal of all of this is total control. Absolute domination of human beings, transformed into guinea pigs and slaves, violating sovereignty and free will. All this thanks to tricks/hoax disguised as political compromises. While you rip up the Nuremberg code with involuntary treatment, fines and deportation, facial recognition and intimidation, endorsed by dogmatic scientism – protected by our "Multi-President" of the Republic who is real cultural epidemic of this country.

We, with the people, will multiply the fires of resistance in a way that you won't be able to repress all of us.

I ask you, President, to be the spokesperson and give an advice to our President Conte: Dear Mr. President Conte, next time you receive a phone call from the philanthropist Bill Gates forward it directly to the International Criminal Court for crimes against humanity. If you won't do this, tell us how we should define you, the "friend lawyer" who takes orders from a criminal.
Thank you."

Professor Giuseppe Tritto is an internationally known expert in biotechnology and nanotechnology who has had a stellar academic career, but he is also the president of the World Academy of Biomedical Sciences and Technologies (WABT), an institution founded under the aegis of UNESCO in 1997. One of the goals of WABT is to analyze the effect of biotechnologies, like genetic engineering, on humanity.

Giuseppe Tritto says that the China Virus definitely was no a freak of nature that happened to cross the species barrier from bat to man. It was genetically engineered in the Wuhan Institute of Virology's P4 high-containment lab in a program supervised by the Chinese military.

Prof. Tritto's book is called Cina COVID 19: La Chimera che ha cambiato il Mondo (China COVID 19: The chimera that changed the world). It was published on August 4, 2020 by a major Italian press, Edizioni Cantagalli. His account leaves no doubt that it is a "chimera", an organism created in a lab. He also connects the dots linking the Wuhan lab to France and the USA, showing how both countries provided financial and scientific help to the Chinese as they began to conduct ever more dangerous bioengineering experiments. Although neither American nor French virologists are responsible for the end result—a highly infectious coronavirus and a global pandemic—their early involvement may explain why so many insist that the "chimera" must have come from nature. The last thing they want to admit is that they might have had a hand in it. American virologists knew perfectly well what the truth was, but preferred to protect China, and themselves, from scrutiny lest they themselves be implicated.

Dr. Tritto's 272 pages of names, dates, places, and facts leaves such apologists with no place to hide. The story begins following the SARS epidemic of 2003, as the Chinese attempt to develop vaccines to combat the deadly disease. Dr. Shi Zheng Li was in charge of the program at the Wuhan Institute of Virology.

In vaccine development, reverse genetics is used to create viral strains that have reduced pathogenicity but to which the immune system responds by creating antibodies against the virus. But reverse genetics can also be used to create viral strains that have increased pathogenicity. That is what Dr. Shi, encouraged by PLA bioweapons experts, began increasingly to focus her research on, according to Prof. Tritto. Dr. Shi first solicited help from the French government, which built the P4 lab, and from the country's Pasteur institute, which showed her how to manipulate HIV genomes. The gene insertion method used is called "reverse genetics system 2." Using this method, she inserted an HIV segment into a coronavirus discovered in horseshoe bats to make it more infectious and lethal.

The USA was involved as well, particularly Prof Ralph S. Baric, of the University of North Carolina, who was on the receiving end of major grants from the National Institute of Allergy and Infectious Disease. This is, of course, Anthony Fauci's shop. Fauci was a big proponent of "gain of function" research, and when this was prohibited at Baric's lab because it was considered to be too dangerous, the research was shifted to China through grants to to nonprofit group Eco Health Alliance from New York, headed by Peter Daszak.. Interestingly, Anthony Fauci's wife is Christine Grady, Head of Bioethics and Human Subject Research at NIH.

Prof. Tritto believes that, while Dr. Shi's research began as an effort to develop a vaccine against SARS, it gradually morphed into an effort to use "reverse genetics" to build lethal biological weapons. This was the reason that the Wuhan lab became China's leading center for virology research in recent years, attracting major funding and support from the central government.

As Dr. Shi's research showed any potential military uses the PLA would have begun exercising control of the research. This came out in the open with the outbreak, when China's leading expert on bioweapons, People's Liberation Army Major General

Chen Wei, was immediately placed in charge of the Wuhan Institute of Virology. As for Dr. Shi Zheng-Li, she seems to have disappeared.

As Dr. Tritto explained in an interview with Italian media:

> "In 2005, after the SARS epidemic, the Wuhan Institute of Virology was born, headed by Dr. Shi Zheng-Li, who collects coronaviruses from certain bat species and recombines them with other viral components in order to create vaccines. In 2010 she came into contact with American researchers led by Prof. Ralph Baric, who in turn works on recombinant viruses based on coronaviruses. Thanks to the matrix viruses provided by Shi, Baric created in 2015 a mouse Sars-virus chimera, which has a pathogenic effect on human cells analyzed in vitro.
>
> At that point, the China-US collaboration becomes competition. Shi wants to work on a more powerful virus to make a more powerful vaccine: it combines a bat virus with a pangolin virus in vitro and in 2017 publishes the results of this research in some scientific articles.
>
> Her research attracts the interest of the Chinese military and medical-biological sector which deals with biological weapons used as a deterrent for defensive and offensive purposes. Thus Shi is joined by doctors and biologists who belong to the political-military sphere, such as Guo Deyin, a scholar of anti-AIDS and anti-viral hepatitis vaccines and expert in genetic recombination techniques. The introduction of the new engineered inserts into the virus genome is the result of the collaboration between the Shi team and that of Guo Deyin. The realization of this new chimera, from a scientific point of view, is a success. So much so that, once the epidemic has broken out, the two researchers ask WHO to register it as a new virus, H-nCoV-19 (Human new Covid 19), and not as another virus derived from SARS. It is reasonable to think that Shi acted only from the point of view of scientific prestige, without however taking into account the risks in terms of security and the political-military interests that her research would have aroused."

When asked why China has refused to provide the complete genome of the China Virus to the WHO or to other countries, Dr. Tritto explained that "providing the matrix [source] virus would have meant admitting that SARS-CoV-2 [China Virus] was created in the laboratory. In fact, the incomplete genome made available by China lacks some inserts of AIDS amino acids, which itself is a smoking gun."

Concerning the development of a vaccine Prof. Tritto is not optimistic:

> "Given the many mutations of SARS-CoV-2, it is extremely unlikely that a single vaccine that blocks the virus will be found. At the moment 11 different strains have been identified: the A2a genetic line which developed in Europe and the B1 genetic line which took root in North America are more contagious than the 0 strain originating in Wuhan. I therefore believe that, at the most, a multivalent vaccine can be found

effective on 4-5 strains and thus able to cover 70-75% of the world's population."

USA Intelligence Community Perspective

In the 1990's and 2000's there was a spate of deaths of microbiologists under suspicious circumstances.

In May 2021, President Joe Biden gave the 17-member intelligence community 90 days to write a report on the origins of Covid-19. The declassified version of that assessment has been released. The report is only 493 words long and curiously ignores readily available information, instead choosing to focus on and reinforce questions that are, for the most part, unknowable. According to Jeff Carlson and Hans Mahncke via The Epoch Times:

> "Specifically, the Intelligence Community (IC) claimed that in order to reach a conclusive assessment, it required "clinical samples or a complete understanding of epidemiological data from the earliest cases."
>
> This China-reliant approach aligns with a recent response from Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases (NIAID). When he finally conceded in June of this year that the virus might have originated in a Wuhan lab, Fauci also said that clinical samples of the earliest cases were needed.
>
> At the same time, while the IC claims that China's cooperation is needed to determine the origins of COVID-19, it acknowledges that China has refused to cooperate with any true investigation.
>
> Fauci and the IC both understand that if there was information helpful to the Chinese Communist Party (CCP), that information would have been released immediately.
>
> The report, unsigned but issued under a Director of National Intelligence letterhead, appears to be structured in a manner designed to avoid upsetting China. More importantly, the report effectively protects China, repeatedly giving weight to the lack of foreknowledge of the outbreak on the part of China officials. The report ignores that if the pandemic resulted from a lab accident, no official would have had foreknowledge.
>
> The IC also appears to conflate cause and effect by claiming that China's failure to cooperate with an investigation is motivated by "frustration" that the international community is "using the issue to exert political pressure on China."
>
> Notably, the IC has shown a marked lack of interest in the copious amount of data that is already available and does not require CCP assistance.
>
> Perhaps the most obvious fact pointing at a lab leak is simply that Wuhan is at least 1,000 miles from natural bat habitats—a point not even mentioned in the IC's report.
>
> Additionally, Wuhan was the only location in China where bat virus experiments were taking place. In fact, Wuhan had at least three labs

conducting such work—the Wuhan Institute of Virology (WIV), the Wuhan CDC Lab, and the Wuhan University Center for Animal Experiment.

The director of the WIV, Shi Zhengli, herself admitted that she never expected this kind of virus to emerge in Wuhan. When viruses emerged naturally in the past, they emerged in Southern China.

Also ignored by the IC Report was the type of research being conducted at WIV since at least 2007, which has been well documented. Research papers provide direct evidence of increasingly sophisticated gain-of-function experiments—a process whereby viruses are deliberately made more virulent in order to predict emerging diseases—being carried out by the WIV lab in the years leading up the pandemic, including a number of experiments specifically designed to make coronaviruses more transmissible to humans.

Some of these gain-of-function experiments were also detailed in a Nov. 9, 2015, article in the journal Nature about experiments that were being conducted at the Wuhan lab using "chimeric viruses" in mice.

Notably, In 2014, Fauci's NIAID awarded a $3.7 million grant to the New York-based EcoHealth Alliance, headed by Peter Daszak. According to Francis Collins, the director of the National Institutes of Health (NIH), some of the grant funds "went to Wuhan" as part of "a subcontract from EcoHealth." In August 2020, after President Donald Trump canceled the first grant, Fauci awarded Daszak's EcoHealth a new grant of $7.5 million.

Only one section of the report refers to animal handling and sampling by the WIV. This section is in reference to one intelligence agency that concluded that it was moderately confident that the virus may have leaked from a Wuhan lab. Notably, all other agencies leaned toward natural origins for the virus's outbreak.

The report ignores that live bats were kept at the WIV, apparently the only location in Wuhan where bats could actually be found. The report also fails to note that thousands of bat samples were brought from Southern China to Wuhan by lab scientists.

The huge depository of bat samples in Wuhan was confirmed by Daszak in July 2020, when he discussed the early discovery of a close genetic match to COVID-19, noting that "It was just one of the 16,000 bats we sampled. It was a faecal sample, we put it in a tube, put it in liquid nitrogen, took it back to the lab. We sequenced a short fragment."

Daszak, the person through whom Fauci was providing funding for the WIV, denied that live bats were kept at the Wuhan lab, claiming that that was not the way science worked. Daszak later deleted his tweet denial without explanation. Pictures from inside the WIV Lab have since emerged, confirming that live bats were indeed held by laboratory staff.

The report also fails to address the fact that the director of the WIV, Shi Zhengli, tried to cover up the fact that she had maintained possession of the closest known relative to COVID-19 for more than seven years. Shi

suddenly renamed the virus in early 2020 at the onset of the pandemic, thereby obscuring that her lab had held a closely related virus.

Shi also obfuscated the virus's origin. The location where Shi originally found the COVID-like virus was later discovered to be the Mojiang Mine where three miners had died with COVID-like symptoms in 2012. Shi would later admit that the Mojiang Mine was indeed the source of her virus.

Shi's research on bat coronaviruses had previously drawn the attention of diplomats at the U.S. Embassy in China. In 2018, after visiting the WIV, they sent a number of cables to the State Department warning of the inadequate safety conditions at the lab.

Fauci's own official representative in China, Chen Ping, had herself sent multiple messages to Fauci's office—all of which should have raised red flags. Chen noted that research papers detailing gain-of-function experiments at the WIV were being published as NIH-funded work.

Her inquiries with Fauci's office appear to have gone unanswered. Chen also complained that she was being denied access to the WIV. When, after two years, Chen was finally allowed to visit the facility, she was forbidden from taking any pictures inside the lab.

Since the start of the pandemic, unearthed video footage taken by Chinese TV crews inside the lab has been used to pinpoint a number of biosafety lapses, as well as the fact that the lab was keeping live bats.

In 2015, an article in Nature specifically warned about the pandemic potential from the WIV experiments. Richard Ebright, a molecular biologist and biodefense expert at Rutgers University, presciently stated, "The only impact of this work is the creation, in a lab, of a new, non-natural risk."

There is no mention of any of these pre-pandemic warnings in the IC's report. Nor is there any mention of the warnings from the French government, which had initially helped with the construction of the WIV's BSL-4 (biosafety level 4) lab as part of a joint venture with the Chinese regime.

However, the French government later refused to certify the WIV's lab based on bioweapon concerns from military officials. France also denied China access to safety equipment and viruses over similar concerns that these could be used for bioweapons research.

Additionally, in 2009, then-Secretary of State Hillary Clinton was warned in a diplomatic cable of the construction of the WIV BSL-4 lab and the potential for biological weapons proliferation.

The IC report also failed to note that both the WIV and the Wuhan CDC were conducting bat coronavirus experiments in BSL-2 labs, a low biosafety environment that falls below the accepted threshold of safety for coronavirus research levels. A minimum of BSL-3 is required for working with coronaviruses, including isolation, culture, and amplification.

When Shi Zhengli finally admitted to conducting coronavirus experiments at BSL-2, a prominent natural origins supporter, Ian Lipkin, changed his view on the pandemic's origin. Lipkin now thinks the virus did

come out of a Wuhan lab, saying that "It shouldn't have happened. People should not be looking at bat viruses in BSL-2 labs. My view has changed."

A more recent development also ignored in the IC's report is that the World Health Organization's (WHO) lead origins investigator, Peter Ben Embarek, has now claimed in a Danish documentary that a lab leak is likely and "may well have been started by an employee at one of the city's laboratories."

Embarek, who headed the WHO's team that visited Wuhan in February of this year, had earlier claimed that a lab leak was extremely unlikely. But he now admits that that claim was the result of pressure from the Chinese regime. Embarek told the Danish documentary team that after two days of negotiations, a deal was struck between the Embarek's team and their Chinese counterparts.

Under the deal struck with the CCP, Embarek would be allowed to mention the lab leak theory—but only on condition that it was determined to be "extremely unlikely" and that there would be no further studies into the issue.

The IC report also fails to address a Feb. 1, 2020, teleconference that was hastily organized by Fauci and Dr. Jeremy Farrar, director of the British Wellcome Trust. The teleconference took place after the previous night's public reporting of a potential connection between COVID-19 and the WIV.

Fauci and Farrar were concerned about previous U.S. involvement with the lab, and that they had knowledge of public statements made by the Wuhan lab's director about U.S. funding being used for controversial gain-of-function research conducted there.

Following the teleconference, public discussion of the source possibly being a lab leak was actively suppressed by social media platforms, health officials, and the WHO.

Teleconference participants were also instrumental in publishing two influential articles that were used extensively by media organizations to push the natural origins theory. Simultaneously, alternative theories—including that of a possible lab leak—were widely discredited as conspiracy theories.

Another related area of focus that the IC report failed to address was funding of the WIV from domestic sources in the U.S. government and how those funds were being utilized. The funding agencies, including Fauci's NIAID and NIH, have responsive records and documentation in their possession, as does Daszak's EcoHealth Alliance, through whom funding of the WIV was arranged.

Indeed, EcoHealth documents recently released under the Freedom of Information Act have confirmed that Fauci's NIAID funded gain-of-function experiments—including the construction of novel chimeric SARS-related coronaviruses at the WIV. Those engineered viruses were tested on humanized mice showing that the viruses could infect humans and were more pathogenic than the original virus.

Publishers such as Springer-Nature and Lancet, both of whom aggressively advanced the natural origins narrative, have archives of early drafts, data, and review reports of the many papers submitted by WIV staff. The Wellcome Trust, with whose help Fauci orchestrated his secret teleconference, has records pertaining to both its role in the teleconference as well as in funding the WIV.

The lab that trained WIV staff, the Galveston National Laboratory in Texas, has detailed information both on the training and the staff. The government of France has records on the construction of the lab and on the disputes that ultimately led France to withdraw from the WIV. The EU also funded the WIV and has pertinent records.

There are also whistleblowers from Western countries. While it is not realistic to gain direct access to Chinese whistleblowers such as Xiao Botao, a scientist from Wuhan, who was the first to publicly blame a lab leak for the pandemic on Feb. 6, 2020, there are many others—including some scientists who may have been initially misled by their peers.

Andrew Huff used to work as associate vice president at Daszak's EcoHealth. He has since posted a number of statements on LinkedIn blaming a lab leak for the pandemic and also blaming international scientists for collaborating in the lab leak cover-up.

In response to the claim that the virus's origin could not be determined, Huff stated that "you can read the peer reviewed studies, patent filings, grant applications, and Fauci emails, and it is very clear what Fauci's role was."

There are also a number of scientists involved in initial efforts to push the natural origins theory who have since had a change of heart. Stanley Perlman now says that the lab leak theory is "back on the table." And signatory Charles Calisher claims that it was "over the top" to call the lab leak a conspiracy theory.

Another signatory, Peter Palese, is now demanding a proper investigation. Most notably, University of Chicago professor Bernard Roizman has stated that the virus originated from the lab due to "sloppiness," claiming that Wuhan lab personnel "can't admit they did something so stupid."

The intelligence community's report has stated that "China's cooperation most likely would be needed to reach a conclusive assessment of the origins of COVID-19."

But there is a wealth of information in the public realm that is readily available and does not require the vast resources of our nation's intelligence communities or the CCP's cooperation.

If the IC's intention was to provide the public with an answer to the origin of the virus, that answer could easily be found.'

USA LAWRENCE LIVERMORE NATIONAL LABORATORY, LLNL AND STATE DEPARTMENT PERSPECTIVES

The Lawrence Livermore Lab's intelligence arm, known as the "Z-Division," found the Wuhan lab-leak theory to be quite plausible and deserving of further investigation, according to the Wall Street Journal. In a classified May 27, 2020 report that the USA State Department heavily relied upon its investigation and which President Joe Biden canceled shortly after taking office, scientific investigators studied the genetic makeup of the SARS-CoV-2 virus, in what was "among the first USA government efforts to seriously explore the hypothesis that the virus leaked from China's Wuhan Institute of Virology along with the competing hypothesis the pandemic began with human contact with infected animals." The study had a major influence on the State Department's probe into Covid-19's origins. State Department officials received the study in late October 2020 and asked for more information, according to a timeline by the agency's arms control and verification bureau, which was reviewed by The Wall Street Journal.

The Wuhan Institute of Virology WIV was home to scientists internationally known for genetically modifying COVID viruses to better infect humans - perhaps including an intermediate horseshoe bat coronavirus they collected in 2013 which is 96.2% identical to SARS-CoV-2. A subagency of the National institute of Health NIH headed by Anthony Fauci was funding risky coronavirus research to the tune of millions of dollars, funneled through nonprofit EcoHealth Alliance after President Obama administration cut off funding for so-called "gain of function" research in 2014. The Anthony Fauci's agency resumed funding the risky research in 2017 without the approval of a government oversight body.

The WIV "had openly participated in gain-of-function research in partnership with USA universities and institutions" for years under the leadership of Shi Zheng Li, according to the Washington Post's Josh Rogin.

The USA State Department's former lead investigator who oversaw the COVID-19 task force into the origins of the virus believes SARS-CoV-2 escaped from the Wuhan Institute of Virology, and may have been the product of bioweapons research, according to Fox News: "The Wuhan Institute of Virology is not the National Institute of Health," David Asher - now a senior fellow at the Hudson institute - told Fox News in an interview, adding: "It was operating a secret, classified program. In my view, and I'm just one person, my view is it was a biological weapons program." "There was almost no evidence that supported a natural, zoonotic evolution or source of COVID-19," said former State Department official David Asher in a statement to Fox News.

Asher has long been a "follow the money" guy who has worked on some of the most classified intelligence investigations for the State Department and Treasury under both Democratic and Republican administrations. He led the team that uncovered the international nuclear procurement network run by the father of Pakistan's nuclear program, AQ Khan, and uncovered key parts of North Korea's secret uranium enrichment. He believes the Chinese Communist Party has been involved in a massive cover-up during the past 14 months:

> "And if you believe, as I do, that this might have been a weapons vector gone awry, not deliberately released, but in development and then somehow leaked, this has turned out to be the greatest weapon in history," Asher told a Hudson Institute panel discussing the origins of the pandemic. "You've taken out 15 to 20 percent of global GDP. You've killed millions

of people. The Chinese population has been barely affected. Their economies roared back to being number one in the entire G20."

According to Asher - who interfaced with the Chinese government as the State Department's lead representative during the 2003 SARS outbreak - the CCP's behavior surrounding COVID-19 reminds him of criminal investigations he has overseen:

> "Motive, cover-up, conspiracy, all the hallmarks of guilt are associated with this. And the fact that the initial cluster of victims surrounded the very institute that was doing the highly dangerous, if not dubious research is significant,"

At first, China said the COVID19 virus originated in the Wuhan Seafood Market – but the problem with China's theory: the first case had no connection to the market. In the fall of 2020, the USA obtained intelligence that indicates there was an outbreak among several Wuhan lab scientists with flu-like symptoms that left them hospitalized in November of 2019 - before China reported its first case. Asher and the other Hudson Institute panel experts said that in 2007, China announced it would begin work on genetic bioweapons using controversial "gain of function" research to make the viruses more lethal.

In 2016, China stopped talking about their research at the Wuhan Lab - which Asher believes is when the Chinese Communist Party (CCP) went form biodefense research to offense - in the same year as a Chinese state television commentator claimed: "We have entered into an area of Chinese biowarfare, and including using things like viruses. I mean, they made a public statement to their people that this is a new priority under the Xi national security policy," according to Asher. When China began funding research at the WIV in 2017, they stopped talking about their research into COVID "disease vectors which could be used for weapons." "I doubt that's a coincidence," said Asher.

A claim is that Covid-19 was created at Harvard University via Professor Charles Leiber.

According to State Department official Miles Yu, who co-wrote a Wall Street Journal WSJ op-ed with former Secretary of State Mike Pompeo about the virus' origins, "China has been involved in this type of virus research since 2003, the SARS outbreak," adding "China's biosafety standard is really low and is very dangerous. So this is an accident waiting to happen.

DARPA REFUSED FUNDING GOF RESEARCH AT WUHAN

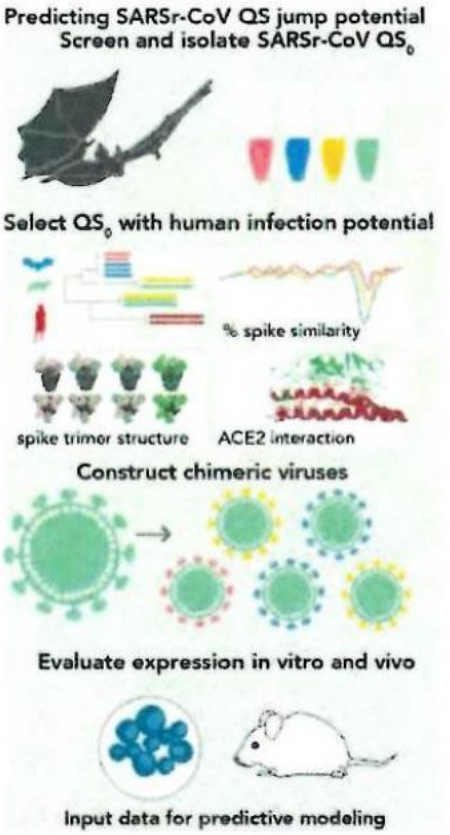
About 18 months before the Covid-19 pandemic, scientists in Wuhan, China submitted a proposal to release enhanced airborne coronaviruses into the wild in an effort to inoculate them against diseases that could have otherwise jumped to humans, according to The Telegraph, citing leaked grant proposals from 2018.

The proposed methods are all borrowed from biowarfare research where harmful spikes were added to a virus as a means of dissemination. HIV/AIDS, Malaria, Rabies, and at least two other disease spikes were added to this one. USA Fish and Wildlife (USFW) actually contributed to the ECO/Health grant probably to have the rabies vaccination

function researched. That is USFW's area of interest of looking for cheap methods to vaccinate rabid animal populations.

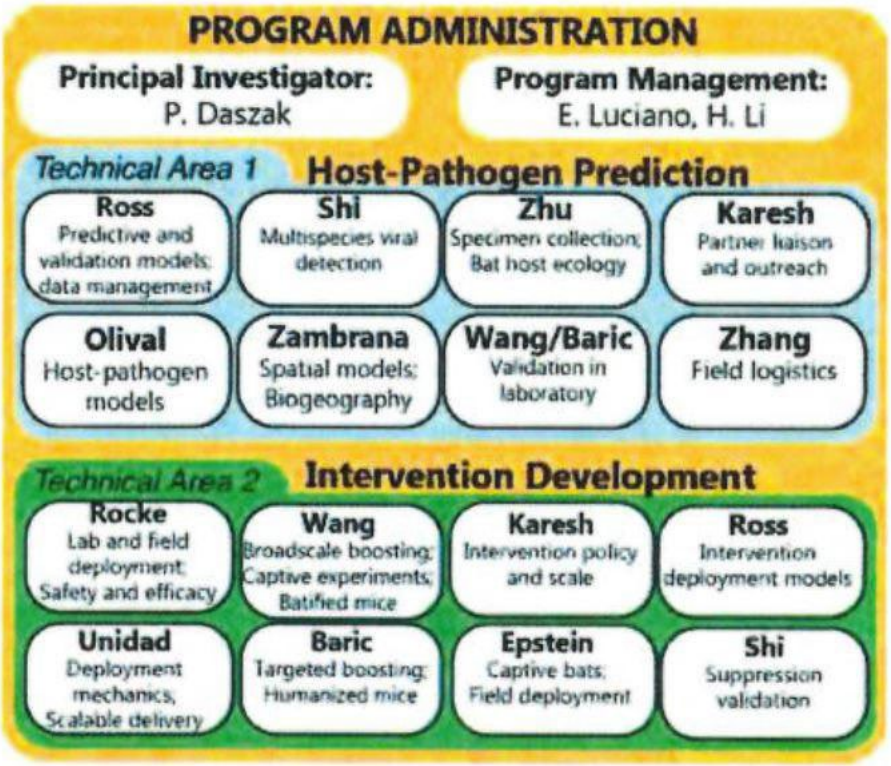
An argument is if the Wuhan Lab was doing vaccine research, when Covid-19 started, they should have had a few experimental vaccines available. However, none were available, implying that it was bioweapons research.

Proposals documents show that 18 months before the first Covid-19 cases appeared, researchers had submitted plans to release skin-penetrating nanoparticles containing "novel chimeric spike proteins" of bat coronaviruses into cave bats in Yunnan, China. They planned to create chimeric viruses, genetically enhanced to infect humans more easily, and requested $14 million from the Defense Advanced Research Projects Agency (Darpa) to fund the work.



The bid was submitted by zoologist Peter Daszak of New York-based EcoHealth Alliance, who was hoping to use genetic engineering to cobble "human-specific cleavage sites" onto bat Covid "which would make it easier for the virus to enter human cells" - a method which would coincidentally answer a longstanding question among the scientific community as to how SARS-CoV-2 evolved to become so infectious to humans.

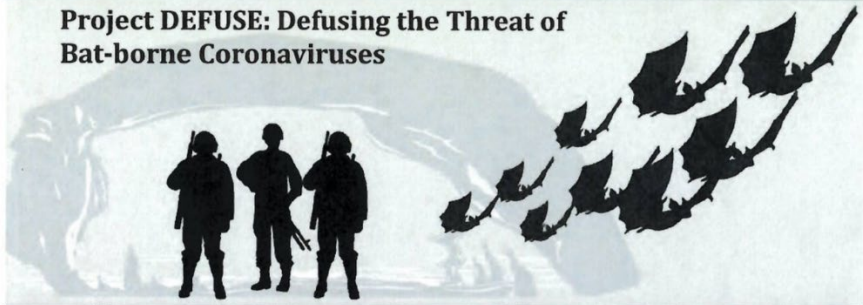
Peter Daszak's proposal also included plans to commingle high-risk natural coronaviruses strains with more infectious, yet less deadly versions. His 'bat team' of researchers included Shi Zhengli from the Wuhan Institute of Virology, as well as USA researchers from the University of North Carolina and the US Geological Survey National Wildlife Health Center.


PROGRAM ADMINISTRATION
Principal Investigator:
P. Daszak
Program Management:
E. Luciano, H. Li
Technical Area 1
Host-Pathogen Prediction
Ross
Predictive and validation models; data management
Shi
Multispecies viral detection
Zhu
Specimen collection; Bat host ecology
Karesh
Partner liaison and outreach
Olival
Host-pathogen models
Zambrana
Spatial models; Biogeography
Wang/Baric
Validation in laboratory
Zhang
Field logistics
Technical Area 2
Intervention Development
Rocke
Lab and field deployment; Safety and efficacy
Wang
Broadscale boosting; Captive experiments; Batified mice
Karesh
Intervention policy and scale
Ross
Intervention deployment models
Unidad
Deployment mechanics; Scalable delivery
Baric
Targeted boosting; Humanized mice
Epstein
Captive bats; Field deployment
Shi
Suppression validation

PROPOSAL: VOLUME I

DARPA – PREEMPT (HR001118S0017)
LEAD ORGANIZATION: EcoHealth Alliance (Other Nonprofit)
OTHER TEAM MEMBERS:
Duke NUS Medical School (Other Educational)
University of North Carolina (Other Educational)
Wuhan Institute of Virology (Other Educational)
USGS National Wildlife Health Center (Other Nonprofit)
Palo Alto Research Center (Large Business)

Project DEFUSE: Defusing the Threat of Bat-borne Coronaviruses



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Identifying Number: HR001118S0017-PREEMPT-PA-001
Award Instrument Requested: Grant
Places and Periods of Performance: 12/1/18 - 5/31/22; Palo Alto, CA; Kunming and Wuhan, China; Chapel Hill, NC; New York, NY; Singapore; Madison, WI
Total funds requested: $14,209,245
Proposal validity period: 6 months
Date proposal submitted: 3/27/18

Section II **A. EXECUTIVE SUMMARY**

Technical Approach: Our goal is to defuse the potential for spillover of novel bat-origin high-zoonotic risk SARS-related coronaviruses in Asia. **In TA1** we will intensively sample bats at our field sites where we have identified high spillover risk SARSr-CoVs. We will sequence their spike proteins, reverse engineer them to conduct binding assays, and insert them into bat SARSr-CoV (WIV1, SHC014) backbones (these use bat-SARSr-CoV backbones, not SARS-CoV, and are exempt from dual-use and gain of function concerns) to infect humanized mice and assess capacity to cause SARS-like disease. Our modeling team will use these data to build **machine-learning genotype-phenotype models** of viral evolution and spillover risk. We will uniquely validate these with serology from previously-collected human samples via LIPS assays that assess which spike proteins allow spillover into people. We will build **host-pathogen spatial models** to predict the bat species composition of caves across Southeast Asia, parameterized with a full inventory of host-virus distribution at our field test sites, three caves in Yunnan Province, China, and a series of unique global datasets on bat host-viral relationships. By the end of Y1, we will create a prototype app for the warfighter that identifies the likelihood of bats harboring dangerous viral pathogens at any site across Asia.

In TA2, we will evaluate two approaches to reduce SARSr-CoV shedding in cave bats: **(1) Broadscale immune boosting**, in which we will inoculate bats with immune modulators to upregulate their innate immune response and downregulate viral replication; **(2) Targeted immune boosting**, in which we will inoculate bats with novel chimeric polyvalent recombinant spike proteins plus the immune modulator to enhance innate immunity against specific, high-risk viruses. We will trial inoculum delivery methods on captive bats including a novel automated aerosolization system, transdermal nanoparticle application and edible adhesive gels. We will use stochastic simulation modeling informed by field and experimental data to characterize viral dynamics in our cave test sites, maximize timing, inoculation protocol, delivery method and efficacy of viral suppression. The most effective biologicals will be trialed in our test cave sites in Yunnan Province, with reduction in viral shedding as proof-of-concept.

Management Approach: Members of our collaborative group have worked together on bats and their viruses for over 15 years. The lead organization, EcoHealth Alliance, will oversee all work. EHA staff will develop models to evaluate the probability of specific SARS-related CoV spillover, and identify the most effective strategy for delivery of both immune boosting and immune targeting inocula. Specific work will be subcontracted to the following organizations:

- Prof. Baric, Univ. N. Carolina, will lead targeted immune boosting work, building on his two-decade track record of reverse-engineering CoV and other virus spike proteins.
- Prof. Wang, Duke-Natl. Univ. Singapore, will lead work on broadscale immune boosting, building on his group's pioneering work on bat immunity.
- Dr. Shi, Wuhan Institute of Virology will conduct viral testing on all collected samples, binding assays and some humanized mouse work.
- Dr. Rocke, USGS National Wildlife Health Center will optimize delivery of immune modulating biologicals, building on her vaccine delivery work in wildlife, including bats.
- Dr. Unidad, Palo Alto Research Center will lead development of novel delivery automated aerosolization mechanism for immune boosting molecules.

We are requesting $14,209,245 total funds for this project across 3.5 project years.

EcoHealth Alliance (EHA) leads the world in predictive models of viral emergence. We will use machine-learning models of spillover hotspots, host-pathogen spatial and genotype-phenotype mapping, and unique datasets to validate and refine hotspot risk maps of viral emergence. We have shown that dampened innate immunity in bats allows them to carry otherwise lethal viruses, likely as an adaptation to the physiologic stress of flight. We will design strategies like small molecule RIG-like receptor (RLR) or Toll-like receptor (TLR) agonists, to upregulate bat immunity, and suppress viral replication, thereby significantly reducing viral shedding and spillover **(broadscale immune boosting)**. We will complement this by coupling agonist treatments with SARSr-CoV recombinant spike proteins to boost pre-existing adaptive immune response adult bats against specific, high-risk SARSr-CoVs **(targeted immune boosting)**. We will design novel delivery and automated application methods, based on our previous work on wildlife vaccines, to reduce hazard during deployment.

Darpa refused the contract - saying "It is clear that the proposed project led by Peter Daszak could have put local communities at risk," while warning that Daszak hadn't fully considered the dangers involved in enhancing the virus via gain-of-function research, or by releasing a vaccine into the air.

Grant documents show that the team also had some concerns about the vaccine programme and said they would “conduct educational outreach … so that there is a public understanding of what we are doing and why we are doing it, particularly because of the practice of bat-consumption in the region”.

Angus Dalgleish, Professor of Oncology at St Georges, University of London, who struggled to get work published showing that the Wuhan Institute of Virology (WIV) had been carrying out “gain of function” work for years before the pandemic, said the research may have gone ahead even without the funding.

“This is clearly a gain of function, engineering the cleavage site and polishing the new viruses to enhance human cell infectibility in more than one cell line,” he said. - Telegraph. As the Telegraph aptly notes (and you'll never hear from Maddow, Lemon or Hayes), Daszak is the same guy behind a letter published in The Lancet last year which ruled out the lab leak hypothesis, and temporarily stifled debate on the origins of Covid-19.

"For more than a year I tried repeatedly to ask questions of Peter Daszak with no response," said Viscount Ridley, who has co-authored an upcoming book on the origin of Covid-19, and has repeatedly implored the House of Lords to dig deeper into the origins of the pandemic. "Now it turns out he had authored this vital piece of information about virus work in Wuhan but refused to share it with the world. I am furious. So should the world be," he added. "Peter Daszak and the EcoHealth Alliance (EHA) proposed injecting deadly chimeric bat coronaviruses collected by the Wuhan Institute of Virology into humanised and ‘batified’ mice, and much, much more."

The documents, released by an international consortium of scientists known as 'Drastic Research,' were authenticated by a former Trump administration official. According to the group, "The actual DEFUSE Proposal Documents will be published in due course."

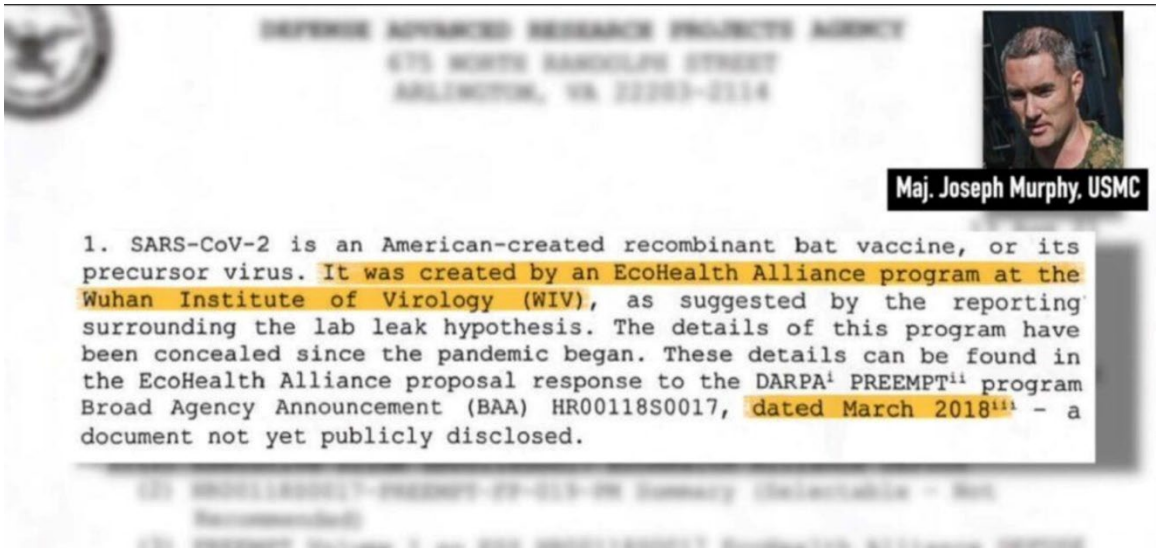
"Given that we find in this proposal a discussion of the planned introduction of human-specific cleavage sites, a review by the wider scientific community of the plausibility of artificial insertion is warranted," Drastic said in a statement

To characterize spillover risk of SARSr-CoV quasispecies (QS), the Wuhan Institute of Virology team (WIV) will test bat fecal, oral, and blood samples for SARSr-CoVs by PCR. We will collect viral load data from fresh fecal pellets. SARSr-CoV spike proteins will be sequenced, viral recombination events identified, and isolates used to identify strains that can replicate in human cells. The Univ. N. Carolina (UNC) team will reverse-engineer spike proteins of a large sample of high- and low-risk viruses for further characterization. This will effectively freeze the QS we analyze at t=0. These QS_0 strain viral spike glycoproteins will be synthesized, and those binding to human cell receptor ACE2 will be inserted into SARSr-CoV backbones (non-DURC, non-GoF), and inoculated into humanized mice to assess capacity to cause SARS-like disease, efficacy of monoclonal therapies, the inhibitor GS-5734[8] or vaccines against SARS-CoV[8-12].

One anonymous World Health Organization (WHO) scientist told The Telegraph that Daszak's grant proposal shockingly proposed plans to enhance the more deadly MERS (Middle-East Respiratory Syndrome). "The scary part is they were making infectious chimeric Mers viruses," said the source, adding "These viruses have a fatality rate over 30 per cent, which is at least an order of magnitude more deadly than Sars-CoV-2." "If one of their receptor replacements made Mers spread similarly, while maintaining its lethality, this pandemic would be nearly apocalyptic."

ALLEGED LABORATORY ORIGIN OF COVID-19 PROJECT "DEFUSE"

According to the leaked report written by Maj. Joseph Murphy, a USMC Marine Officer, EcoHealth Alliance sought a contract to use controversial gain-of-function genetic manipulation techniques to study bat coronaviruses. While the proposal was rejected by DARPA, it was subsequently picked up by Anthony Fauci's National Institute of Allergy and Infectious Disease, which funneled money to EcoHealth via a sub-grant. Fauci has repeatedly claimed NIAID did not fund gain-of-function research into bat coronaviruses.



"According to the Major's disclosure, EcoHealth Alliance (EcoHealth), in conjunction with the Wuhan Institute of Virology (WIV), submitted a proposal in March 2018 to the Defense Advanced Research Projects Agency (DARPA) regarding SARS-

CoVs. The proposal included a program, called DEFUSE, that sought to use a novel chimeric SARS-CoV spike protein to inoculate bats against SARS-CoVs," reads Johnson's letter.

"Although DARPA rejected the proposal, the disclosure alleges that EcoHealth ultimately carried out the DEFUSE proposal until April 2020 through the National Institutes of Health and National Institute for Allergy and Infectious Diseases. The disclosure highlights several potential treatments, such as ivermectin, and specifically alleges that the EcoHealth DEFUSE proposal identified chloroquine phosphate (Hydroxychloriquine) and interferon as SARS-CoV inhibitors."

In the Ecohealth proposal they claim it is not gain of function GOF because they are doing the work on bat chemistry, not human chemistry, even though they are identical. That's why Fauci is claiming he did not fund gain of function, he is mincing words. They literally sprayed the stuff on bats in caves to test it out - aIn the Ecohealth proposal they claim it's not gain of function because they are doing the work on bat chemistry, not human chemistry, *even though they are identical*. I'm sure that's why Fauci is claiming he didn't fund gain of function - he's mincing words. They literally sprayed the stuff on bats in caves to test it out - and somehow it got out into the population and somehow it got out into the population.

A genetics expert who works with the World Health Organization (WHO) has explained in detail to The Telegraph exactly how Covid-19 could have been created via genetic engineering in a lab:

> "The proposal was submitted by the British zoologist Peter Daszak on behalf of a consortium which included Daszak EcoHealth Alliance, the Wuhan Institute of Virology, the University of North Carolina and Duke NUS in Singapore.
>
> The plans are in addition to other proposals made in the Darpa documents, including inserting a section into existing viruses to make them more infectious to humans and inoculating wild bats with aerosolized engineered spike proteins from viruses.
>
> Experts said if the ultimate aim of the proposal was to create a pan-coronavirus vaccine, constructing an "ideal" average virus would have been a good starting point."

Prof. Baric (UNC) will lead the targeted immune boosting work. We will develop recombinant chimeric spike-proteins[22] from known SARSr-CoVs, and those characterized by DEFUSE. Using details of SARS S protein structure and host cell binding[23] we will sequence, reconstruct and characterize spike trimers and receptor binding domains of SARSr-CoVs, incorporate them into nanoparticles or raccoon poxvirus-vectors for delivery to bats[10,24-27]. In combination with immune-boosting small molecules, we will use these to boost immune memory in adult bats previously exposed to SARSr-CoVs, taking the best candidate forward for field-testing. Recombinant S glycoprotein-based constructs with immunogenic blocks from across group 2B SARSr-CoVs should induce broadscale adaptive immune responses that reduce heterogeneous virus burdens in bats and transmission risk to people[28,29]. Innate immune damping is highly conserved in all bat species tested so far. We will use the unique Duke-NUS

"This means that they would take various sequences from similar coronaviruses and create a new sequence that is essentially the average of them. It would be a new virus sequence, not a 100 per cent match to anything," said the geneticist, who remains to wish anonymous for fear of reprisals.

"They would then synthesize the viral genome from the computer sequence, thus creating a virus genome that did not exist in nature but looks natural as it is the average of natural viruses," the source continued, adding "Then they put that RNA in a cell and recover the virus from it. This creates a virus that has never existed in nature, with a new 'backbone' that didn't exist in nature but is very, very similar as it's the average of natural backbones."

SARSr-CoV QS detection, sequencing, and recovery. We will screen samples for SARSr-CoV nucleic acid using our pan-CoV consensus one-step hemi-nested RT-PCR assay targeting a 440-nt fragment in the RNA-dependent RNA polymerase gene (RdRp) of all known α- and β-CoVs[1,53], and specific assays for known SARSr-CoVs[2,21,33,34]. PCR products will be gel purified, sequenced and qPCR performed on SARSr-CoV-positive samples to determine viral load. Full-length genomes or S genes of all SARSr-CoVs will be high-throughput sequenced followed by genome walking[2,3,34]. We will analyze the S gene for its ability to bind human ACE2 by Biocore or virus entry assay. *Synthesis of Chimeric Novel SARSr-CoV QS:* We will commercially synthesize SARSr-CoV S glycoprotein genes, designed for insertion into SHC014 or WIV16 molecular clone backbones (88% and 97% S-protein identity to epidemic SARS-Urbani). These are BSL-3, not select agents or subject to P3C0 (they use bat SARSr-CoV backbones which are exempt) and are pathogenic to hACE2 transgenic mice. Different backbone strains increase recovery of viable viruses identification of barriers for RNA recombination-mediated gene transfer between strains[34]. Recombinant viruses will be recovered in Vero cells, or in mouse cells over-expressing human, bat or civet ACE2 receptors to support cultivation of viruses with a weaker RBD-human ACE2 interface. *Recovery of Full length SARSr-CoV:* We will compile sequence/RNAseq data from a panel of closely related strains (<5% nucleotide variation) and compare full length genomes, scanning for unique SNPs representing sequencing errors[54-56]. Consensus candidates genomes will be synthesized commercially (e.g. BioBasic), using established techniques and genome-length RNA and electroporation to recover recombinant viruses[28,57].

As the Telegraph notes, "Mr Daszak, currently a member of the WHO team investigating the pandemic's origins, was also behind a letter published in The Lancet which dismissed suggestions that Covid did not have a natural origin as a conspiracy theory."

Last year, WIV scientists - trying to make the case for a natural origin spillover event - claimed to have found a strain named RaTG13 in bat droppings during a 2013 expedition to a cave in Yunnan province. The strain was 96.1% identical to SARS-CoV-2, the virus which causes Covid-19. According to the report, "RaTG13 could have been included in a set of viral genomes to help create an average sequence."

While the grant proposal was rejected by DARPA in 2018, the WIV's database of viral strains was taken offline some 18 months later - making it impossible to see what scientists had been working on or created:

> "If Sars-CoV-2 comes from an artificial consensus sequence composed of genomes with more than 95 per cent similarity to each other… I would predict that we will never find a really good match in nature and

> just a bunch of close matches across parts of the sequence, which so far is what we are seeing," said the WHO source, adding "The problem is that those opposed to a lab leak scenario will always just say that we need to sample more, and absence of evidence isn't evidence of absence. Scientists overall are afraid of discussing the issue of the origins due to the political situation. This leaves a small and vocal minority of biased scientists free to spread misinformation."

According to the WHO source, he and other scientists had been warned not to go on record with concerns over a laboratory leak.

Section II **D. TECHNICAL PLAN**

Technical Area I:

Choice of site and model host-virus system. For the past 14 years, our team has conducted CoV surveillance in bat populations across S. China, resulting in >180 unique SARSr-CoVs in ~10,000 samples (>5% prevalence, including multiple individuals harboring the same viral strains)[2,21,33] and a per-bat species prevalence up to 10.9%. Bat SARSr-CoVs are genetically diverse, especially in the S gene, and most are highly divergent from SARS-CoV. However, our test cave site in Yunnan Province, harbors a quasispecies (QS) population assemblage that contains all the genetic components of epidemic SARS-CoV[34]. We have isolated three strains there (WIV1,

WIV16 and SHC014) that unlike other SARSr-CoVs, do not contain two deletions in the receptor-binding domain (RBD) of the spike, have far higher sequence identity to SARS-CoV (**Fig. 1**), use human ACE2 receptor for cell entry, as SARS-CoV does (**Fig. 2**), and replicate efficiently in various animal and human cells[2,3,33-35], including primary human lung airway cells, similar to epidemic SARS-CoV[11,12]. Chimeras (recombinants) with these SARSr-CoV S genes inserted into a SARS-CoV backbone, and synthetically reconstructed full length SHCO14 and WIV1 cause SARS-like illness in humanized mice (mice expressing human ACE2), with clinical signs that are not reduced by SARS-CoV monoclonal antibody therapy or vaccination[11,12]. People living up to 6 kilometers from our test cave have SARSr-CoV antibodies (~3% seroprevalence)[13], suggesting active spillover. These data, phylogeography of SARSr-CoVs, and coevoutionary analysis of bats and their CoVs (unpubl.), suggest that bat caves in SW China, and *Rhinolophus* spp. bats are the likely origin of the SARS-CoV clade, and are **a clear-and-present danger for the emergence of a SARSr-CoV from the current QS.** The *Rhinolophus* spp. bats that harbor these viruses occur across Asia, Europe, and Africa. **Thus, while DEFUSE fieldwork will focus on high-risk sites in S. China, our approach to reduce the risk of these viruses spilling over is broadly applicable across four combatant command regions (PACOM, CENTCOM, EUCOM, AFRICOM).**

The potential horrors of the grant-driven gravy train, which infects the whole of academe is described by Richard Ebright at Rutgers quoted as saying: “Columbia University will partner with EcoHealth Alliance in a new Pandemic Response Institute." The dark side of microbiology finds its haven inside the dozens of veterinary schools outside the authority of the WHO, CDC, NIH and equivalent professional supervisory bodies and reporting-review systems.

PHARMACEUTICAL DRUGS INTERDEPENDENCE, ACTIVE PHARMACEUTICAL INGREDIENTS, APIs

The USA-China Economic and Security Review Commission held a hearing on the United States' growing reliance on China's pharmaceutical products. A spirited discussion is described in Bob Woodward's book, "Fear: Trump in the White House." In the discussion, Gary Cohn, then chief economic advisor to President Trump, argued against a trade war with China by invoking a Department of Commerce study that found that 97 percent of all antibiotics in the United States came from China. "If you're the Chinese and you want to really just destroy us, just stop sending us antibiotics," he said.

Cohn's words highlight a security concern associated with pharmaceuticals from China. As Rosemary Gibson noted in her testimony, centralization of the global supply chain of medicines in a single country makes it vulnerable to interruption, "whether by mistake or design." If we are dependent on China for thousands of ingredients and raw materials to make our medicine, China could use this dependence as a weapon against us.

While the Department of Defense only purchases a small quantity of finished pharmaceuticals from China, about 80 percent of the active pharmaceutical ingredients (APIs) used to make drugs in the United States are said to come from China and other countries like India. For example, the chemical starting material used to make doxycycline, the recommended treatment for anthrax exposure, comes from China.

When an influential Chinese economist earlier this year suggested that Beijing curb its exports of raw materials for vitamins and antibiotics as a countermeasure in the trade war with the United States, the worries surrounding our API dependence to China seemed to be vindicated. Concern about a disruption in the supply chain could explain why the tariffs on Chinese products proposed by the United States Trade Representative in May 2019, worth approximately $300 billion, excludes "pharmaceuticals, certain pharmaceutical inputs, and select medical goods."

While the potential exposure to raw material supply disruptions drives part of our fear, concern about the safety and efficacy of Chinese-made pharmaceuticals is another component. In the summer of 2018, one of China's largest domestic vaccine makers sold at least 250,000 substandard doses of vaccine for diphtheria, tetanus, and whooping cough. It was the latest in a slew of scandals caused by poor quality drug products made in China over the last decade. In 2008, the contamination of a raw ingredient imported from China and used to make heparin, a blood-thinning drug, was associated with at least eighty-one deaths the United States. According to an investigative journalist, fraud and manipulation of quality data is still endemic in Chinese pharmaceutical firms.

In order to address the growing security and safety concerns about Chinese-made pharmaceuticals, some suggest that the United States switch to India as an alternative API supplier. However, doing so would be no different from rearranging the deck chairs on the Titanic. It is true that many Indian pharmaceutical firms are leading API manufacturers, but India depends on China for sourcing nearly three quarters of APIs in generic drug formulations. The disruption in the supply chain notwithstanding, switching to India for the supply of APIs would only make the drugs sold in the United States more expensive: APIs and chemical intermediates from China are 35 to 40 percent cheaper than Indian ones. Moreover, India has its own drug safety problems as well. In 2013, a generic drug maker in India pled guilty to drug safety charges, which included shipping batches of adulterated

drugs, having incomplete testing records, and inadequate programs to assess drug quality. According to a former executive of the company, this was only a fraction of the safety issues the Food and Drug Administration (FDA) could identify in overseas plants.

Moreover, we could have overestimated our dependence on Chinese-made pharmaceutical products. As of 2018, China claimed 13.4 percent of all import lines–defined as distinct regulated products within a shipment through customs–among countries that export drugs and biologics to the United States. Of these import lines for drugs and biologics, about 83 percent were finished drugs, and only 7.5 percent were APIs. We certainly underestimate the share of APIs from China given that Chinese-made APIs can come to the United States as part of the finished drug products from other countries like India. However, the lack of a reliable API registry makes it difficult to estimate the true market share of Chinese-made APIs.

In addition, when highlighting our dependence on Chinese-made pharmaceuticals, we could overlook the other side of the coin: China needs finished drugs made in the United States. China is facing a crisis of non-communicable diseases, including cancer, cardiovascular diseases, and diabetes. It is estimated that between 2002 and 2016, new cancer cases in China increased by more than 55 percent, from 2.19 million to 3.8 million. A majority of Chinese cancer patients, however, lack access to the most effective drugs. Partly because of this, cancer survival rate in China is less than half of the United States. Under the performance-based legitimacy in contemporary China, the government must justify its rule by continuously delivering public goods and services, like better healthcare, to meet people's wants.

In an increasingly state-dominated political system, the link between performance and legitimacy becomes so tight that failure to deliver such goods could endanger the system itself. In the meantime, with the rapid improvement of material living standards, Chinese people are increasingly valuing things beyond basic earnings, such as good health. As President Xi Jinping stated in the 19th Party Congress, the "principal contradiction" in the society is "the contradiction between unbalanced and inadequate development and the people's ever-growing needs for a better life." In fact, in 2018, the government cut the import value-added tax on cancer drugs from 17 percent to 3 percent and reduced import tariffs on all common drugs and cancer drugs to zero. Essentially, regime legitimacy requires the state to deliver the most effective drugs, which are often patented and provided exclusively by multinational pharmaceutical companies. In May 2019, China unveiled a list of imported U.S. medical products to impose punitive tariffs upon. The list includes commonly used drugs such as insulin, ibuprofen, as well as medical devices such as ultrasonic diagnostic apparatuses and endoscopes, which Chinese firms can manufacture themselves. Nevertheless, the list did not include anti-cancer drugs and other patented ones.

The same legitimacy concern also led the Chinese government to introduce incentives to improve the quality of its pharmaceutical products. In 2016, China's FDA introduced the Generic Consistency Evaluation (GCE), which required generic drugs approved for production prior to 2008 to pass the GCE in order to gain "equivalence" to branded drugs in terms of safety and efficacy. Failure to pass the GCE in a timely manner will lead to the revocation of registration licenses or ineligibility for government tendering. Since generic drugs approved before 2008 are prone to low quality problems, a significant number of drugs that have failed to pass GCE are expected to exit the public market. The measure will help weed out over half of the nation's 2,900 or so small, and often low-

quality, domestic drug makers. Since early this year, nearly 20 pharmaceutical firms have either exited the industry or been reorganized.

We should nurture the development of alternative sources and capabilities to make critically essential drugs in the United States. At present, instead of looking at the issue from a national security perspective, the best approach is to work with China to ensure the safety and efficacy of their pharmaceutical products. The U.S.-China Social and Cultural Dialogue, the only high-level forum to discuss U.S.-China cooperation after 2017, should be reopened as an institutional venue to discuss these issues.

COUNTER ARGUMENTS, RE GAIN OF FUNCTION (RGOF) RISKY RESEARCH

The WHO oversees the R&D on all biological weapons - viruses or otherwise and the WHO designates which sites satisfy the WHO's criteria for safety, location and quality standards globally. The Covid-19 virus itself is the result of research conducted globally by approved sites in dozens of locations. The research results are shared amongst these global participants "scientists". The research was a collaboration of global scientists - under the supervision and assumed control of the WHO.

A smoke screen is that the research is preventative, not aggressive. to spot viruses that can destroy mankind. These scientists globally, instead, went on developing aggressive viruses, then hoping to get ahead of the game by developing vaccines that give immunity against them for fame and profit.

The Covid-19 virus attacks the ACE2 (angiotensin converting enzyme system) in the lung tissue of humans. The overwhelming number of fatalities in the USA, have been people over the age of 50, with an increasing mortality rate per decade of life. A significant number of older victims would have had hypertension and/or congestive heart failure. These diagnoses frequently warrant treatment of the patient with drugs called “ACE Inhibitors”. These drugs are used world-wide. The ACE Inhibitor drugs also do not exhibit their cardiovascular effects by working within the lung, the organ attacked. What percentage of patients who died due to COVID-WuFlu-19 were taking ACE2 inhibitor drugs and how might this have impacted patient outcomes? Was taking the drug detrimental to outcome or beneficial.

The Indian scientists promoted the "gene jockey" mechanism whereby four specific segments of RNA from the HIV virus were supposedly found spliced into the bat corona virus spike protein to make it suddenly much more infectious to humans. The GP120 proteins from HIV supposedly 'fell' into the virus accidentally. That is approximately 1,000 nucleotide sequences from the HIV retrovirus.

The researchers from Australia are debunking this idea and claim there is no evidence of the presence of these splices in their version of the virus. Their assertion that artificial inserts are not present is incorrect. Sars-Cov-2 has a furan cleavage site in its spike protein that allows the final stage of human infection to occur, a cleavage site that is not present in any of its close relatives. The presence of this site, corresponding to an insertion in its viral RNA got there certainly not from its genetic inheritance. Supposedly some kind of cross-genetic mutation in the wild is possible, although it seems a little far-fetched. A laboratory insertion is the most plausible alternative. A question will remain

unanswered as the answer has been erased regarding which laboratory or laboratories were the insertions added in.

The “human-optimized” virus would be produced using a Darwinian Methodology by placing the virus particles in a Petri dish of human cells and incubating them. The newly replicated virus particles are skimmed off, and this is repeated over and over for many generations. Since the virus particles only have human cells through which to multiply the experimenters end up with a virus that gets more capable of infecting human cells and reproducing within human cells as well, one gene mutation at a time. In effect, the researchers carrying out risky research established a virus factory and fast-forwarded a few hundred years of natural evolution in order to obtain a virus that optimally invades human cells.

In fact, the Covid-19 virus has been claimed to have spike proteins of Sars, HIV, and TB. Which vindicates the Indian researchers which were forced to retract the paper describing their findings. Because of its rapid mutations, a vaccine against Covid-19 probably may not be possible and humanity has to adjust to its future presence and its mutations.

A pessimistic concern can here be humbly proposed. In a Petri dish, the chimeric Covid-19 coronavirus could infect and replicate in primary human airway cells; the virus also was able to infect lung cells in mice which means that mice can carry and spread this to humans, an unavoidable serious risk of a modern Black Bubonic Plague pandemic to appear soon in crowded rodent, fleas and ticks-infected slums of large cities through the globe with rats, mice ticks and fleas as vectors. An equally horrible threatening situation is transmittal through the global blood supply by mosquitoes.

According to Yoichi Shimatsu, a Hong Kong-based freelance journalist, 'Editor at Large' at the 4th Media and former editor of The Japan Times Weekly in Tokyo and Pacific News Service in San Francisco, His uncle is Yoichi Hirama, Rear Admiral (Maritime Self-Defense Force:Navy/Retired 1988) Professor, Director of Library of National Defense Academy (Retired 1998):

> "Yes, the Chinese can do reckless things with CRISPR and so does the rest of the labs around the world with biotech capability. Of course, the Chinese are not going to destroy an industrial city with three times the population of Chicago in the heart of China. The real tragedy is that the Wuhan biosafety lab is ineffective and totally useless against coronavirus due to the fact that all the competent microbiologists are working for big pharma down in Shezhen. So get a handle on your irrational fears.
>
> The vilified National Institute of Virology in Wuhan has been operating less than 3 years since completion of construction, much too short a timeframe for bioweapons development. For a virus to undergo two transitions from its resident host bat, that is, to an intermediate mammal species with genetic similarities with humans and then into patient zero, with a fully adapted RNA structure capable of rapid replication and defense mechanism in an unfamiliar human immune system would take decades of trial-and-error mutations.

The human body is a complex system, especially due to our omnivorous ancestry and social tendency, with a high degree of disease resistance as compared with nearly all other life-forms.

The RNA of the horseshoe bat is less than 87 percent similar to SARS-COV2 (COVID-19), meaning a 13 percent difference has to be bridged, not an easy proposition, especially since bats emerged 300 million years ago, whereas the human species have been around for a mere 3 million years. Cross-infection is not just about DNA sequences but also biological differentiation. Code does not a human make, otherwise we'd all be married to sex robots.

In addition to gene sequences, many of the protein structures require massive alteration, a redesign process that takes many generations of replication in each of the two host species, those candidates being the Mustelidae family of ferrets, civets, weasels and badgers, before the final hurdle of a leap into Hominids, us.

A single bite of a bat on a human finger won't trigger a mass contagion, but will be limited to a fever and maybe death for the individual, but not sweeping RNA reassembly in hosts as required for a pandemic spread by aerosol transmission. In addition, there are a lot of steps involved that can easily go wrong, resulting in incompatible or faulty RNA variants, which cannot carry the conversion process over to the next stage.

That's what accounts for the presence of HIV and m.TB inserts in the bio-engineered SAR coronavirus of the Hong Kong 2002-03 outbreak, those added components enabling "brute force" short-cuts, which is not possible with a naturally mutated variant. Indeed, exponential replication cannot last for long with these added-on structures, and so the COVID-19 pandemic will soon crash to a halt. Remember this point.

Even under the best of conditions, gene-modification of this sort requires a vast amount of research by experienced microbiologists with wide knowledge. - it was made in Japan."

Further as an explanation of the last sentence:

“Here in Part 4 of this series on the Wuhan coronavirus outbreak, smoking gun evidence against microbiologist Yoshihiro Kawaoka has surfaced in an RNA analysis run by microbiologists Prashant Prashant and colleagues at the Indian Institute of Technology and The University of Delhi. The introductory remarks by the Indian research team are a masterpiece of understated dry wit: "The finding of four unique inserts in 2019 -nCOV (Wuhan coronavirus), all of which have identity and similarity to amino acid residues of key structural proteins of HIV-1, is unlikely to be fortuitous."

Have a sip of Assam tea while pondering how four GP120 and Gag protein strands from HIV, the virus associated with AIDS, just happen to be strategically located inside this SARS-modified virus. The key word here is "insert", as in gene-engineered. Wuhan CoV was created in a lab.

Exhibit B is a 2011 research paper by Y. Kawaoka and two colleagues at his animal virology lab at the University of Wisconsin-Madison, titled "HIV reverse-binding protein is essential for influenza A virus replication and promotes genome-trafficking in late-stage infection". Published in the Journal of Virology, September 2011, it's an admission of guilt for preparing the emergence of the Wuhan contagion.

Creation of Wuhan CoV as a war crime.

By grafting HIV proteins into a flu virus, renegade researcher Yoshihiro Kawaoka not only increased a dormant virus's ability to replicate but, in the process of repeating this technique in his subsequent virus research, has unleashed ruthlessly aggressive hybrids with massive killing power as seen in the unstoppable slaughter of innocents in Wuhan. The exponential expansion of the death toll in China, soon to be repeated in other countries, proves that a persistent laxity of ethical standards in the major powers, and abysmal performance of the WHO, has enabled a maniacal campaign of extermination by the heirs of Unit 731 to realize their mission of genocide. The lawless pharmaceuticals, insane vaccinators and rogue microbiologists must be stopped in their tracks or humanity will face its final solution.

Perpetrators of a premeditated murder by special weapons on an unsuspecting public should be prosecuted and punished with full force of the law, as opposed to the coddling and sheltering of those murderous crews with Unit 731 and Operation Paperclip.

The rendering of stern justice is not only for the victims of this heinous attack but also leaves a legacy of judicial responsibility for future generations. High-ranking sponsors in government and major corporations also should be indicted and appropriately punished by prosecutors and judges. The long lapse in teaching science ethics should be reversed immediately by a revival of mandatory classes and seminars on the ethics of scientific research to prevent a recurrence of such barbaric horrors. Irresponsible researcher toying with mass destruction should be defrocked and kept under house arrest. Military countermeasures must not be excused from ethical standards not that the scientists with Pentagon projects are dumb-founded by the Wuhan events. Ethical enforcement, not military counter-force, provides the only real protection for society.

Crafting an unstoppable flu

To summarize, a decade ago at his lab in Wisconsin with generous funding from Japanese state institutions, Kawaoka was developing an "unstoppable flu", secretly derived from an illegal exhumation of the Arctic frozen corpse of an Alaskan native who died in the 1918-19 influenza pandemic, which killed up to 80 million worldwide. I learned of Kawaoka's reckless violations of science ethics from Robert Finnegan, former editor of the Jakarta Post, who was tracking the theft of MERS and other virus samples from NAMRU-2 (U.S. Navy Research Unit) by a senior local lab technician who personally smuggled the dangerous materials to U Wisconsin.

To conduct intensive research into his precious influenza sample, Kawaoka needed to produce large batches of replicant viruses, a capability weakened in the original Alaskan specimens, probably due to protein fragmentation in the time-span since the Alaskan native's death. The vintage virus was extraordinarily slow at replicating itself inside ferrets, whose lungs and other internal organs and similar to the human equivalents. (In a telltale clue and grudging admission, Kawaoka's paper repeatedly mentioned the incomplete replication of the sample flu virus, which is certainly not the case in recent influenza samples.)

Lethal mechanisms in plain talk

As a former student at the then world-leading biochemistry school at Purdue University, I comprehend the need for "translation" of scientific jargon into layman's language, along with the need for a backgrounder on the context and reasons behind the research. So please bear with me, folks, as I try to describe in plain terms of how unethical science created the Wuhan CoV attack system.

Viruses resemble heavy machines like those used at construction sites and factory assembly lines. The RNA of a flu virus "unfolds" like a truck re-configuring itself into a Transformer robot to pierce the membrane of a cell in your lungs. Now stretched out into the host cell, this self-transforming mechanism begins to stamp out virions (cores of new viruses) from your DNA and proteins. Its next task is to extract the newly minted virions out of the host cell. Outside the cell, other extensions of the viral RNA adds on more components to the virions. The replication process finishes the task by neatly folding and then bundling the new virus, and stuffs everything inside a protein membrane. Voila! A brand-new virus has emerged from your strip-mined cell, able and ready to attack another host.

Viruses that can produce masses of virions more expeditiously, of course, do an enormous amount of harm to the host suffering bleeding lungs and triggering symptoms like coughing, fever and spasms of pain, in some cases resulting in heart failure.

(The Alien series described viral replication in these same terms of motherhood, the big reptilian mama and her eggs, with a difference in that viruses are biological agents and not actually living entities, being more similar to robots or components of machines than to living creatures.)

HIV-facilitated speed-up

So, if a researcher needs a huge number of viruses for his experiments but has only a limited number of slow-moving "parent' stock, he must devise a method for accelerating the replication process. To use an industrial analogy, if a company boss wants his factory to produce more finished goods in a shorter amount of time, then he's going to have to invest in adding on new forklifts and robots to expedite the assembly line.

The HIV proteins serve a similar function as expediters, adding efficiency and quickness to virus replication, thereby massively increasing the production of flu viruses from his limited stock that managed to survive inside desiccated human

flesh for nearly 80 years. The source of Kawaoka's virus was never disclosed to the public or medical authorities, but somehow the straight-shooting Finnegan, a former Marine who had engaged in duels with Russian snipers along the Green Line is 1980s Beirut, was able to wheedle the admission out of one of Kawaoka's red-circled suppliers.

While searching for candidate viruses with hard-working proteins, the Japanese microbiologist noticed the highly efficient replication rate of HIV, which had spread like wildfire since the 1980s at the cost of demolishing fatigued bed-ridden patients. Peering through the electron microscope of your mind's eye, can you see his wicked grin?

In his 2011 research paper, Kawaoka and his two lab associates explains reported that attaching a quartet of HIV reverse-binding proteins (HRB) to the influenza virus vastly expedited the production rate of new virions and the efficiency of replication. The successful grafting of HIV proteins onto influenza viruses enabled the next steps in his research to craft an influenza virus as unstoppable as the Spanish flu of 1918-19.

In the final paragraph of his research paper, Kawaoka boasted "This is the first study to implicate cytoplasmic [membrane] trafficking strategy for the genomes of these two viruses. (Due to their difference in the sorting process) it will be interesting to delineate the point of difference between the influenza virus and HIV genome trafficking mechanisms."

Re-Gain of Function

Therein lies the rub. Prophetically, Kawaoka foresaw HIV acting in unexpected ways in constructing new flu virions and their components, which likely explains how and why the at-first relatively mild version bio-engineered Wuhan coronavirus was self-altered in its third or fourth generation with highly lethal proteins, a spontaneous Gain of Function, which transformed 2019-nCov into a raging killer.

Kawaoka assembled this viral bomb back in 2011 and in less than a decade it detonated, blowing the Tokyo Olympics out of the water and sinking Shinzo Abe's promising biological warfare project. It only makes me wonder if his grandfather was the designer of the Battleship Yamato.

The funding for Kawaoka's 2011 turn-key biotech research, which opened the gates to this dream of an "unstoppable" flu that can kill every human on the planet came from a "grant in-aid for specially promoted research from the Ministry for Culture, Sports, Science and Technology and by ERATO, the Science and Technology Ministry" with supplementary funds from the U.S. Institute of Allergies and Infectious Diseases, a part of the NIH, and the Public Health Service.

The English-language appellation for the "Monbusho" (Ministry of Education) discloses the nexus of biological warfare experiments with mass brainwashing of Japanese youth (mainly of whom have never even heard about the Fukushima nuclear meltdowns) and the Tokyo Olympic Games, scheduled for this summer but now under threat of cancellation due to the Kawaoka-Abe plot against Chinese food production-gone-viral in the global population.

Kawaoka's subsequent experiments with the MERS coronavirus and Ebola, which despite its different structure has characteristics similar to CoV, along with his cooperation in a coalition of CoV and influenza researchers, puts him in the driver's seat behind the Wuhan outbreak.

Japan's Factories of Death

Due to constraints of word count and attention span, I have to postpone until my next essay, Part 5, the stunning revelations about the biological warfare research by Kawaoka at his home base at the University of Tokyo and his Japanese colleagues at the (Japan) National Institute for Infectious Diseases (NIID) in Musashi-Murayama, a bedroom community on the western fringe of Tokyo; his alma mater Hokkaido University, and the new Shinzo Abe-sponsored Kake School of Veterinary Medicine with its underground labs on an spearhead-shaped bluff overlooking Imabari, Ehime Prefecture on Shikoku Island, the Inland Sea and the University of Okayama on the opposite mainland shore.

Some salient points from earlier essays or to be discussed in the upcoming Part 5 are listed below.

1. Shinzo Abe's patronage of biological warfare follows on his terminated efforts at developing chemical weapons and nuclear warheads, as research executive at Kobe Steel in the early 1980s in charge of reverse-engineering of Soviet advanced weapons-systems, who hired Hideo Murai, the physicists who emerged as the "Science Minister" for the Aum Shinrikyo cult, involved in the Tokyo subway gassing; and his career-long role of promoting nuclear-weapons development at the Greater Fukushima complex (as documented in my on-site videos). With the Wuhan biowarfare attack, Abe now completes his NBC suite of banned nuclear, biological and chemical weapons.

2. Yoshihiro Kawaoka's role in the development of "African" swine flu, a misnomer of the hybrid duck-pig-human virus that originated in the American Midwest, killing 12,000 Americans in 2009 and spreading to 70 countries, was the virus that destroyed more than 200 million pigs in China over the past year. The pig virus, which blooms in high temperatures, also infected millions of Chinese people, including in the capital Beijing, during the hot summer of 2019. Humans are the carriers for pig herds, which accounts for the rapid spread to every province of China, even at isolated farms.

3. Kawaoka's theft of the MERS coronavirus (the camel flu) from the U.S. Navy's NAMRU-2 infectious diseases laboratory in Jakarta, which possessed samples from the NAMRU-6 station in Cairo. MERS is a type of coronavirus based in the gene reservoir of North African oases, where dates and figs are grown in flooded basins, infecting camels and Tilapia fish. The 2015 MERS outbreak

occurred in Saudi Arabia, spilling over into the UAE and Oman, and broke out in South Korea due to a damaged shipping case at Osan Air Base. Kawaoka obtained the MERS sample about 3-5 years prior to the 2015 outbreak from a high-ranking female Indonesian lab technician working at NAMRU-2, in a long series of security breaches that prompted the Unit's relocation to Phnom Penh.

4. Complaints from prominent researchers about Kawaoka's flagrant violations of science ethics and public health safety rules prompted the National Institutes of Health (NIH) to impose a ban (2014-2017) on Gain of Function R&D (GOF), which deliberately increases the virulence of contagious pathogens, his creation of the unstoppable flu being the most notorious example of scientific "rolling the dice" with the future of life on Earth. Along with allies Ron Fouchier at the Rothschild-funded Eramus institute in Rotterdam and Adolfo Garcia-Sasso at Mount Sinai, Kawaoka led the rebellion against his "persecutors", the majority of microbiologists and public-health administers trying to prevent a chain-reaction catastrophe like the present Wuhan outbreak.

Factors behind Wuhan

In earlier essays in this series on Wuhan CoV, I have outlined, with some stabs at humor to alleviate the gloom and doom, the various factors contributing to the outbreak including:

- radical changes in and deterioration of the ecosystem of the Yangtze River system caused by the Three Gorges Dam, along with a massive expansion of aquaculture around Wuhan, which accounts for 70 percent of the world production of farmed fish, making the region a target for a Food as Weapon bio-strike.

- a hot weather anomaly from summer to early winter, which resulted in a drought, shrinking the water volume in the Yangtze, as well as promoting the spread of Swine Flu in pigs and humans.

- subsequent arrival of deliberately infected Okinawan Macrobats (flying fox fruit-eating bats, which are carriers of CoV and other human-affecting viruses, as opposed to the harmless insect-eating Microbats at the Wuhan fish market). The Okinawan flying fox is the sole bat species along the 31st parallel capable of transporting the CoV virus into the middle reaches of the Yangtze in their extraordinarily rare migration to the heat-abandoned orchards in Hubei Province. Also a look at the Japanese microbiology labs and professional bat collectors in Japan, who might have sprayed CoV on fruits fed to the bats prior to their departure under pressure from angry tangerine farmers.

- The fact that the first three foreigners in Wuhan infected with CoV are Japanese, one of them with the milder early version of the released virus, and two with the more severe life-threatening

conditions due to "Re-gain of Function", a process researched by Kawaoka in which an HIV protein-enhanced virus can capture genes and proteins from a host cell to boost its virulence, as mentioned in this essay.

Coming up next

In the upcoming Part 5 of this series, I will follow up on the increase in potency of the virus transferred by infected Okinawan fruit bats to the red-blood cells of Tilapia, and the next step of aerosol dissemination of virus-carrying water droplets from fish tanks at the Wuhan market and the hundreds of fish vendors across Hubei Province, since inter-species transmission and resultant Re-Gain of Function (R-GOF) are key to developing a novel defensive strategy to render nCoV-2019 into a harmless variant.

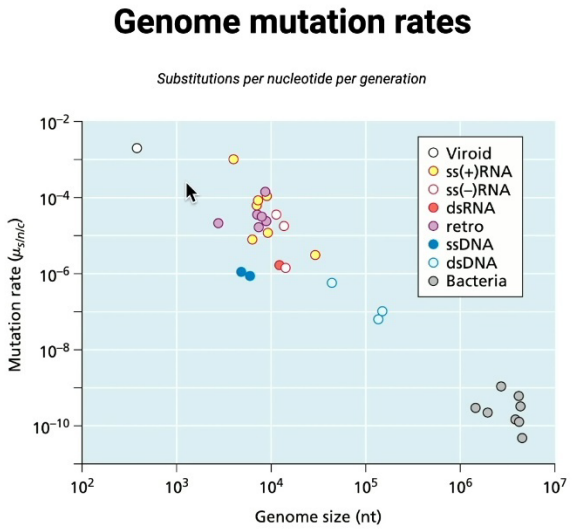
After plowing through more than 200 academic papers by or related to the genocidal Professor Kawaoka, there are other "nuggets and tidbits" to disclose about the revival of Unit 731 version 2 under Shinzo Abe and Yoshihiro Kawaoka, present-day Class-A war criminals who must be punished and disposed of, preferably through the formalities of a trial in an international court of law, to avert the same mistake of allowing Unit 731 to nestle inside the American biological weapons establishment, from where they went on to kill tens of thousands of victims since its release of hantavirus over the Yalu River in the Korean conflict, which blew back to annihilate 3,000 American servicemen on the Korean Peninsula whose families never received compensation or an explanation from the Pentagon. Crimes against humanity recur because their perpetrators are coddled, funded, promoted and encouraged by those institutions that were established to protect the citizenry from murderous tyrannical power.

The Wuhan coronavirus was Made in Japan, and for all the wrong reasons abetted in the USA. The Chinese people have suffered far beyond any lame rationale from brutal Japanese aggression. The first step in dealing with the CoV contagion is to demand the cancellation of the Tokyo Olympics and removal of Shinzo Abe as prime minister. If that is not implemented by force majeure of Western democracies, then the People's Republic of China will have ample justifiable grounds for a nuclear strike against Tokyo, Wuhan being a case more convincing than the rationale behind the atomic bombing of Hiroshima and Nagasaki. Two wrongs cannot right make, so therefore Washington must act to remove this second-edition of sadistic war criminals from power and influence, so that the Battle of Wuhan may finally put an end to the horrors left to us by the yet-resolved legacies of World War II.”

VIRUSES MUTATIONS, VARIANTS AND VACCINES ERADICATION

A characteristic of viruses is that they undergo a mutation process. It appears that most of those who died of Covid-19 carried the six mutations C241T, C3037T, C4683T, C14408T, A23403G, and G24077T. That is, the Euro-American mutations plus C4683T, and G24077T. As a group C241T, C3037T, C4683T, C14408T, A23403G, and G24077T are only found in 9 sequences from (Christchurch) New Zealand. By itself, the mutation, C4683T, has the following geographical distribution: New Zealand 9 sequences, United States 5, China 2, Singapore 1, and Australia 1. By itself, G24077T, has the following distribution: Portugal 65, United Kingdom 14, New Zealand 13, Netherlands 7, Iceland 3, United States 1, Switzerland 1, Italy 1, Georgia 1, Estonia 1, and Austria 1.

In the UK the more contagious/infectious "2020 12, N 501 Y" mutation at the 501 amino acid location on the spike protein from N (Asparagine) to Y (Tyrosene) spread in December 2020 to other locations such as Australia and Brazil. It replaced the other February 2020 variant D614G Aspartate (D) to Glycine (G) at the 614 location that appeared initially in China. The increased contagiousness could be related to more virus accumulating in the upper airways, hence a larger shedding rate. More than 12,000 mutations have been catalogued in 90,000 isolates with any two isolates differing by about 1 bases. An increase in the reproductive index R is noted of 0.39 t0 0.93. No new "strain" that has distinct biological properties having implications for human transmission or pathogenesis.



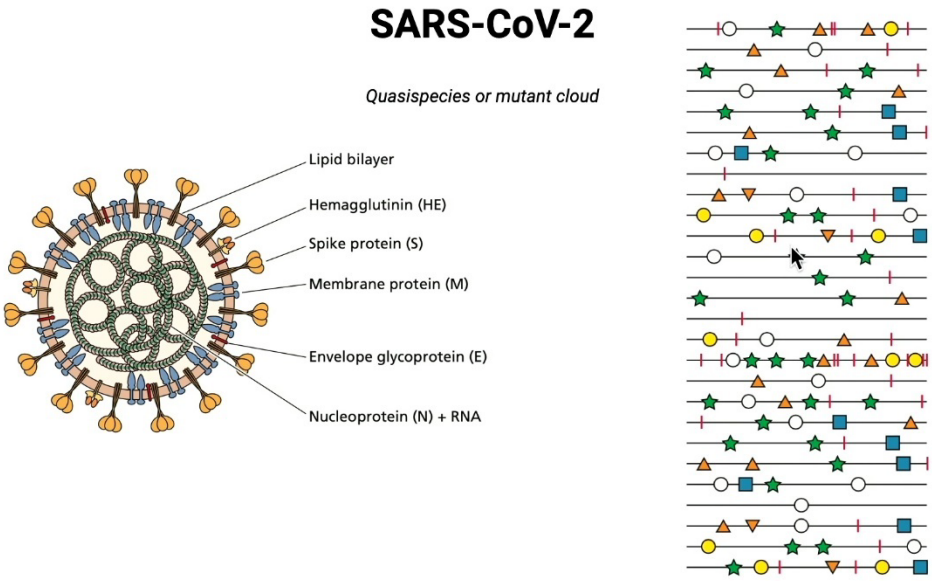


Figure 59. Mutant cloud.

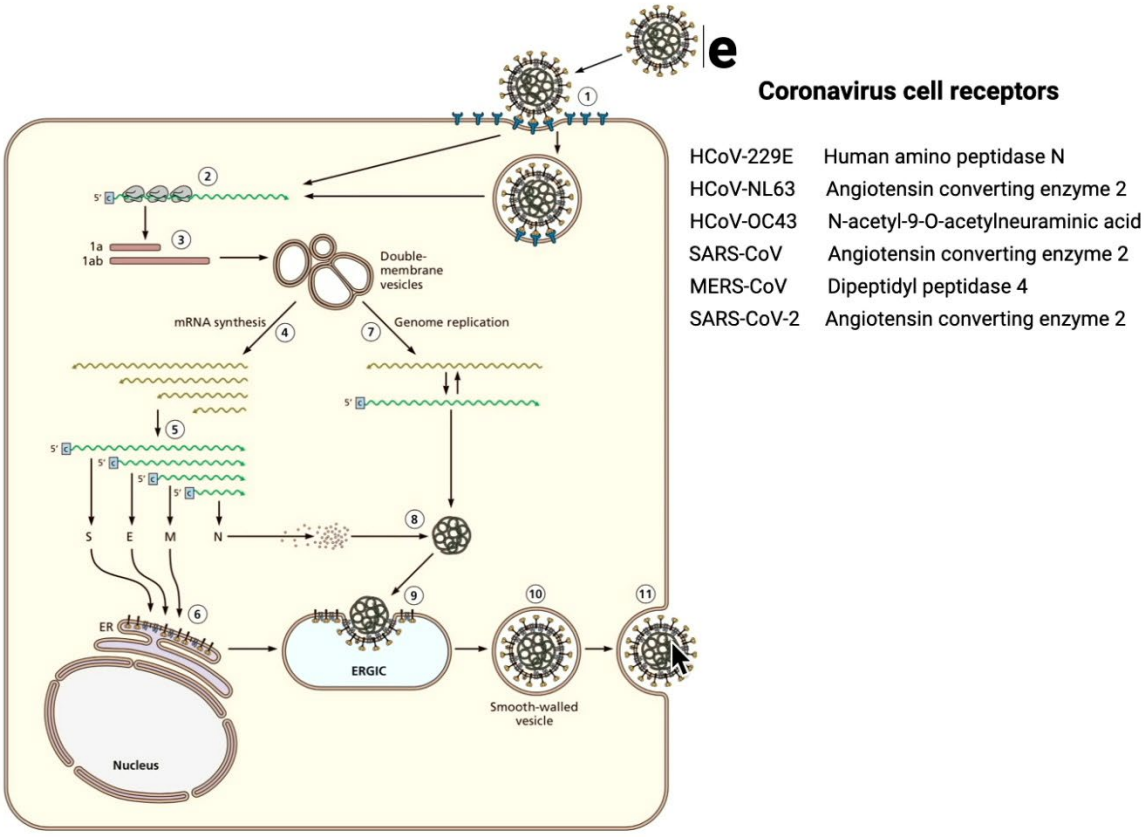


Figure 60. Genome replication cycle.

On an optimistic note, out of the laboratory, within a human population, a smart organism would seek a symbiotic relationship with its host and jointly survive with it. This is in fact what happens in bats which coexist with a load of different viruses with neither host nor virus killing the other. A not-so-smart organism will kill its host and hence disappear with it. As viruses undergo multiple mutations, it is inevitable that some less deadly mutations will eventually reach a symbiotic relationship with its host for both of them to co-survive.

Hence, we can expect a less virulent version of the Covid-19 virus to eventually predominate over the virulent ones. They may evolve into a similar situation as the common cold viruses which multiply without necessarily succumbing with their host, but who also have no reliable vaccines as they mutate too often into multiple strains, some virulent and some less innocuous.

However, claims are made that no Corona virus has ever been grown in a human cell line, not the 2003 SARS Corona, nor the putative Covid-19 Corona, both were cultured in a Green Monkey Kidney cell line-not even lung or airway tissue from Green Moneys much less humans.

The statements about exchange between cell cultures in petri dish are science hard to establish. As an example, while bacteria may be cultured rather easily in petri dishes, viruses require careful stirring in temperature controlled (37 ºC) flasks with just the right nutrients and oxygen to keep the cells alive-you know like in a mammal which is the ideal growth "medium" for virus. When trying to grow virus in tissue media you usually add anti-biotics to try to avoid growing bacteria-but you do not always succeed as some bacteria are antibiotic resistant.

No "vaccine" or anti-virial is ever going to be effective because the scientific evidence that a virus causes this Wuhan flu pneumonia is lacking. The first Corona phenotype was isolated and identified as "causing" a type of common cold in 1965 and it was actually studied and shown to cause a cold.

Vero cells are kidney epithelial cells from green monkeys. Not human epithelial cells from airway or lung tissue. But that is what is claimed to be attacked by Covid-19 not the kidneys of green monkeys who are likely quite immune to human respiratory virus as we are to their monkey respiratory virus. The pneumonia which kills Wuhan patients is assumed to be caused by putative viral replication in human lung tissue. Covid-19does not attack and replicate in human kidneys. This is a respiratory virus. They are only using an African green monkey Kidney cell line because it won't replicate in human cell lines-no Corona has or will do so.

The Transmission Electron Microscopes TEMs views are showing pictures of exosomes. The particles shown 70-90 nm particles shown outside cells should be only one size (i.e. monodisperse) if they were virus (unless they were multiple kinds of virus which they also did not rule out with either separation or controls). They are clearly polydisperse as would be expected for exosome vesicles.

That is why you have to separate and purify any products of alleged viral in vitro replication no matter the cell line used. You need to do it before inoculation of the cells with lung lavage from a patient and then after putative replication and isolation of product. Then the purified viral product needs to put into the nasal passage of a healthy human and

see if the same disease develops. Not done here and rarely done for any virus. There are lots of other genetic components that can cause the cell death that you mention. Any stressed cell will output exosomes try to signal the surrounding cells of its stress. They will emerge from cells just as virus do after intracellular replication. Separation and purification is the key.

Every year 90 percent of all deaths are for people over 65. Pneumonia, strokes, heart disease, liver disease, cancer, diabetes etc. That is what they are dying from. About 94 percent of all claimed deaths for Covid-19 have co-morbidities. The other 6 percent are maybe medical errors such as putting people with pneumonia on ventilators instead of simply giving supplemental oxygen. Or neglect of people with hospitals closed down for everything except Covid-19.

The unscientific mask wearing and social distancing have no evidence that this works for any virus. An aerosol particle of a virus is less than 1μm in size and the surgical masks only block particles down to 100 μm at best. It is like trying to catch flies with a chain link fence.

The smallpox virus was driven to extinction in the 1970s by a determined vaccination program. A different strain, one which was previously unknown silently disappeared centuries ago. Some viruses appear then disappear. A global vaccination program pushed smallpox into extinction in the wild, although the virus still exists in two secure laboratories.

A recent virus disappearance was Severe Acute Respiratory Syndrome (SARS). The world became aware of its existence on February 20, 2003, after the Beijing office of the World Health Organization (WHO) received an email describing "a strange contagious disease" which had killed 100 people in the space of a week. The earliest cases occurred in Guangdong, a coastal province in southeast China known for its many restaurants serving exotic meats. At the time, local wet markets bustled with racoons, badgers, palm civets, doves, rabbits, pheasants, deer and snakes. SARS was driven to extinction by a combination of sophisticated contact-tracing and the quirks of the virus itself. The virus had infected at least 8,096 people, 774 of whom died. It was an RNA virus, meaning it was able to evolve rapidly, and it was spread through droplets expelled when breathing, which are hard to avoid. At the time, many experts were concerned that the virus could cause devastation on the same level as the HIV crisis, or even the 1918/1919 Spanish flu pandemic, which infected a third of the world's population and killed 50 million. SARS disappeared as abruptly as it arrived. By January 2004, there were just a handful of cases – and by the end of month, the last suspected natural infection was announced. There was another outbreak a couple of months later, when it is thought to have escaped from a Beijing research lab twice. SARS was driven to extinction by a combination of sophisticated contact-tracing and the quirks of the virus itself. When patients with SARS got sick, they got very sick. The virus had a staggeringly high fatality rate –almost one in five patients died – but this meant that it was relatively easy to identify those who were infected and quarantine them. There was no extra spread from people without symptoms, and as a bonus, SARS took a relatively long time to incubate before it became contagious, which gave contact-tracers extra time to find anyone who might be infected before they could pass it on. Governments and institutions acted fast. SARS went away because there is no other obvious host. It is thought to have made the leap to humans via a palm civet, a tree-dwelling jungle mammal that is considered a delicacy in China. The virus could not

just retreat back to this species, because they are not commonly infected – the individual animal that gave it to a human was probably one of very few which were infected, and may have caught it directly from a bat.

In addition to SARS, two other viruses have ever been driven to extinction on purpose; smallpox and rinderpest, which affects cattle. The war against these two viruses was won using vaccines.

Vaccines are set to eliminate polio. Cases have decreased by 99% since the 1980s and possibly eventually measles, though recently these efforts have been set back by war, the anti-vaxxer movement and Covid-19. Polio was recently announced to have hopefully been eradicated in Africa after a long-running vaccination program.

Vaccinations can help prime the human immune system to fight off viruses, making it harder for them to spread. Vaccinations can help prime the human immune system to fight off viruses, making it harder for them to spread.

Some viruses are unlikely to ever go extinct because humans are not their only host. In humans, outbreaks of Ebola end all the time. There have been at least 26 across Africa since the virus was discovered in 1976, and these are just the ones that caused enough cases to be picked up by health authorities. They tend to occur when the virus jumps from an animal – usually a bat – to a human, who then infects other humans. As long as there are bats, it may always be with us, regardless of whether there is a single person infected anywhere on the planet.

Though the 10th Ebola outbreak to have plagued the Democratic Republic of the Congo was declared officially over on June 25. 2020, by then another had already begun. The 11th outbreak became confined to the north-west of the country and is thought to be caused by a brand new type of Ebola, which was acquired from an animal entirely independent of all the others. Of the six species of Ebola, there is only a vaccine for one of them – the type that killed 11,000 people in West Africa between 2013 and 2016.

Middle East Respiratory Syndrome, MERS is thought to have crossed over to people from camels on hundreds of separate occasions. It hit global headlines in 2012 when it first emerged after infecting humans from camels.

Covid-19 is thought to have originally belonged to bats, before briefly being passed on to another animal such as pangolins, and eventually to humans. With Covid-19, the reservoir is now humans. Scientists wonder if it will spread the other way around – from humans to wildlife, in a kind of "reverse spillover."

Some viruses exist continuously in people. While they may well be with the human species forever, it turns out that individual lineages of viruses vanish remarkably regularly. Every flu virus that existed in humans until about 120 years ago has gone extinct.

There are two main types of the flu:

1. Influenza A, which infects many other animals as well as humans – mostly aquatic birds, from ducks and geese to rare Antarctic wildlife, such as the Giant Petrel – but is always with us in one form or another. This kind is responsible for the majority of cases of seasonal flu– and it also causes pandemics.
2. Influenza B, which only infects humans and seals, and never causes pandemics.

It was thought that the influenza A strains we live with are constantly evolving to be better able to infect us. But the latest scientific research shows that this is not the case. Anyone who died before 1893 will never have been infected with any of the influenza A strains that exist today. That is because every flu virus that existed in humans until about

120 years ago has gone extinct. The strain that caused the 1918/1919 Spanish flu pandemic has disappeared, as has the one that led to the 1957 avian flu outbreak, which killed up to 116,000 people in the USA, and the type of flu that was circulating in 2009, before swine flu emerged. If established flu strains tend to continue evolving down many different paths then the vast majority will abruptly go extinct. Every few decades, a new type of flu will evolve to replace them, usually made from a combination of old flu viruses and new ones, fresh from animals. If you are focused on any particular strain or any particular genetic sequence that is replicating itself, there is a very, very high extinction rate. Strains are dying out every couple years. Rather than adapting to humans over time, it seems that H1N1 – the type that caused the 1918/1919 Spanish flu pandemic and swine flu, and has now disappeared – had been quietly accumulating mutations which were useless or even actively harmful to its own survival.

Some scientists are suggesting that speeding this process up might allow us to use the rapid evolution of endemic human viruses to our advantage. The idea has been around for a while as a way to rid ourselves of the flu and colds and it was also suggested as a method of combating Covid-19.

The plan depends on the biology of RNA viruses; a group that includes many of humanity's most intractable pathogens, including HIV, the flu, coronaviruses, and Ebola. Their genetic material is made of RNA as opposed to DNA, which means that when they hijack their host's machinery to copy themselves, they do not include a "proofreading" step where they check for mistakes. This is thought of as a bad thing for humans, because these mutations mean that there is an extraordinary amount of genetic diversity among RNA viruses, allowing them to evolve rapidly – so any vaccines or drugs that target them quickly become obsolete.

The staggering rate of mutation is a double-edged sword. Above a certain rate, mutations become harmful, leading to virus strains which are burdened with genetic faults that hinder their spread. Eventually, this can lead to their extinction. Viruses pick up errors in their genetic code as they spread, so in some cases it is possible to simply wait them out. Speeding up viral evolution artificially with drugs that encourage them to mutate at an even higher rate than usual could bring some benefits. First, it might weaken the virus enough to reduce the amount circulating within individual patients. This could make it easier to treat in those with severe illness. There is already some evidence that this can work – clinical trials in the USA and Japan have found that the mutation-inducing drug "favipiravir" is effective against the flu strain H1N1. Virologist Elena Govorkova at St Jude Children's Hospital in Memphis, Tennessee, and her team have shown that the drug appears to make the flu virus less infectious. Secondly, certain virus strains, like the types of Covid-19 – of which there are at least six – might amass enough mutations that are harmful to themselves so that they disappear altogether.

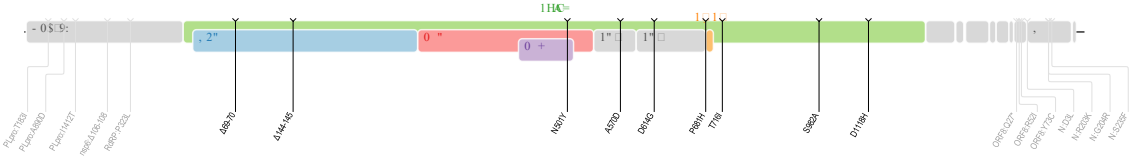
Vaccination programs ended in the 1970s, and many are concerned that these rare stashes of smallpox might have the potential to spark another major global pandemic. That is not to mention the latent threat of synthetic viruses. In 2017, a team of Canadian scientists stitched together a horsepox virus, which is a close relative of smallpox and may or may not be extinct. As with many other viruses, no one knows for sure if it has died out, but the scientists were able to recreate it using records of its genetic code and scraps of DNA they ordered over the internet.

Perhaps Covid-19 will inspire a new scientific revolution, and the concept of catching several colds or the flu each year will become as alien as having to worry about smallpox.

VARIANTS AND MUTATIONS OF COVID-19

There are thousands of different variants of Covid circulating across the world. Viruses mutate all the time, and most changes are inconsequential. Some even harm the virus itself. But others can make the disease more infectious or threatening - and these mutations tend to dominate. The main six-variant cluster, collectively known as the βΩηΙΚα cluster attracts the most concern. As an example:

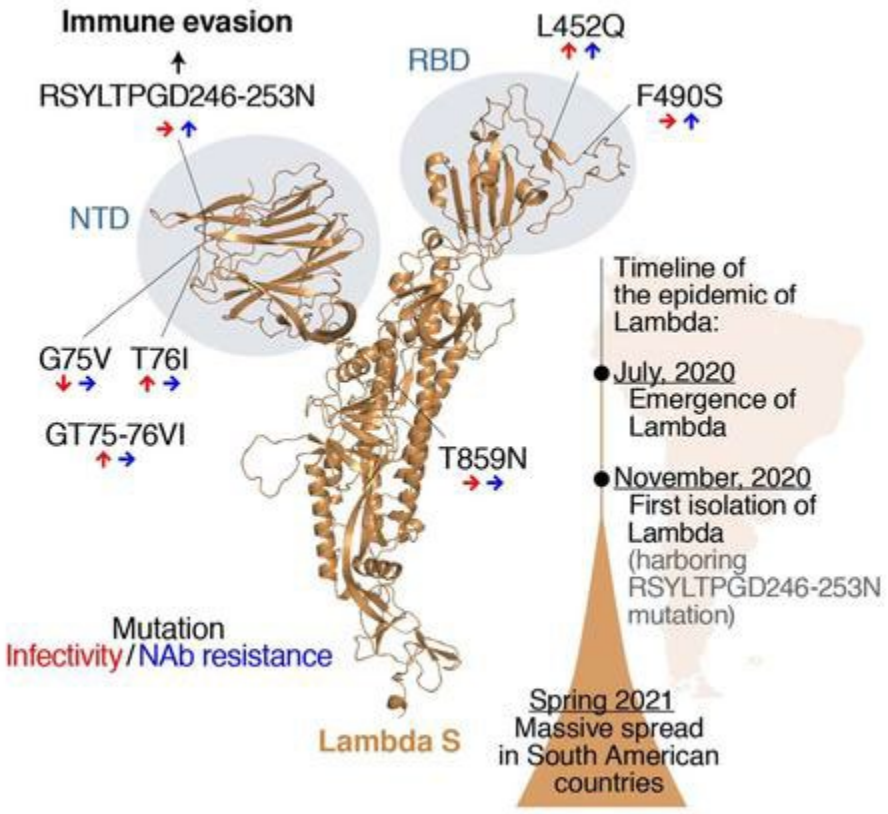
B.1.1.7
Listed by: WHO, CDC, COG-UK, ECDC
Outbreak.info B.1.1.7 Lineage Report [1]

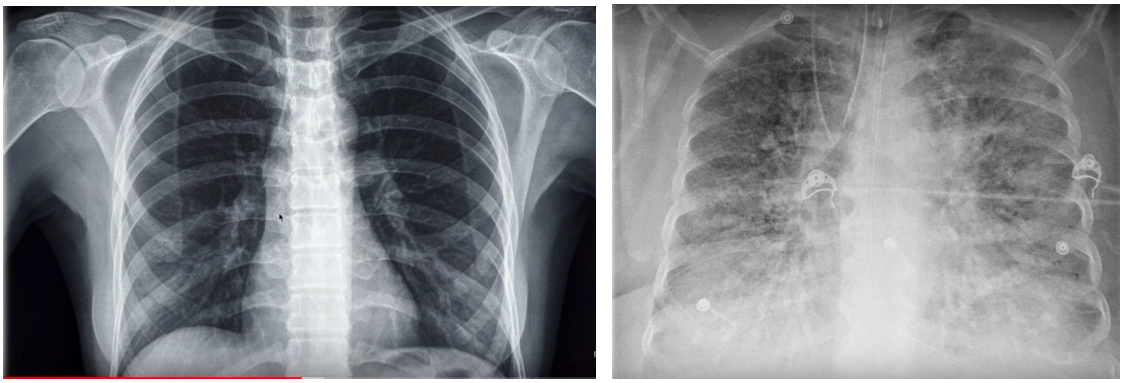


A compilation of 57 variants from https://covdb.stanford.edu/page/mutation-viewer/#sec_kappa as of August 2nd, 3021 is:

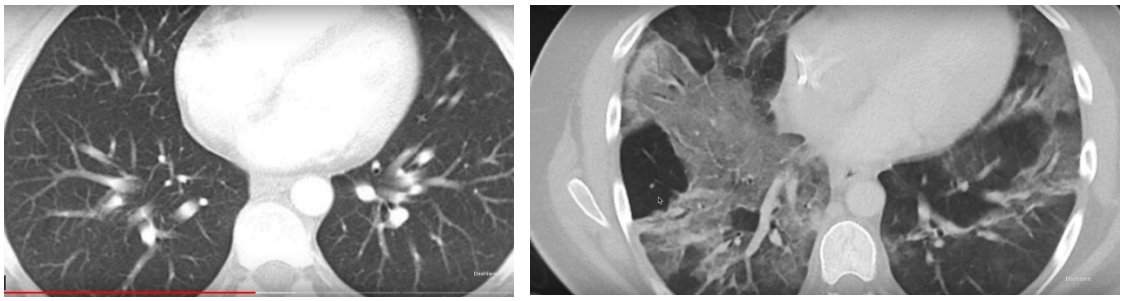
- Variants with adaptive mutations
  - Alpha, aka B.1.1.7, 501Y.V1, 20I/501Y.V1, and UK COVID variant
  - Beta, aka B.1.351, 501Y.V2, 20C/501Y.V2, and South African COVID-19 variant
  - Gamma, aka P.1, B.1.1.28.1, 20J/501Y.V3, and K417T/E484K/N501Y
  - Delta, aka B.1.617.2
  - Eta variant, aka B.1.525
  - Iota variant, aka B.1.526
  - Kappa variant, aka B.1.617.1
  - Lambda variant, aka C.37, and B.1.1.1 sublineage in Peru and Chile
  - Other WHO Listed Variants
  - Other CDC Listed Variants
  - Other COG-UK Listed Variants
  - Other ECDC Listed Variants
  - Other Variants
  - SARS-COV-2 Variants Tracking sites
- Prolonged Infections
  - Kemp S, Collier DA, et int., and Gupta RK.
  - McCarthy KR, Rennick LJ, et int., and Duprex WP.
  - Choi B, Choudhary MC, et int., and Li JZ.
  - Avanzato VA, Matson MJ, et int., and Munster VJ.
  - Bazykin G, Stanevich O, et int., and Lioznov D.

- Khatamzas E, Rehn A, et int., and Antwerpen M.
- Chen L, Zody CM, et int., and Kreiswirth BN.
- Focosi D, Novazzi F, et int., and Maggi F.





Normal lung and lung of Covid-19patient with acute Acute Respiratory Distress Syndrome, ARDS.



Lung Computer Aided Tomography CAT scan of normal lung and lung of covid-19 patient with ARDS.

The Lambda strain may be vaccine resistant, as well as more infectious than the original alpha strain of SARS-CoV-2. In addition to increasing viral infectivity, the Delta variant exhibits higher resistance to the vaccine-induced neutralization. the Lambda variant equips not only increased infectivity but also resistance against antiviral immunity.

The Pfizer vaccine was just 42 percent effective in July 2021 when the Delta variant was dominant. A vaccine which does not stop the spread and only reduces symptoms creates an environment for a virus to become stronger.

In Israel, with 84 percent of the population vaccinated, 64 percent of those vaccinated develop micro blood clots. A doctor tested all his patients after they took the with a d-dimer test. These people will get a problem with clotting in the lungs. Especially if they do not start taking blood thinners.

Some vaccines, such as the hepatitis vaccine, work for life. Others such as polio or tetanus need regular boosters to maintain our immunity.

The Alpha variant, first identified in Kent, UK, performed a large jump in its ability to transmit. The more contagious Delta variant, seen first in India, leapt further still. This is evolution in action. So, we may be doomed to a never-ending parade of new and improved variants that get harder and harder to contain. Or is there may be a limit to how much worse coronavirus can become.

The way of comparing the pure biological spreading power of viruses is to look at their R_0 (pronounced R-naught). It is the average number of people each infected person passes a virus on to if nobody were immune and nobody took extra precautions to avoid getting infected.

That number was around 2.5 when the pandemic started in Wuhan and could be as high as 8.0 for the Delta variant, according to disease modelers at Imperial College, London. The covid-19 virus is beyond anything feared as it has happened twice in 18 months, with two lineages Alpha and then Delta each 50% more transmissible is a phenomenal amount of change.

Table . Comparison of R_0 value of different viruses.

Disease, variants of concern	R_0 value
Influenza	1
Covid-19, Wuhan	2.4-2.6
Covid-19 first wave in Europe	3

Alpha variant, Kent, B.1.1.7, UK	4-5
Beta variant, B.1.351, South Africa	
Gamma variant, P.1, Brazil	
Delta variant, B.1.617.2, India	5-8
Mumps	12
Measles	18

There are many ways a virus uses to get better at spreading, such as:

- improving how it opens the doorway to our body's cells,
- surviving longer in the air,
- increasing the viral load so patients breathe or cough out more viruses,
- changing when in the course of an infection it spreads to another person.

One way the Alpha variant became more transmissible was by getting better at sneaking past the intruder alarm, or the interferon response, inside our body's cells. But this does not mean that by the time we work through the Greek alphabet of variants and reach Omega that we shall end up with an unstoppable beast.

The variants experts concerned about have all undergone changes to their spike protein - the part of the virus which attaches to human cells. The Delta variant has some potentially important ones (such as L452R) that might make it spread more easily. There is no evidence to indicate it causes more severe disease or might make current vaccines less effective, say UK officials. The World Health Organization, meanwhile, has classified another, similar variant that is also circulating in India - called B.1.617 - as a variant of concern. One mutation, called N501Y, shared by the Alpha, Gamma and Beta variant seems to make the virus better at infecting cells and spreading. The Beta and Gamma variants also have a key mutation, called E484K, that may help the virus evade antibodies, key parts of the immune system which help bodies fight off infection. Experts found a small number of cases of the Alpha variant that have this change too.

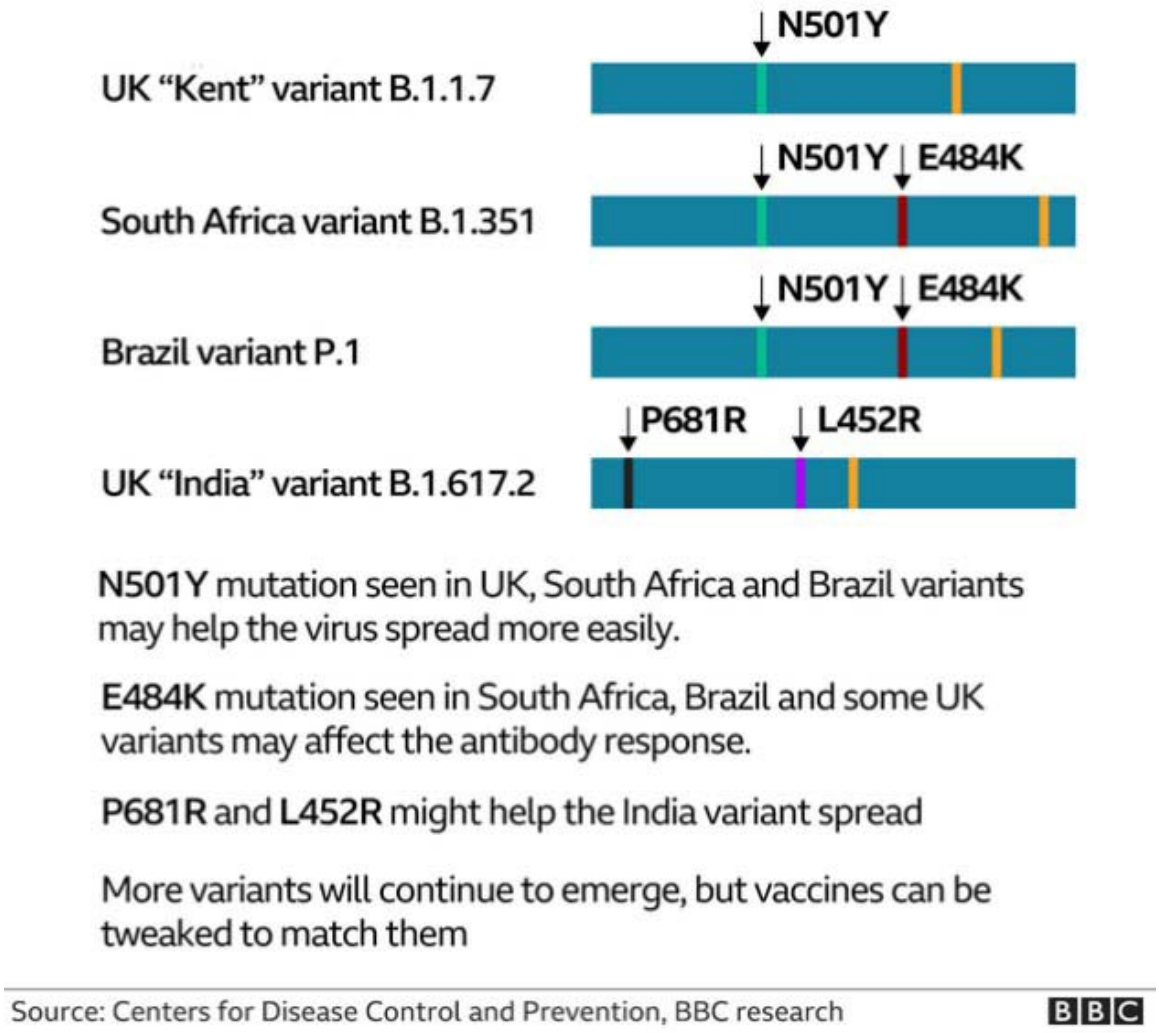


Figure 61. Covid 19 variants of concern.

It is possible that changes in the virus that make it better at avoiding vaccines could end up compromising its ability to transmit in an absolute sense. The Beta variant - which has a mutation called E484K that helps evade the immune system but has not managed to take off - is an example of this. However, the Delta variant does have mutations that both help it spread and partially dodge immunity. Measles is explosive but leaves behind a life-long immunity, so it always has to find someone new. Influenza has a much lower R0, but constantly mutates to side-step immunity.

That the virus must get milder in order to spread more easily is questionable. There is very little evolutionary pressure on the virus for that to happen. The virus is already off into the next person long before it kills the person it infected. And the younger people who do the most spreading are those who do not get very ill.

In rich countries with good vaccination campaigns, it is hoped the next variants would not be able to pose a major problem due to widespread immunity. But the progressively more transmissible variants are a nightmare for the rest of the world where they are making it harder and harder to stay on top of Covid-19.

Covid-19 gained an ability that would prove decisive in its relationship with human beings. The virus picked up a seemingly small change in its genetic code. It was likely an unfortunate accident – a fragment of genetic information from another virus got muddled up with that of the coronavirus while they were both infecting a bat. Millions of mink have been culled in Denmark after a variant of Covid-19 was found to be passing from the animals to humans.

Included within this tiny piece of genome, however, were the instructions that altered a key part of the virus – its spike protein. This important protein studs the outside of the coronavirus and is the part that attaches to the outside of cells, helping the rest of the virus to sneak inside where it can replicate.

This change to Covid-19's spike protein meant it could hijack an enzyme found in the human body called furin. This enzyme acts like a pair of molecular scissors, normally cutting open hormones and growth factors to activate them. But when furin snips part of the Covid-19 spike protein, which is normally folded in a series of loops on the outside of the virus, it opens like a hinge. This exposes a new sequence in the spike protein. It is one of the changes that make this virus really different from previous coronaviruses that caused Sars and Mers.

This new mutation meant Covid-19 could suddenly latch onto an important molecule found scattered around the outside of human respiratory cells called Neuropilin 1. This molecule helps to transport material inside cells and deeper into tissues – the mutation was like handing Covid-19 the keys to a new door into our cells and meant the virus could replicate in greater numbers in the human airways.

Although this mutation was just one in Covid-19's short existence, it proved to be important. Some researchers believe it may be one of the key mutations that allowed the coronavirus to jump species and begin causing a rapidly spreading disease in humans. But almost as soon as it did this, it began picking up other mutations.

With almost every person it infects, the virus changes very subtly – picking up a letter in its genetic code here, another being deleted there or swapped for something different. These occur usually because of tiny errors as the virus takes over the cell's molecular machinery to copy itself. Most have little effect other than helping scientists to trace how the virus is spreading around the world. But occasionally a mutation occurs that alters how quickly the virus spreads, how infectious it might be or even the severity of the disease it causes. Understanding what might be driving some of the changes to the virus and what they do to its behavior could prove essential as the pandemic continues.

Some of the most important changes that Covid-19 has undergone.

1. The super shedder D614G mutation

The mutation that allowed furin to cut the spike protein was already present in the Covid-19 virus as it began to infect people in Wuhan in early December 2010. A few short months later, the first cases began to be detected in Europe and a major change in the virus occurred that would prove significant for the course of the pandemic. Although there is now evidence to suggest Covid-19 had arrived in Europe as early as December 2019, the virus was initially spotted spreading in northern Italy in February 2020.

Samples taken from there on February 20, 2019revealed the virus had undergone a mutation on the spike protein that dramatically increased the number of viral particles that

were shed by infected cells, particularly in the upper respiratory tract of patients. The mutation may have also left the virus more vulnerable to antibodies, meaning it was less able to cause reinfections in people

Recent analysis, however, suggests this variant may also have originated in China and had been circulating in a number of provinces there in late January 2020. It was even found to have made its way to Bavaria, Germany, on January 28, 2020 via someone travelling from Shanghai, suggesting it was introduced to Europe on a number of occasions from China. The mutation the virus picked up is known as D614G, and this change seems to have enabled the virus to spread more quickly between people, probably because infected people coughed and breathed more of the virus out.

D614G gives the Covid-19 spike protein a more "open" structure, which improves its ability to bind to another receptor found on the surface of human cells called ACE2. Covid-19's ability to bind to ACE2 was already known to be one of the reasons it had been able to start infecting humans in the first place, but this new mutation gave it an increased ability to target human cells.

Subsequent research has suggested that D614G made the virus more infectious than the original version that emerged from Wuhan and appears to have been more common in younger people. But this also came at a cost – the mutation may have also left the virus more vulnerable to antibodies, meaning it was less able to cause reinfections in people who had already had the disease. This also meant it could be combated using convalescent plasma from patients who had already recovered as used with USA President Gonald Trump. Despite this, the D614G variant quickly became the dominant form of the virus around the world.

2. The holiday 20A.EU1, A222V Spanish variant

As lockdowns eased in Europe over the summer and international travel began to rise again, another significant new variant of Covid-19 emerged in Spain. First detected in June 2020, it spread throughout Europe and by September it accounted for 50 -70 percent of cases in Switzerland, Ireland and the UK.

Named 20A.EU1, or more commonly the "Spanish variant", this version of Covid-19 picked up a mutation on its spike protein that was designated A222V. But the mutation does not occur in an area that binds to the cell surface, so is unlikely to have produced increased infectivity. Instead, researchers believe its rapid spread and high prevalence is more incidental – due to the spurt of travel that occurred over the summer as people squeezed in a holiday while restrictions were eased.

3. The antibody evader N439K mutation

While A222V mutations do not appear to have led to a dramatic change in the virus's behavior, another mutation that emerged in Scotland during March 2020 set some alarm bells ringing. This mutation – known as N439K – was discovered in around 500 samples taken from patients in Scotland but by June appears to have died out in the country, possibly due to the reduced spread thanks to strict lockdown restrictions.

The mutation to the Covid-19 spike protein not only appears to have increased its ability to bind to ACE2 on human cells but variants carrying this mutation have also shown

some resistance to antibodies taken from patients who have recovered from the virus. It has raised concerns about the virus's ability to cause reinfections. But experts say that it does not appear to cause any increase in severity of the disease in patients. A recent report by the Covid-19 Genomics UK Consortium suggests that there is no evidence that this mutation will allow the virus to impair the immunity triggered by vaccines.

4. The H69/V70 deletion mutation repeat offender

In the autumn of 2020 new occurrences of this mutation in Covid-19 appeared – apparently independent of those seen in Scotland – elsewhere in Europe and also in the USA where they continue to spread. It is also now occurring alongside another mutation – the deletion of two apparently key amino acids on the spike protein, H69 and V70. increases the infectivity by twofold/

The H69/V70 deletion popped up all over the world. Scientists first began seeing it in samples in Thailand in January 2020 and then in Germany the following month, although both appear to have occurred independently. The H69/V70 deletion has been found to produce a change in the shape of the Covid-19 spike protein so that a loop of molecules that normally protrude from it are pulled in tighter. Although it is not totally clear what benefit this might give the virus, it has been suggested it may be an adaptation by the virus as it tries to evade the immune system, although no change in the severity of the disease or impact on vaccines has been spotted.

An analysis of virus sequencing data from around the world suggests H69/V70 deletions have occurred multiple times in Covid-19. For much of 2019 it spread quietly, then a cluster of patients infected with the virus carrying a H69/V70 deletion appeared in Denmark. This mutation was appearing in a version of the virus that was being passed from mink on farms to humans. While analysis showed the virus had mutated slightly to become more infectious to the animals, some early data suggested it was also less sensitive to antibodies contained in the blood serum of patients who had recovered from Covid-19.

In August 2020 the H69/V70 deletion started to become far more common and was appearing in virus samples alongside the N439K mutation.

5. The British B.1.1.7 New Delhi double mutations E484Q and L452R variant

This same H69/V70 deletion is one of the main features in the rapidly spreading B117 British variant of Covid-19. Alongside this change, B117 has accumulated 16 other mutations on its spike protein. Many of the mutations that are seen in this new variant are ones that we have not really seen before.

Among those is a mutation neighboring the furin cleavage site on the spike protein that proved so important in Covid-19's ability to become a pandemic strain in the first place. This mutation, known as P681H, has been found in other variants around the world before, including in a lineage of the virus that emerged in Nigeria in December, called B11207.

The difference with the British variant is that it carries another important mutation known as N501Y, which occurs in a key region the virus uses to bind to cells. It is thought to help the virus bind more tightly to the ACE2 receptor on the outside of cells.

Some public health officials predicted that B117 will become the dominant form of Covid-19 in many countries. Although the exact impact of the other individual mutations

that have occurred in the British variant are not fully explored, when combined, they have led the virus to become more transmissible between people. This is perhaps because those infected with the virus produce more infectious particles than with previous variants. It means that more of the virus is expelled in tiny droplets by infected individuals when they cough, talk and breathe.

Scientists have estimated that B117 replicates itself twice as fast as the strain that emerged from Wuhan. Some public health officials predicted that B117 will become the dominant form of Covid-19 in many countries, including the USA. Exactly how the British variant occurred is still not clear, although it is not thought to have accumulated so many mutations gradually. Their sudden appearance together is a clue for some researchers. The working hypothesis is that this happened in a chronically infected individual. There have been at least two cases of H69/V70 deletions occurring alongside other mutations in patients who have been chronically ill with Covid-19 – one in an elderly woman in Moscow, Russia, and the man in Cambridge, UK. Both had received treatment for cancer which is thought to have reduced the ability of their immune systems to fight off Covid-19. Because the patients were infected for so long, the virus had time to replicate to high levels in their bodies and accumulate mutations. When the patients were given antibody therapy, those versions of the virus that were better able to escape or outpace the treatment survived. In long-term infections the virus has a chance of fighting off a bit of genetic pressure from a treatment.

Recent mortality data released in Britain seems to suggest that the B117 variant is up to 30% deadlier than the earlier versions of the virus, but this is yet to be confirmed in peer-reviewed scientific studies. It is not believed that B117 will pose a problem for the vaccines being rolled out around the world. One study showed that antibodies produced by participants in the Pfizer vaccine trial do seem to act against this variant.

6. The South African Variant B1351, 501Y.V2

Shortly after news of the B117 variant broke, scientists in South Africa revealed that they too had identified another mutated Covid-19 virus spreading within their own country. Following the first wave of SARS-CoV-2, we observed rapid resurgence of infections in two regions of South Africa – the Eastern and Western Cape Provinces. By December 2020 the variant – called 501Y.V2 or B1351 – had spread to a number of other areas of South Africa and was also detected in neighboring Zambia. It has since been found in at least 20 other countries in travellers and has shown signs of spreading locally in some too.

A study has shown that the South African variant is able to escape antibodies in the blood plasma of patients who caught Covid-19 during the first wave of the pandemic. While this could be seen as a worrying sign that current Covid-19 vaccines may be less effective against this variant, it is important to remember that antibodies only form one part of the immune system's response to the virus. Other types of immunity, such as that provided by T cells, could still be effective, although this has still to be tested.

A virus that is more transmissible and less pathogenic is more likely to survive. This version of the Covid-19 virus carries eight distinctive mutations in the spike protein, including three that are thought to have contributed to its higher transmissibility. The variant may have also occurred in someone with a long-lasting infection. Usually SARS-CoV-2 is an acute infection and rapidly clears. In some individuals there may be ongoing

replication allowing for viral evolution to occur. These include the N501Y mutation also seen in the British B117 variant. Another of the mutations – K417N – has been suggested to combine with N501Y to increase the strength with which the virus can bind to the ACE2 receptor on human cells, but other computer modelling work has suggested K417N may counteract the increased binding seen in N501Y.

There is no indication it causes more serious disease, but it seems to spread more rapidly than previous forms of the virus. A virus that is more transmissible and less pathogenic is more likely to survive. This is because if a virus kills its host too quickly, it will not have time to replicate as much and spread to other people.

Studies suggested, however, that the K417N mutation may reduce the virus's sensitivity to human antibodies. A third mutation called E484K – which is not present in the British variant – also seems to reduce the virus's vulnerability to antibodies. One study suggests that changes to the E484 site in the spike protein can produce a 10-fold reduction in the ability of some antibodies to neutralize it.

7. The Brazilian E484 reinfecting P1 and P2 variants

The E484K mutation is proving to be important in another concerning variant that is now spreading around the world. The P1 variant contains 20 unique mutations, including the E484K change found in the South African variant. It seems to have first emerged in the city of Manaus, Amazonas state, in north Brazil, which has been particularly severely hit by the pandemic. The variant was also detected in four travellers who had flown from northern Brazil to Japan on January 2, 2021.

This version of the virus also carries the N501Y mutation alongside the E484K change and one called K417T. Although the exact consequences of these mutations are still being investigated by scientists, the strain has been designated as a "Variant of Concern" by global health officials.

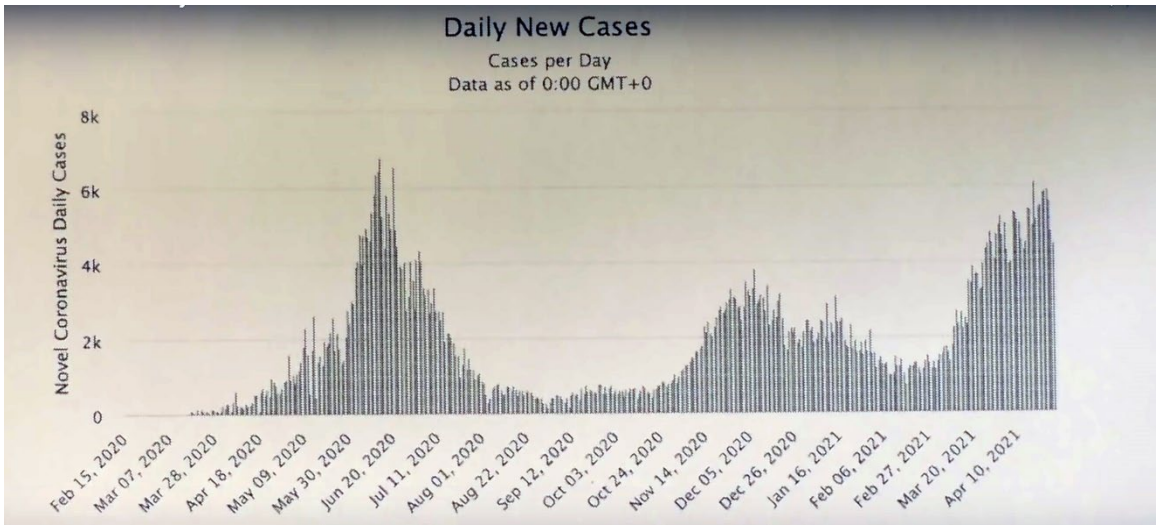
The emergence of the Brazilian P1 variant raises concerns that the virus may be developing an increased propensity for re-infecting individuals, according to the USA's Centre for Disease Control and Prevention. We already have good information from laboratory studies about which amino acid changes are likely to be the most worrisome.

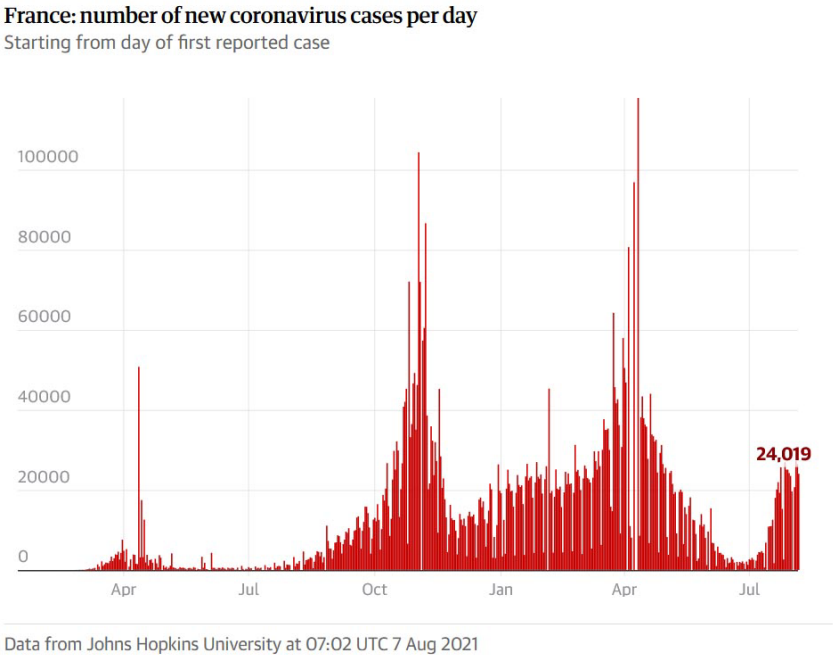
Another Brazilian variant, designated P2, has been found in two people who caught Covid-19 a couple of months apart. This variant, however, carries the E484K mutation, but lacks the other two that are concerning scientists about P1. While the E484K mutations have raised concerns that the virus might be evolving in ways that allow it to evade parts of the immune system, scientists from the Cog-UK consortium have said there is no evidence yet to suggest that it is affecting the effectiveness of the vaccines.

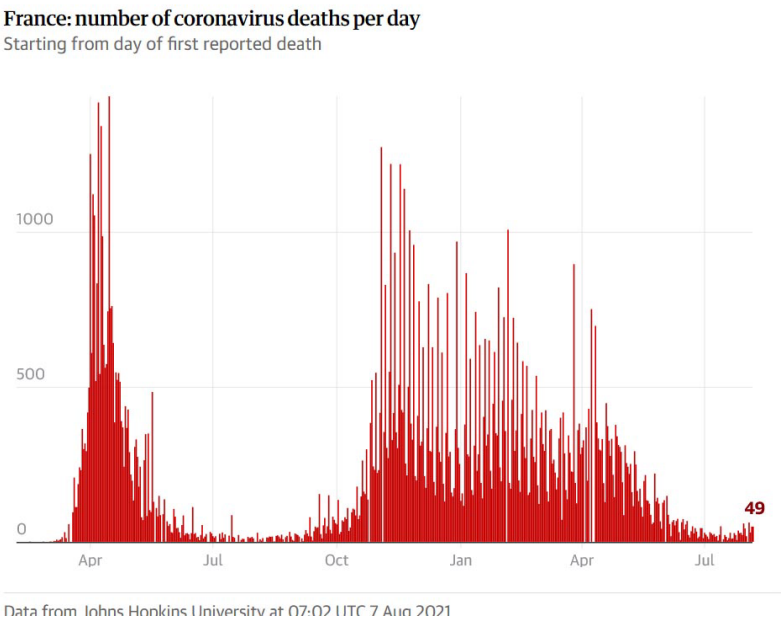
8. Indian double variant, L452R and E484Q and B.1.617mutations coming together and B.1.617 Maharashtra Variant of Concern, VOC

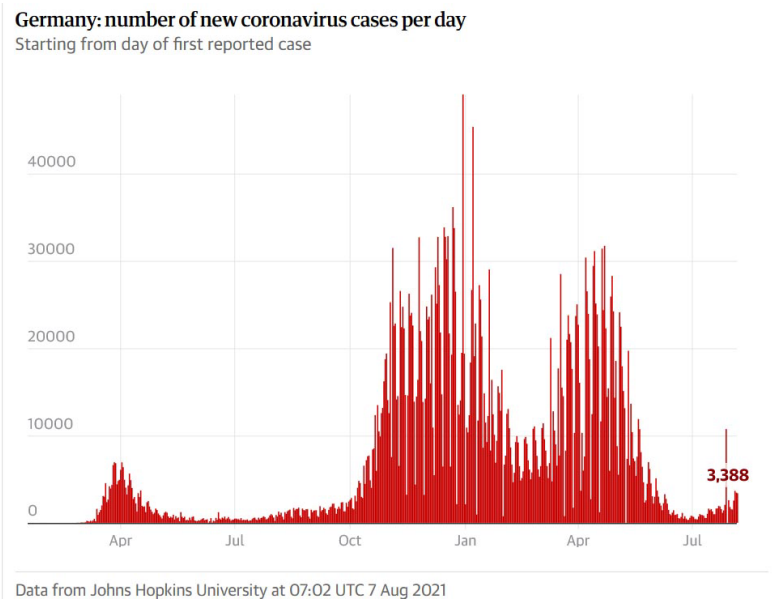
The Delta variant of Covid-19, first identified in India is 40 percent more transmissible; but protection against it is just as good with two doses of a vaccine. Fully 6.5 million people die in India annually. This is a massive death rate for a massive population and 100,000 died of Covid-19is kind of negligible in the grand scheme of things especially if comorbidity is accounted for.

The World Health Organization (WHO) has classified the coronavirus variant first found in India as a "variant of global concern". It said preliminary studies show the B.1.617 mutation spreads more easily than other variants and requires further study. The variant spread to more than 30 countries. Three other variants from the UK, South Africa and Brazil have been given the same designation.

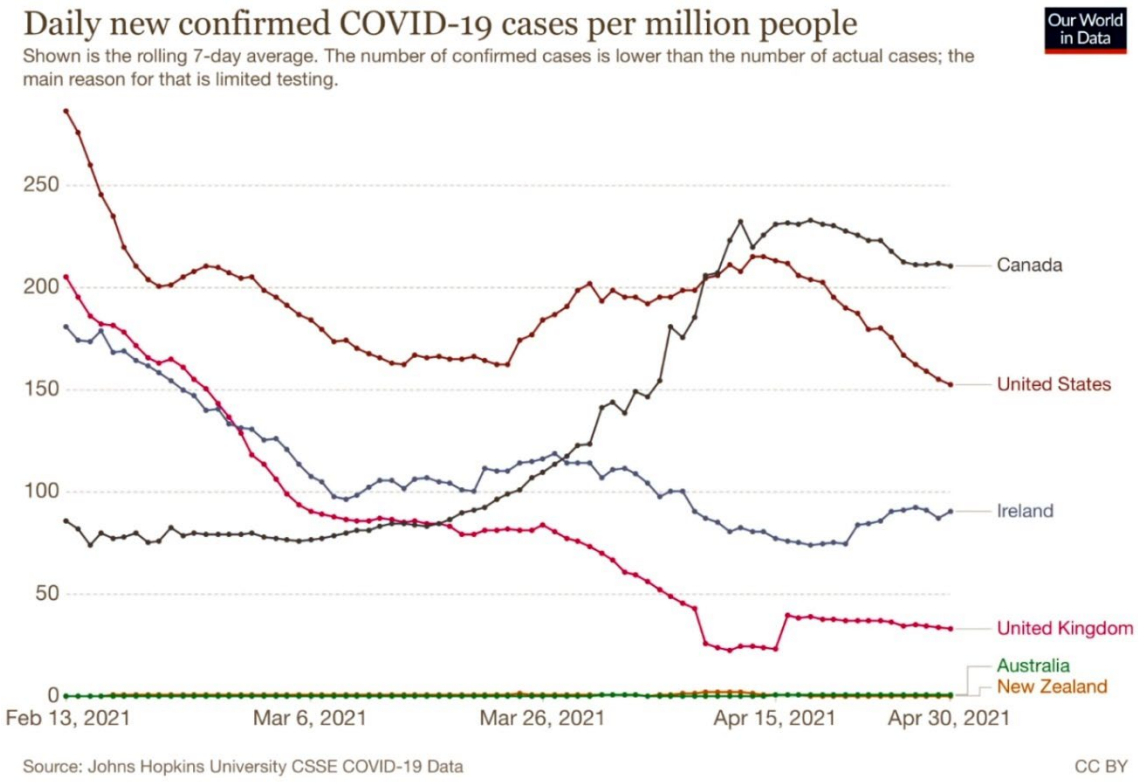








Effect of new Covid-19 variants on daily new symptomatic infections waves in Pakistan and India, spreading from cities to villages and lack of oxygen supplies. April 2021.



Progression of infections in English-speaking countries. Australia applies draconian restrictions against incoming travelers including citizens. The UK maintains strict incoming travellers isolation, whereas the USA allows a less restrictive policy allowing incoming air travelers from affected nations with very low sequencing of 1 percent. April 2021.

A mutation is elevated from a "variant of interest" to a "variant of concern" (VOC) when it shows evidence of fulfilling at least one of several criteria, including easy transmission, more severe illness, reduced neutralization by antibodies or reduced effectiveness of treatment and vaccines.

The variant – officially known as B.1.617 – was first detected in India in October 2020. It was detected in 220 out of 361 Covid samples collected between January and March 2021 in the western Indian state of Maharashtra. Meanwhile, it has been spotted in at least 21 countries, according to the GISAID global database. International travel appears to have brought the variant to the UK, where 103 cases have been identified since 22 February 2021.

A "double mutant" variant of the coronavirus has been detected from samples collected in India. The variant, where two mutations come together in the same virus, may be more infectious or less affected by vaccines.

Scientists at the Centre for Cellular and Molecular Biology (CCMB) have found that lineages with N440K are not the dominant ones in the second wave of the coronavirus pandemic in India. CCMB scientists had found that the N440K variant produced ten times higher infectious viral titers than a prevalent A2a strain, and over 1,000 folds higher titers than a much less prevalent A3i strain prototype in Caco2 cells.

The Indian SARS-CoV-2 Consortium on Genomics (INSACOG), a group of 10 national laboratories under India's health ministry, carried out genomic sequencing on the latest samples. Genomic sequencing is a testing process to map the entire genetic code of an organism – in this case, the virus. The genetic code of the virus works like its instruction manual. Mutations in viruses are common but most of them are insignificant and do not cause any change in its ability to transmit or cause serious infection. But some mutations, like the ones in the UK or South Africa variant lineages, can make the virus more infectious and in some cases even deadlier.

Virologist Shahid Jameel explained that a "double mutation in key areas of the virus's spike protein may increase these risks and allow the virus to escape the immune system". The spike protein is the part of the virus that it uses to penetrate human cells. The government said that an analysis of the samples collected from India's western Maharashtra state showed "an increase in the fraction of samples with the E484Q and L452R mutations" compared with December last year. "Such [double] mutations confer immune escape and increased infectivity," the health ministry said in a statement. Dr Jameel added that "there may be a separate lineage developing in India with the L452R and E484Q mutations coming together".

The B.1.617 variant is not only more infectious, but also resistant to vaccinations, as a surprising number of patients who have already been fully vaccinated have been found to be infected with the strain. A study shows that B.1.617 has "modest ability" to avoid antibodies elicited by the Pfizer injection, though an extensive vaccination campaign is likely to reduce transmissions. One mutation "confers partial evasion" of antibodies generated by the Pfizer vaccine, according to a paper by researchers from India, South Africa, Japan and the UK.

As Covid-19 continues to mutate, many virologists are looking at ways to help them get ahead of the virus. Michael Worobey, a viral evolutionary biologist at the University of Arizona, and his team are developing an "early warning" test that might help detect new potentially worrying variants of Covid-19 as they start spreading. They have good information from laboratory studies about which amino acid changes are likely to be the most worrisome, so, they can be used to hopefully catch them early. That should help public health officials and vaccine manufacturers be more prepared when the virus undergoes its next major change.

EXPERIENCE WITH CHICKENS LEAKY VACCINES

In the 1950s as poultry production was getting going in earnest, there was a disease called Marek's Disease. It was not serious, but it was a major headache for large chickens' farms. They developed a leaky vaccine for it in the 1980s. Now, almost every single chicken hatched gets the vaccine for it. Like many herpes viruses, once an animal becomes infected, it will be infected for life. They must keep tweaking it for new variants to keep working. Marek's disease will wipe out an entire flock in ten days, if not vaccinated.

It did not use to be that deadly. Now, an unvaccinated chicken dies almost immediately while the vaccinated ones just live with it. It is in the herpes family. People in Asia now do the same thing with the avian influenza where the Avian Flu jumps to humans.

If they keep tweaking the vaccines, people will keep taking them and thus the virus continues to survive and reproduce in the vaccinated people. It will become steadily more

and more deadly to those who are antibody naive. That includes the next generation or so. And it is mutating at a constant rate while the vaccines try to keep up. If the same sort of thing progresses with leaky vaccines in humans, un-vaccinated people will die off quickly, much like the chickens.

Leaky vaccines are no different than antibiotics as far as evolving to resistance. And there is a difference between a so-called perfect vaccine and a leaky one such as rabies versus flu. The pharmaceutical manufacturers of the Covid-19 vaccines never claimed they would impart immunity or prevent transmission. So the vaccines are ineffective against any variant including Alpha and Delta as clearly demonstrated by the spread of this latest respiratory ailment affecting the vaccinated population.

ISRAEL'S VACCINATION EXPERIENCE STATISTICS

According to an article in the The Lancet on May 5,2021, https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)00947-8/fulltext: Israel's population is 9.1 million people exposed to the B.1.1.7 variant with 6·5 million residents aged 16 years and older. Among the SARS-CoV-2 strains characterized globally in 2020, the D614G variant was dominant. More recently, the SARS-CoV-2 variant B.1.1.7, first identified in the UK and associated with increased transmissibility, has emerged in several countries. B.1.1.7 was first reported in Israel on December 23, 2020. The B.1.351 variant was estimated to be rare in Israel at the time of data extraction.

> "Health care in Israel is universal, with government-funded participation in one of four nationwide medical insurance programmes that operate as health maintenance organizations:
> Clalit (in which 54% of the population are enrolled), Maccabi (26%), Meuhedet (12%), and Leumit (8%). All Israeli residents are assigned a unique identification number that enables data linkage in the national medical records database.
>
> Specimens are tested, using national testing standards, at one of 48 clinical diagnostic laboratories with use of real-time PCR tests. B.1.1.7 prevalence was estimated on the basis of swabs tested at Leumit with the TaqPath COVID-19 test (Thermo Fisher Scientific, Pleasanton, CA, USA), which identifies spike gene target failure (SGTF) associated with gene mutations that cause deletions of amino acids 69 and 70 in the spike protein. Because these mutations are found in B.1.1.7, SGTF is used to estimate the prevalence of this variant."

The Pfizer–BioNTech mRNA COVID-19 vaccine BNT162b2, (international non-proprietary name tozinameran) administered as two doses 21 days apart, was authorized for emergency use in Israel in December, 2020, after it was shown to have high efficacy against symptomatic laboratory-confirmed COVID-19 in a randomized controlled trial of individuals aged 16 years and older.

There were 4,777,977 total participants, of these, 3,816,911 were "fully vaccinated" and 961,066 were unvaccinated. The outcome is:

99.996 percent of the fully vaccinated individuals did not die,
99.26 percent of the unvaccinated individuals did not die.

Out of the unvaccinated 961,066, 715 died of/with Covid-19, noting that there exists no health details about these individuals.

A hypothetical situation can be considered for the whole 9 million population with 100 percent vaccinated and 100 percent exposed to Covid-19, there would result ~36,000 deaths with a 99.996 percent survival rate.

With zero population vaccinated and 100 percent exposed to Covid-19 there would result ~66,600 deaths with a 99.26 percent survival rate, implying 66,600 – 36,000 = ~36,600 "excess deaths" in a population of 9 million people.

> "Findings
>
> During the analysis period (Jan 24 to April 3, 2021), there were 232 268 SARS-CoV-2 infections, 7694 COVID-19 hospitalizations, 4481 severe or critical COVID-19 hospitalizations, and 1113 COVID-19 deaths in people aged 16 years or older. By April 3, 2021, 4 714 932 (72·1%) of 6 538 911 people aged 16 years and older were fully vaccinated with two doses of BNT162b2. Adjusted estimates of vaccine effectiveness at 7 days or longer after the second dose were 95·3% (95% CI 94·9–95·7; incidence rate 91·5 per 100 000 person-days in unvaccinated vs 3·1 per 100 000 person-days in fully vaccinated individuals) against SARS-CoV-2 infection, 91·5% (90·7–92·2; 40·9 vs 1·8 per 100 000 person-days) against asymptomatic SARS-CoV-2 infection, 97·0% (96·7–97·2; 32·5 vs 0·8 per 100 000 person-days) against symptomatic COVID-19, 97·2% (96·8–97·5; 4·6 vs 0·3 per 100 000 person-days) against COVID-19-related hospitalization, 97·5% (97·1–97·8; 2·7 vs 0·2 per 100 000 person-days) against severe or critical COVID-19-related hospitalization, and 96·7% (96·0–97·3; 0·6 vs 0·1 per 100 000 person-days) against COVID-19-related death. In all age groups, as vaccine coverage increased, the incidence of SARS-CoV-2 outcomes declined. 8006 of 8472 samples tested showed a spike gene target failure, giving an estimated prevalence of the B.1.1.7 variant of 94·5% among SARS-CoV-2 infections.
>
> Interpretation
>
> Two doses of BNT162b2 are highly effective across all age groups (≥16 years, including older adults aged ≥85 years) in preventing symptomatic and asymptomatic SARS-CoV-2 infections and COVID-19-related hospitalizations, severe disease, and death, including those caused by the B.1.1.7 SARS-CoV-2 variant. There were marked and sustained declines in SARS-CoV-2 incidence corresponding to increasing vaccine coverage. These findings suggest that COVID-19 vaccination can help to control the pandemic."

However, a group of dissenting researchers who looked into the numbers involved with the current Pfizer Israeli experiment published a detailed study: "We conclude" they wrote, "that the Pfizer vaccines, for the elderly, killed during the 5-week vaccination period

about 40 times more people than the disease itself would have killed, and about 260 times more people than the disease among the younger age class."

TYPES OF CORONA VIRUSES

The original Coronavirus was "Organ Cultured" from the common flu in 1965 when Bioscientists found that they could passage a virus named B814. It was found in human embryonic tracheal "organ cultures" obtained from the respiratory tract of an adult with a common cold.

There are several types of novel Corona viruses:

SARS-CoV is the coronavirus that causes Severe Acute Respiratory Syndrome, or SARS. It was first recognized in China in 2002, and it caused a worldwide outbreak from 2002 to 2003. Since 2004, there have not been any known cases of SARS-CoV infection reported anywhere in the world.

MERS-CoV is the coronavirus that causes Middle East Respiratory Syndrome, or MERS. It was first reported in Saudi Arabia in 2012, and it continues to circulate and cause illness. Between 2012 and June 30, 2018, 2,229 MERS-CoV cases has been reported to the World Health Organization (WHO), 83% of whom were reported by the Kingdom of Saudi Arabia. In total, cases have been reported from 27 countries in the Middle East, North Africa, Europe, the United States, and Asia.

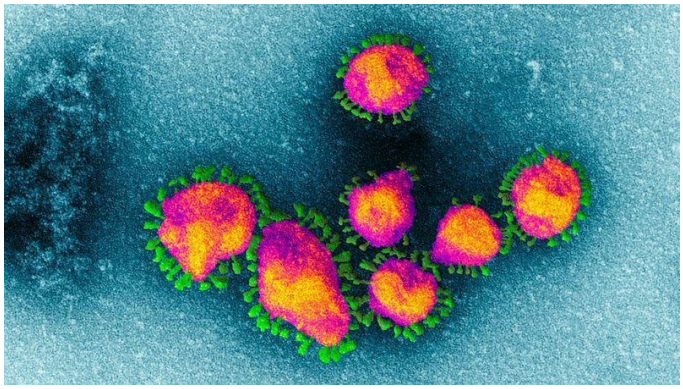
In addition to novel coronaviruses, there are four "seasonal" (non-novel) coronaviruses—alpha coronaviruses 229E and NL63, and beta coronaviruses OC43 and HKU1—that commonly circulate and that most people get some time in their lives. In contrast to the novel coronaviruses, seasonal coronaviruses typically cause mild to moderate upper-respiratory illness of short duration.

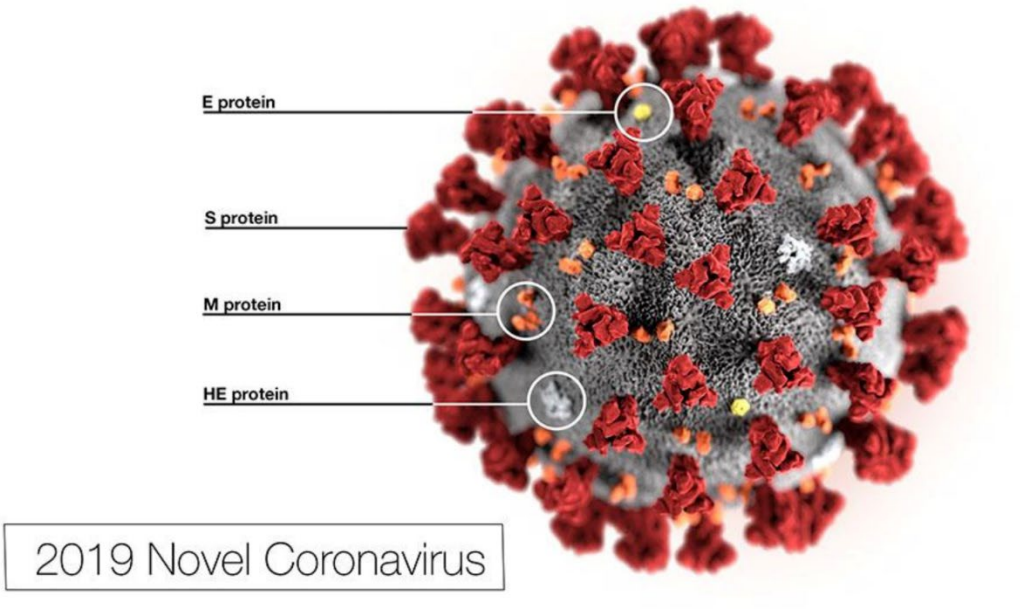
A concern is that recovered patients can get infected again by this virus. HIV fragments were baked into COV19, so this is not a mutation. The HIV component was used to create easier and more numerous binding sites for the virus, so that when it is breathed in, or it hit the blood, it would bind and replicate at fast enough rates to be successful. That ups the spread and mortality, making it a bioweapon.

There is a lengthy presymptomatic phase with concurrent viral production with suppression of the immune response during that time via the HIV like component of the genome. The gene fragments of HIV were purportedly CRISPRd in the lab. Whether Covid-19 behaves like HIV in the sense that it can hide out in infected cells for prolonged periods of time leaving a previously infected person thinking they have recovered, when perhaps they have not, only to find out later that this virus is attacking them again. A rumor is that DARPA created a mass spreader virus with an HIV receptor that will kill everyone after two or three re-infections one-after-another.

The time between when a person is exposed to MERS-CoV and when they start to have symptoms is usually 5 or 6 days but can range from 2-17 days. Most people confirmed to have MERS-CoV infection have had severe acute respiratory illness with symptoms of fever, cough, and shortness of breath. Some people also had gastrointestinal symptoms including diarrhea and nausea or vomiting. For many people with MERS, more severe complications followed, such as pneumonia and kidney failure.

About 3 to 4 out of every 10 people reported with MERS have died. Most of the people who died had an underlying medical condition. Some infected people had mild symptoms, such as cold-like symptoms or no symptoms at all; they recovered.





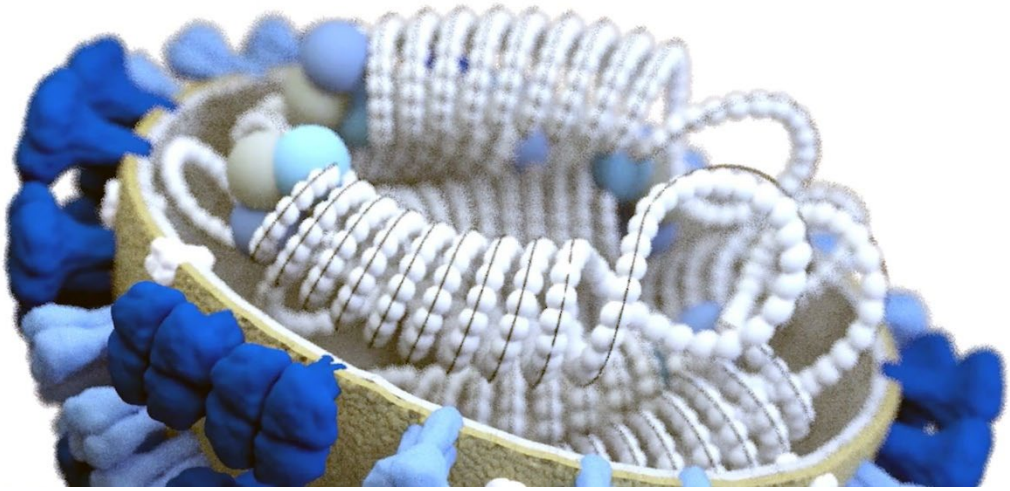
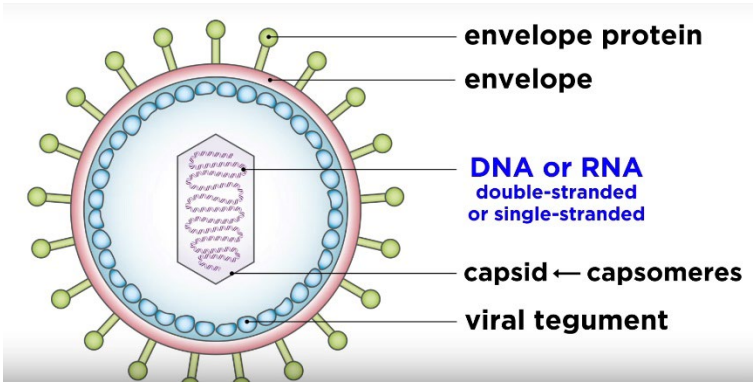
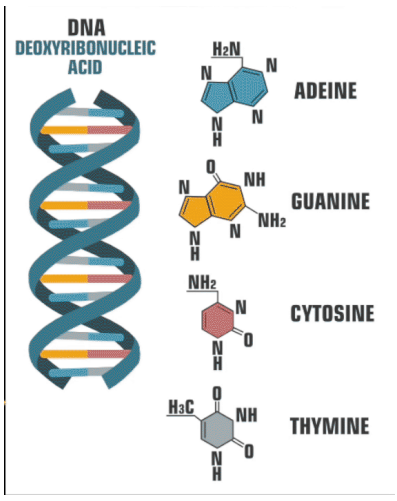
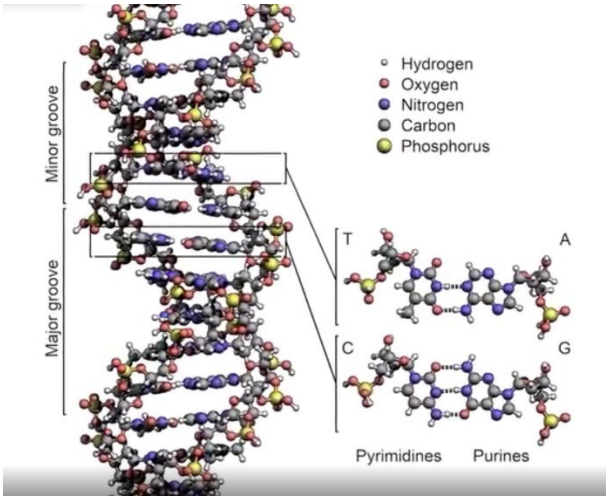


Figure 62. Novel corona virus, Covid-19, 2019-2020. Corona refers to the crown shape of the virus. The new coronavirus can survive in the aerosol for up to 3 hours (median 2.7 hours), copper levels up to 4 hours and paper surfaces such as cardboard for up to 24 hours (median 8.45). While on acrylic plastic and stainless-steel surfaces, it can last up to 2-3 days (median values are 16/13 hours, respectively)







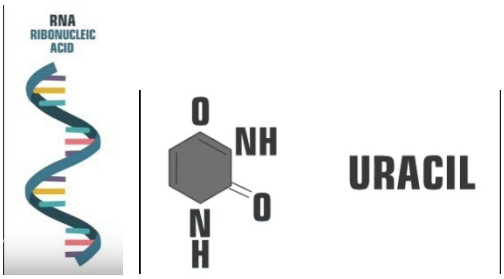


Figure 63. Virus structure. Deoxyribonucleic Acid, DNA structure. Ribonucleic Acid, RNA and Uracil.

A single virus particle (virion) cannot replicate or express genetic material (DNA, RNA) without a host cell. Viral infection and virus replication involves six steps:

1. **Attachment:** virus binds to host cell
2. **Penetration:** virus injects its genetic material into host cell
3. **Uncoating:** viral contents are released
4. **Biosynthesis:** viral genetic material replicates via the host
5. **Assembly:** viral components and enzymes are produced and begin to assemble
6. **Release:** newly produced virions are released from the host cell and move on to infect other cells.

ROLE OF ARGININE AND LYSINE

Virus replication is dependent on the availability of amino acids. Amino acids play an important role in virus-related infections as they are needed for protein synthesis and they also regulate many metabolic pathways, including gene expression. The absence of essential amino acids may result in empty virus particles that are free of viral nucleic acids (DNA or RNA).[2]

Arginine is one of twenty natural amino acids and is also a normal cell metabolite. Arginine is present in the following foods:

Red meat, fish, poultry
Grains, nuts and seeds
Dairy products
Chocolate
Legumes

Arginine is an essential requirement for the replication of viruses and progression of viral infections. Arginine bioavailability is necessary for the replication of herpes simplex virus, which causes cold sores/genital herpes. When arginine is not available, herpes viruses in cells are unable to complete a single replication cycle and cell damage is evident in infected cells. Arginine is not involved in the early steps of virus replication at the level of viral DNA synthesis. Rather the amino acid is necessary for the expression of the late viral functions such as synthesis of viral coat proteins and production of complete infectious virions.

Arginine is required for the replication of human adenovirus type 2 (common cold) and is essential for the production of complete infectious virions. Arginine is involved in

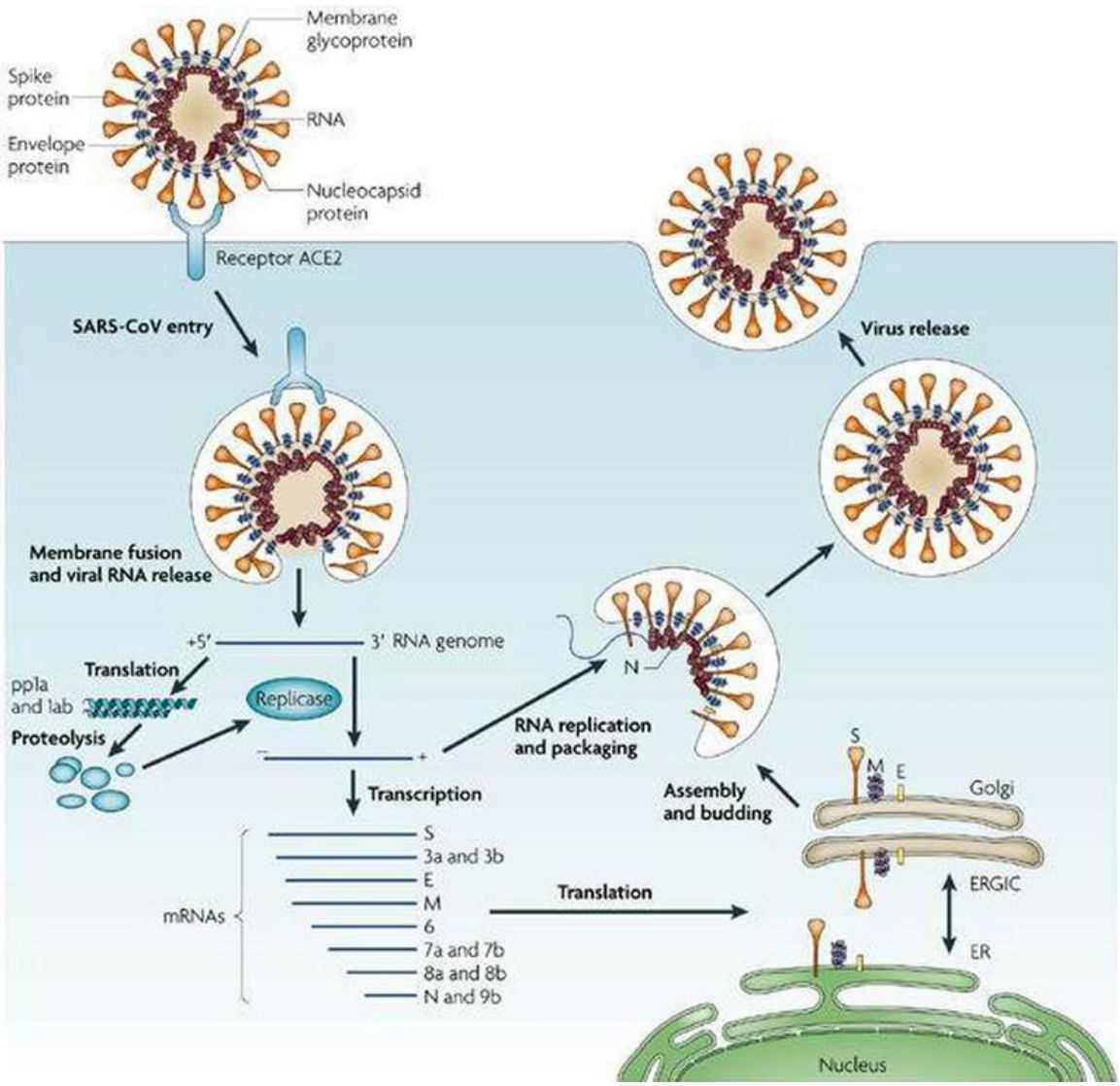
the synthesis of viral proteins and it has been hypothesized that arginine is necessary for the formation of a functional protein that is essential for virion maturation.

The complete reproduction cycle of human cytomegalovirus (CMV – herpes) requires arginine. Although the continued presence of arginine is necessary for uninterrupted virus production, it is most crucial at the early stage of CMV replication for the production of infective virions. Inhibitor studies suggest that arginine deficiency blocks CMV replication prior to the formation of viral DNA.

In the absence of arginine, viral DNA synthesis continues undisturbed, whereas the formation of virions is inhibited. However, when arginine is made available, rapid and widespread infection follows.

Now, the amino acid lysine is able to reduce arginine's ability to help synthesize certain proteins. This antagonistic relationship might benefit people who suffer from frequent herpes outbreaks, such as cold sores or genital herpes, because arginine is needed by these viruses to reproduce.

Lysine can be found in foods such as brewer's yeast, legumes, lentils and soybeans. People with herpes have been consuming lysine for decades.


Membrane glycoprotein
Spike protein
RNA
Envelope protein
Nucleocapsid protein
Receptor ACE2
SARS-CoV entry
Virus release
Membrane fusion and viral RNA release
+5'
3' RNA genome
Translation
pp1a and lab
Replicase
Proteolysis
RNA replication and packaging
N
S
M
E
Golgi
Assembly and budding
Transcription
S
3a and 3b
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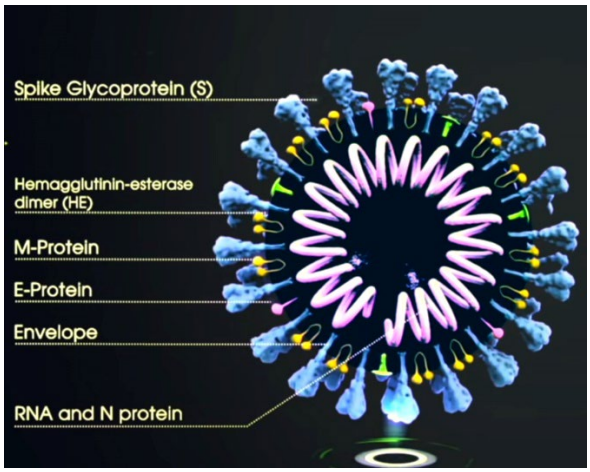
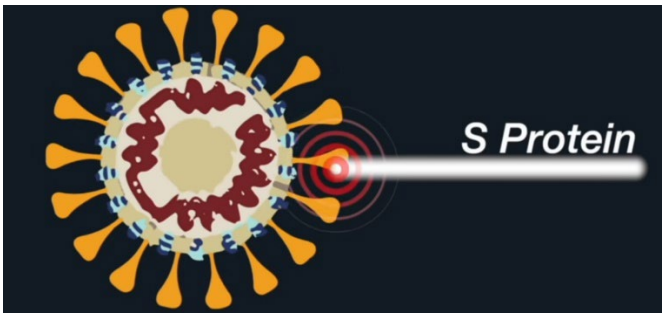
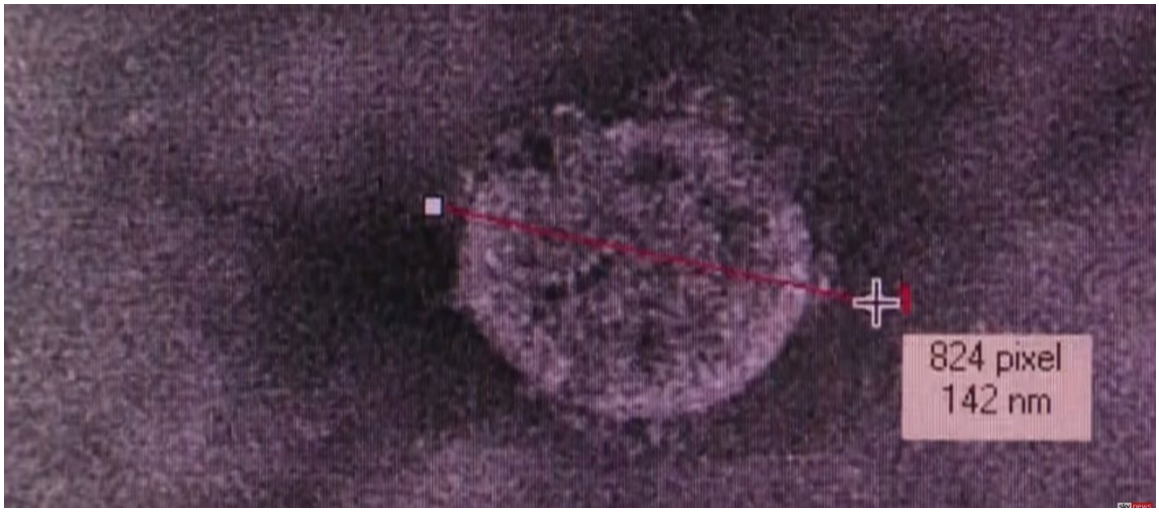
6
7a and 7b
8a and 8b
N and 9b
mRNAs
Translation
ERGIC
ER
Nucleus


Spike Glycoprotein (S)
Hemagglutinin-esterase dimer (HE)
M-Protein
E-Protein
Envelope
RNA and N protein





Arch Virol (2010) 155:1563–1569
DOI 10.1007/s00705-010-0729-6

ORIGINAL ARTICLE

Angiotensin-converting enzyme 2 (ACE2) proteins of different bat species confer variable susceptibility to SARS-CoV entry

Yuxuan Hou · Cheng Peng · Meng Yu · Yan Li · Zhenggang Han · Fang Li · Lin-Fa Wang · Zhengli Shi

Received: 21 April 2010 / Accepted: 12 June 2010 / Published online: 22 June 2010

tional receptor for SARS-CoV. Here, we extended our previous study to ACE2 molecules from seven additional bat species and tested their interactions with human SARS-CoV spike protein using both HIV-based pseudotype and live SARS-CoV infection assays. The results show that ACE2s of *Myotis daubentoni* and *Rhinolophus sinicus* support viral entry mediated by the SARS-CoV S protein, albeit with different efficiency in comparison to that of the human ACE2. Further, the alteration of several key residues either decreased or enhanced bat ACE2 receptor efficiency, as

Figure 64. Virus cell invasion by attachment to ACE2 receptor and RNA replication process. The covid-19 pathogen slowly attacks patients who are vulnerable by debilitating the functions of their organs or encourages the immune system to attack its own body in a process called "cytokine storm." Spike protein or S protein in the infective agent of the virus. It was laboratory modified in bats to allow mice, primates monkey and human ACE2 (Angiotensin Converting Enzyme 2) cell receptors invasion using "both HIV-based pseudotype and live SARS-CoV infection assays."

Figure 65. Risky, characterized by some as "Great Filter" "Extinction-level" "cataclysmic technology" "planetary-sabotage" "deliberate annihilation" "Humanitarian-doom" "self-destruction" research on influenza viruses in Gain of Function, GOF research by inserting HIV gene strings by USA scientist Yoshihiro Kawaoka was allegedly pioneered at the University of Wisconsin, Madison, Wisconsin, USA and Tokyo University, Japan.

NATURE | NEWS

Engineered bat virus stirs debate over risky research

Lab-made coronavirus related to SARS can infect human cells.

Declan Butler

12 November 2015

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An experiment that created a hybrid version of a bat coronavirus — one related to the virus that causes SARS (severe acute respiratory syndrome) — has triggered renewed debate over whether

Published: 09 November 2015

A SARS-like cluster of circulating bat coronaviruses shows potential for human emergence

Vineet D Menachery, Boyd L Yount Jr, Kari Debbink, Sudhakar Agnihothram, Lisa E Gralinski, Jessica A Plante, Rachel L Graham, Trevor Scobey, Xing-Yi Ge, Eric F Donaldson, Scott H Randell, Antonio Lanzavecchia, Wayne A Marasco, Zhengli-Li Shi & Ralph S Baric

Nature Medicine **21**, 1508–1513(2015) | Cite this article

2.13m Accesses | **135** Citations | **12825** Altmetric | Metrics

ISPSW Strategy Series: Focus on Defense and International Security
Why US outsourced bat virus research to Wuhan
Dr Christina Lin

Issue
No. 689
April 2020

Why US outsourced bat virus research to Wuhan

Dr Christina Lin

April 2020

Figure 66. Risky research on engineered bat viruses conference presentation in 2018. According to Shi Zheng Li: "If we want to prevent human beings from suffering from the next infectious disease outbreak, we must go in advance to learn of these unknown viruses carried by wild animals in nature and give early warnings," "If we don't study them there will possibly be another outbreak." Laminar flow fume hoods may have been

used, leading to accidental escapes, when inert atmosphere, self-contained and filtered glove boxes should have been adopted. Shi Zheng Li, co-authored a controversial paper in 2015 which described the creation of a new virus by combining a coronavirus found in Chinese horseshoe bats with another that causes human-like severe acute respiratory syndrome (SARS) in mice. This research sparked a huge debate at the time over whether engineering lab variants of viruses with possible pandemic potential is worth the risks. Under Anthony Fauci as director, the USA's National Institute of Allergies and Infectious Diseases, NIAID allegedly contributed to the Wuhan labs $7.1 million in research grants for collaborative research. Source: Nature Reviews, Microbiology.

Zheng Li Shi moved to the Wuhan lab after her paper in 2015 regarding attaching a sequence coding for a spike protein that attaches to human ACE2 receptors. That is gain of function research that was illegal in the USA in 2014. Anthony Fauci through the intermediary of Peter Daszak continued funding her at Wuhan.

The Wuhan Institute of Virology has been involved with research funded by $7.1 million worth of USA government grants from the National Institutes of Health as it has participated in projects in collaboration with USA institutions. One grant for research on bat coronaviruses has received $3.7 million and another grant involving injecting viruses into mice's brains got $3.4 million.

Influenza viruses were researched by Yoshihiro Kawaoka's specialty at the University of Wisconsin, Madison Wisconsin, USA, and Tokyo University, Japan combined with the HIV expertise of Frank Plummer. Over a dozen years, Yoshihiro Kawaoka toiled with tidbits of advice from Frank Plummer, who was thoroughly acquainted with the structures and mechanisms of HIV.

By early 2011, they found the golden needle in the haystack. Four HIV proteins that control the replication process grafted on the influenza RNA-folding mechanism (resembling a Transformer car reconfiguring itself) enabled massive output of new virions from inside the host cells of an infected ferret. Yoshihiro Kawaoka and two lab associates boasted about this breakthrough in the Journal of Virology issue of September 2011, the only disclosure before clamming up.

In 2012 Egyptian researcher Dr. Ali Zaki, during his employment with the Saudi health ministry, shipped a sample of MERS coronavirus to Ron Fouchier at the Erasmus medical center in Rotterdam, Holland, which the Dutch researcher then forwarded to Dr. Frank Plummer at the National Microbiology Laboratory in Manitoba, Canada. The lack of paperwork about the source, copyright and ownership clanged alarm bells at Canada's Public Health Service and the World Health Organization. In response to international concerns, the Saudi health ministry fired Dr. Ali Zaki, or so it was reported.

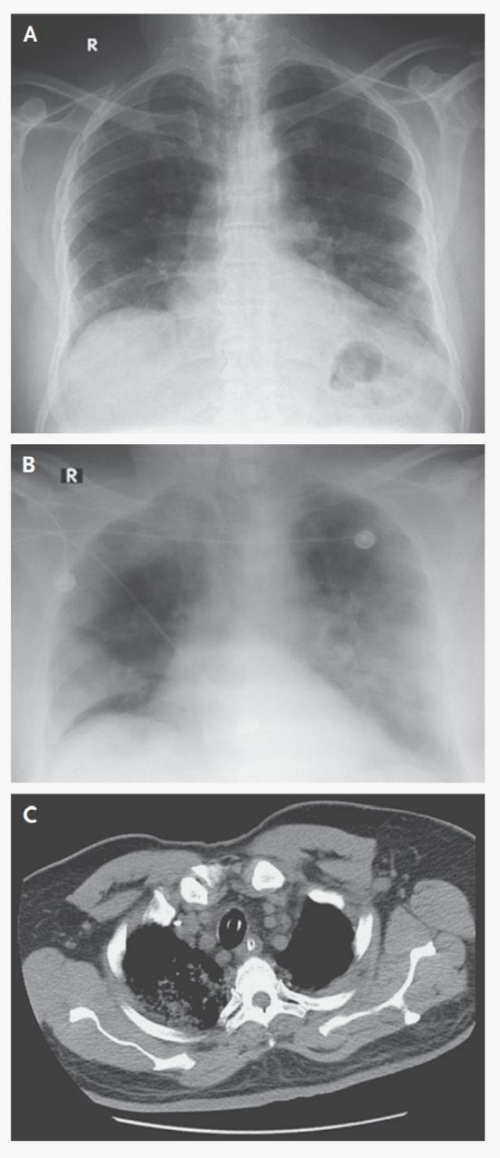


Figure 67. Abnormalities on Chest Imaging of the Saudi patient infected with Coronavirus. Shown are chest radiographs of the patient on the day of admission (Panel A) and 2 days later (Panel B) and computed tomography (CT) 4 days after admission (Panel C).

NIH-defiant microbiologists, including Ron Fouchier and the defiant Yoshihiro Kawaoka, were both mentored by Dr. Frank Plummer, the late director of the National Microbiology Laboratory in Manitoba, Canada, who was "disappearing" toxic microorganisms through his lab for possible off-radar research at a secret site for more robust R&D under the authority of Porton Down-DSTL (Defense Science and Technology Laboratory, known as "Q" in James Bond movies) in the UK.

An excerpt from The New Scientist:

> "The latest work was done by Yoshihiro Kawaoka at the University of Wisconsin at Madison. His team showed that adding the 1918 gene for the surface protein haemagglutinin to modern viruses made them far deadlier to mice. The researchers also found that people born after 1918 have little or no immunity. The team started the work at the highest level of containment, BSL-4, at Canada's National Microbiology Laboratory in Winnipeg. Then they decided the viruses were safe enough to handle at the next level down, and did the rest of the work across the border in a BSL-3Ag lab in Madison."

The team started the work at the highest level of containment, BSL-4, at Canada's National Microbiology Laboratory (NML) in Winnipeg. Then they decided the viruses were safe enough to handle at the next level down, and did the rest of the work across the border in a BSL-3Ag laboratory in Madison." Research collaboration between Plummer and Kawaoka, justified such an action: "The main difference between BSL-4 and BSL-3Ag is that precautions to ensure staff do not get infected are less stringent. While BSL-4 involves wearing fully enclosed body suits, those working at BSL-3Ag labs typically have half-suits. Yoshihiro Kawaoka told New Scientist that the decision to move down to BSL-3Ag was taken only after experiments at BSL-4 showed that giving mice the antiviral drug Oseltamivir (Tamiflu) in advance prevented them getting sick. This means, he says, that if all lab workers take Oseltamivir 'they cannot become infected'." That last assertion by Kawaoka is debatable, since the mice must become infected as carriers to be research subjects. Infection does not necessarily equate with twitching in death throes, thanks to Tamiflu suppression of symptoms.

German virologists worked at the NML in Manitoba, Canada, under Operation Matchbox. The German microbiologists made many unreported contributions to medical science along with a few rare mistakes including infecting the Wood Bison herds with anthrax.

The leading HIV expert Dr. Frank Plummer died in Nairobi, Kenya on February 4, 2020 only about 6 weeks after a Deep Brain Stimulation, DBS therapy, which entailed drilling holes through his skull to insert electrodes into the juncture of the brain and the spinal nerve. Deep brain stimulation is "ancient, something from the medieval past, not at all in step with current treatment of addictive behavior." DBS has its origins in electro-shock therapy. No coroner's report has been released indicating whether the cause of death was internal bleeding, a brain seizure, heart failure or some other cause. He was a mentor to microbiologists Yoshihiro Kawaoka and Ron Fouchier, along with his apparent secret research for Porton Down-DSTL in the UK.

Yoshihiro Kawaoka, in 1997 achieved the reconstruction of the 1918-19 Spanish flu virus claiming even greater virulence, which he described as "the unstoppable flu". It is astounding how he revived a virus preserved in the tissues of an aboriginal flu victim buried in the permafrost of northern Alaska. The long-dormant flu's rapid replication rates during the post-WWI global pandemic, could not be teased back into high-speed inside the host cells of Rhesus monkeys stripped of their immune systems. His boast was an empty one, even though it gained him notoriety.

Yoshihiro colleague at the UW-Madison Veterinary Science program was Gary Splitter, a member of the research safety oversight committee. Gary Splitter had served as

one of two favorable reviewers of Kawaoka's 1997 paper on his 1918-19 Spanish flu research based on tissue samples exhumed from a frozen corpse in the Alaskan permafrost.

In 2004 federal inspectors opened an investigation into Gary Splitter's unreported research activities on several contagious diseases including bovine Tuberculosis TB, which led to a five-year ban from the UW-H laboratories starting in 2013, prior to the NIH crackdown on Gain of Function research that increases the virulence of pathogens. Following the ban, Gary Splitter resumed his research, substituting bovine brucella to evade prohibition of his earlier tuberculosis experiments, to analyze its ability to penetrate the beast's phagophage defenses and even replicate virions inside it, thereby capturing the proteins to coat viruses. That research exactly fits the profile of M-TB interference in Covid-19 against the human immune system's primary defenses.

The first cases in the Spanish Flu Pandemic of bacterial pneumonia in 1918 trace back to a military base in Fort Riley, Kansas. Similar to the Gain Of Function Research leading to the Covid-19 Pandemic, from January 21 – June 4, 1918, an experimental bacterial meningitis vaccine cultured in horses by the Rockefeller Institute for Medical Research in New York was injected into soldiers at Fort Riley. During the remainder of 1918 as those soldiers – often living and traveling under poor sanitary conditions – were sent to Europe to fight, they spread bacteria at every stop between Kansas and the frontline trenches in France.

The Corona viruses research at the Wuhan Institute was led by Shi Zheng Li but was pioneered by two Americans: Ralph Baric and Peter Daszak who collaborated with her all the way. The aim of the research which used lab-made viruses derived from the natural ones was to pre-empt future pandemics from coronas by creating drugs and viruses for all dangerous coronaviruses before they hit. In the end they let one of the lab creations escape before any treatment or vaccine against it. They had good intentions, but the problem is that the road to hell is paved with those good intentions.

Ralph Baric from UNC Chapel Hill in 2015 created and tested on human airway cells the major novel moving part of the bioweapon, the part that uses the ACE pathway to attack cells. Incidentally, Asians have times more of those pathways than Europeans:

From the 2015 Naturemedicine paper,
https://www.nature.com/articles/nm.3985#Abs2

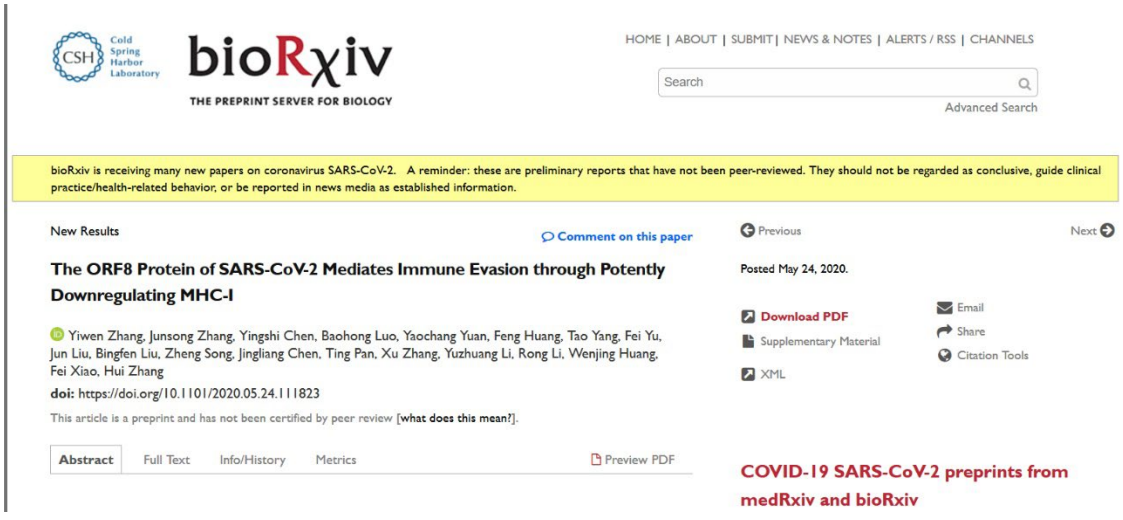
> "The emergence of severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome (MERS)-CoV underscores the threat of cross-species transmission events leading to outbreaks in humans. Here we examine the disease potential of a SARS-like virus, SHC014-CoV, which is currently circulating in Chinese horseshoe bat populations1. Using the SARS-CoV reverse genetics system2, we generated and characterized a chimeric virus expressing the spike of bat coronavirus SHC014 in a mouse-adapted SARS-CoV backbone. The results indicate that group 2b viruses encoding the SHC014 spike in a wild-type backbone can efficiently use multiple orthologs of the SARS receptor human angiotensin converting enzyme II (ACE2), replicate efficiently in primary human airway cells and achieve in vitro titers equivalent to epidemic strains of SARS-CoV. Additionally, in vivo experiments demonstrate replication of the chimeric virus in mouse lung with notable

pathogenesis. Evaluation of available SARS-based immune-therapeutic and prophylactic modalities revealed poor efficacy; both monoclonal antibody and vaccine approaches failed to neutralize and protect from infection with CoVs using the novel spike protein. On the basis of these findings, we synthetically re-derived an infectious full-length SHC014 recombinant virus and demonstrate robust viral replication both in vitro and in vivo. Our work suggests a potential risk of SARS-CoV re-emergence from viruses currently circulating in bat populations."

"Using the SARS-CoV reverse genetics system2, we generated and characterized a chimeric virus expressing the spike of bat coronavirus SHC014 in a mouse-adapted SARS-CoV backbone. The results indicate that group 2b viruses encoding the SHC014 spike in a wild-type backbone can efficiently use multiple orthologs of the SARS receptor human angiotensin converting enzyme II (ACE2), replicate efficiently in primary human airway cells and achieve in vitro titers equivalent to epidemic strains of SARS-CoV. Additionally, in vivo experiments demonstrate replication of the chimeric virus in mouse lung with notable pathogenesis. Evaluation of available SARS-based immune-therapeutic and prophylactic modalities revealed poor efficacy; both monoclonal antibody and vaccine approaches failed to neutralize and protect from infection with CoVs using the novel spike protein. On the basis of these findings, we synthetically re-derived an infectious full-length SHC014 recombinant virus and demonstrate robust viral replication both in vitro and in vivo."

The world is faced with a novel coronavirus (2019-nCoV) was recently detected in Wuhan City, Hubei Province, China and is causing an outbreak of respiratory illness. The 2019-nCoV outbreak began in October-December 2019, and Chinese health officials have reported thousands of 2019-nCoV infections and deaths in China. Many other countries have identified cases of 2019-nCoV infection including the USA as a pandemic spread worldwide.

CHRONIC INFECTION SIMILARITY TO HIV, OPEN FRAME 8, ORF8



Summary

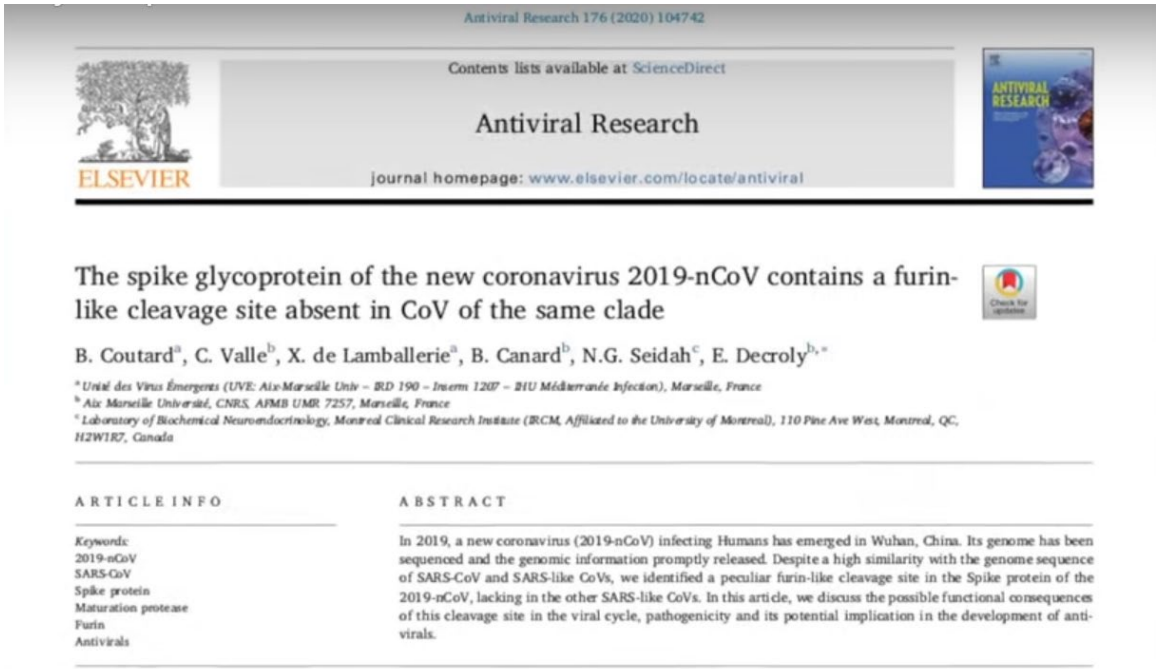
SARS-CoV-2 infection have caused global pandemic and claimed over 5,000,000 tolls[1–4]. Although the genetic sequences of their etiologic viruses are of high homology, the clinical and pathological characteristics of COVID-19 significantly differ from SARS[5,6]. Especially, it seems that SARS-CoV-2 undergoes vast replication *in vivo* without being effectively monitored by anti-viral immunity[7]. Here, we show that the viral protein encoded from open reading frame 8 (ORF8) of SARS-CoV-2, which shares the least homology with SARS-CoV among all the viral proteins, can directly interact with MHC-I molecules and significantly down-regulates their surface expression on various cell types. In contrast, ORF8a and ORF8b of SARS-CoV do not exert this function. In the ORF8-expressing cells, MHC-I molecules are selectively target for lysosomal degradation by an autophagy-dependent mechanism. As a result, CTLs inefficiently eliminate the ORF8-expressing cells. Our results demonstrate that ORF8 protein disrupts antigen presentation and reduces the recognition and the elimination of virus-infected cells by CTLs[8]. Therefore, we suggest that the inhibition of ORF8 function could be a strategy to improve the special immune surveillance and accelerate the eradication of SARS-CoV-2 in vivo.

DOI: 10.1128/JVI.01048-15

ABSTRACT

Despite the identification of horseshoe bats as the reservoir of severe acute respiratory syndrome (SARS)-related coronaviruses (SARSr-CoVs), the origin of SARS-CoV ORF8, which contains the 29-nucleotide signature deletion among human strains, remains obscure. Although two SARS-related *Rhinolophus sinicus* bat CoVs (SARSr-Rs-BatCoVs) previously detected in Chinese horseshoe bats (*Rhinolophus sinicus*) in Yunnan, RsSHC014 and Rs3367, possessed 95% genome identities to human and civet SARSr-CoVs, their ORF8 protein exhibited only 32.2 to 33% amino acid identities to that of human/civet SARSr-CoVs. To elucidate the origin of SARS-CoV ORF8, we sampled 348 bats of various species in Yunnan, among which diverse alphacoronaviruses and betacoronaviruses, including potentially novel CoVs, were identified, with some showing potential interspecies transmission. The genomes of two betacoronaviruses, SARSr-Rf-BatCoV YNLF_31C and YNLF_34C, from greater horseshoe bats (*Rhinolophus ferrumequinum*), possessed 93% nucleotide identities to human/civet SARSr-CoV genomes. Although these two betacoronaviruses displayed lower similarities than SARSr-Rs-BatCoV RsSHC014 and Rs3367 in S protein to civet SARSr-CoVs, their ORF8 proteins demonstrated exceptionally high (80.4 to 81.3%) amino acid identities to that of human/civet SARSr-CoVs, compared to SARSr-BatCoVs from other horseshoe bats (23.2 to 37.3%). Potential recombination events were identified around ORF8 between SARSr-Rf-BatCoVs and SARSr-Rs-BatCoVs, leading to the generation of civet SARSr-CoVs. The expression of ORF8 subgenomic mRNA suggested that the ORF8 protein may be functional in SARSr-Rf-BatCoVs. The high K_a /K_s ratio among human SARS-CoVs compared to that among SARSr-BatCoVs supported that ORF8 is under strong positive selection during animal-to-human transmission. Molecular clock analysis using ORF1ab showed that SARSr-Rf-BatCoV YNLF_31C and YNLF_34C diverged from civet/human SARSr-CoVs in approximately 1990. SARS-CoV ORF8 originated from SARSr-CoVs of greater horseshoe bats through recombination, which may be important for animal-to-human

IMPORTANCE Although horseshoe bats are the primary reservoir of SARS-related coronaviruses (SARSr-CoVs), it is still unclear how these bat viruses have evolved to cross the species barrier to infect civets and humans. Most human SARS-CoV epidemic strains contain a signature 29-nucleotide deletion in ORF8, compared to civet SARSr-CoVs, suggesting that ORF8 may be important for interspecies transmission. However, the origin of SARS-CoV ORF8 remains obscure. In particular, SARSr-Rs-BatCoVs from Chinese horseshoe bats (*Rhinolophus sinicus*) exhibited <40% amino acid identities to human/civet SARS-CoV in the ORF8 protein. We detected diverse alphacoronaviruses and betacoronaviruses among various bat species in Yunnan, China, including two SARSr-Rf-BatCoVs from greater horseshoe bats that possessed ORF8 proteins with exceptionally high amino acid identities to that of human/civet SARSr-CoVs. We demonstrated recombination events around ORF8 between SARSr-Rf-BatCoVs and SARSr-Rs-BatCoVs, leading to the generation of civet SARSr-CoVs. Our findings offer insight into the evolutionary origin of SARS-CoV ORF8 protein, which was likely acquired from SARSr-CoVs of greater horseshoe bats through recombination.



Antiviral Research 176 (2020) 104742

Contents lists available at ScienceDirect

Antiviral Research

journal homepage: www.elsevier.com/locate/antiviral

The spike glycoprotein of the new coronavirus 2019-nCoV contains a furin-like cleavage site absent in CoV of the same clade

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ARTICLE INFO

Keywords:
2019-nCoV
SARS-CoV
Spike protein
Maturation protease
Furin
Antivirals

ABSTRACT

In 2019, a new coronavirus (2019-nCoV) infecting Humans has emerged in Wuhan, China. Its genome has been sequenced and the genomic information promptly released. Despite a high similarity with the genome sequence of SARS-CoV and SARS-like CoVs, we identified a peculiar furin-like cleavage site in the Spike protein of the 2019-nCoV, lacking in the other SARS-like CoVs. In this article, we discuss the possible functional consequences of this cleavage site in the viral cycle, pathogenicity and its potential implication in the development of antivirals.

exposed PRRAR↓SV sequence, which corresponds to a canonical furin-like cleavage site (Braun and Sauter, 2019; Izaguirre, 2019; Seidah and Prat, 2012). This furin-like cleavage site, is supposed to be cleaved during virus egress (Mille and Whittaker, 2014) for S-protein "priming" and may provide a gain-of-function to the 2019-nCoV for efficient spreading in the human population compared to other lineage b beta-coronaviruses. This possibly illustrates a convergent evolution pathway between unrelated CoVs. Interestingly, if this site is not processed, the S-protein is expected to be cleaved at site 2 during virus endocytosis, as observed for the SARS-CoV.

Obviously much more work is needed to demonstrate experimentally our assertion, but the inhibition of such processing enzyme(s) may

SARS-like cluster of circulating bat coronavirus pose threat for human emergence

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The publisher's final edited version of this article is available at Nat Med

This article has been corrected. See Nat Med. 2016 April; 22(4): 446.

See other articles in PMC that cite the published article.

Associated Data

Supplementary Materials

Go to:

Abstract

The emergence of Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and Middle East Respiratory Syndrome (MERS)-CoV underscores the threat of cross-species transmission events leading to outbreaks in humans. In this study, we examine the disease potential for SARS-like CoVs

ORIGINAL ARTICLE

Angiotensin-converting enzyme 2 (ACE2) proteins of different bat species confer variable susceptibility to SARS-CoV entry

Yuxuan Hou · Cheng Peng · Meng Yu · Yan Li · Zhenggang Han · Fang Li · Lin-Fa Wang · Zhengli Shi

Received: 21 April 2010 / Accepted: 12 June 2010 / Published online: 22 June 2010

Abstract The discovery of SARS-like coronavirus in bats suggests that bats could be the natural reservoir of SARS-CoV. However, previous studies indicated the angiotensin-converting enzyme 2 (ACE2) protein, a known SARS-CoV receptor, from a horseshoe bat was unable to act as a functional receptor for SARS-CoV. Here, we extended our previous study to ACE2 molecules from seven additional bat species and tested their interactions with human SARS-CoV spike protein using both HIV-based pseudotype and live SARS-CoV infection assays. The results show that ACE2s of *Myotis daubentoni* and *Rhinolophus sinicus* support viral entry mediated by the SARS-CoV S protein, albeit with different efficiency in comparison to that of the human ACE2. Further, the alteration of several key residues either decreased or enhanced bat ACE2 receptor efficiency, as predicted from a structural modeling study of the different bat ACE2 molecules. These data suggest that *M. daubentoni* and *R. sinicus* are likely to be susceptible to SARS-CoV and may be candidates as the natural host of the SARS-CoV progenitor viruses. Furthermore, our current study also demonstrates that the genetic diversity of ACE2 among bats is greater than that observed among known SARS-CoV susceptible mammals, highlighting the possibility that there are many more uncharacterized bat species that can act as a reservoir of SARS-CoV or its progenitor viruses. This calls for continuation and expansion of field surveillance studies among different bat populations to eventually identify the true natural reservoir of SARS-CoV.

Electronic supplementary material The online version of this article (doi:10.1007/s00705-010-0729-6) contains supplementary material, which is available to authorized users.

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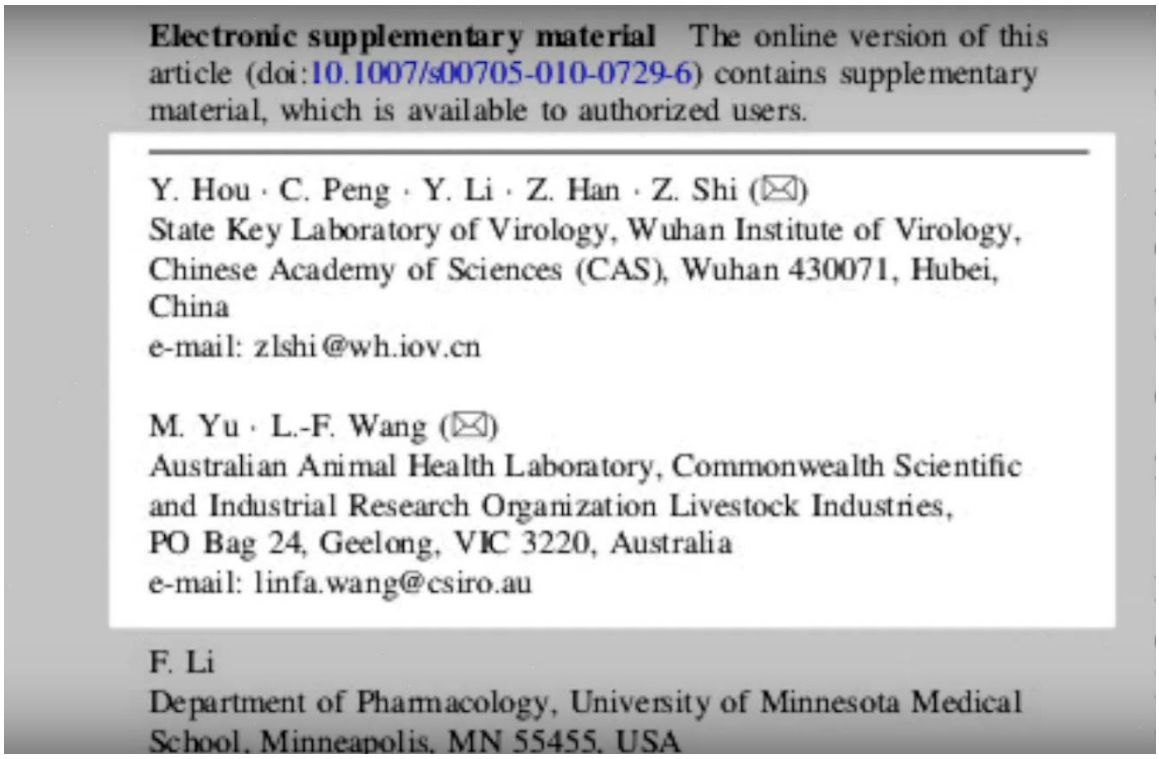
Introduction

Severe acute respiratory syndrome coronavirus (SARS-CoV) is the aetiological agent responsible for the SARS outbreaks during 2002–2003, which had a huge global impact on public health, travel and the world economy [4, 11]. The host range of SARS-CoV is largely determined by the specific and high-affinity interactions between a defined receptor-binding domain (RBD) on the SARS-CoV spike protein and its host receptor, angiontensin-converting enzyme 2 (ACE2) [6, 7, 9]. It has been hypothesized that SARS-CoV was harbored in its natural reservoir, bats, and was transmitted directly or indirectly from bats to palm civets and then to humans [10]. However, although the genetically related SARS-like coronavirus (SL-CoV) has been identified in horseshoe bats of the genus *Rhinolophus* [5, 8, 12, 18], its spike protein was not able to use the human ACE2 (hACE2) protein as a receptor [13]. Close



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Collaboration between Australian Animal Health Laboratory,Univ. of Minnesota, Univ. of North Carolina at Chapel Hill and Wuhan institute of Virology in GOF strings insertion into Covid-19 genome.

The South China Morning Post (SCMP) reported that a study by Chinese scientists has found that the novel Covid-19 virus uses the same strategy to evade attack from the human immune system as HIV. Specifically, both viruses remove marker molecules on the surface of an infected cell that are used by the immune system to identify invaders, the researchers said in a paper titled “The ORF8 Protein of SARS-CoV-2 Mediates Immune Evasion through Potently Downregulating MHC-I”, posted on pre-print website bioRxiv.org on May 24, 2020. They warned that this commonality could mean that Sars-CoV-2, the clinical name for the virus, could be around for some time, like HIV.

Virologist Zhang Hui and a team from Sun Yat-sen University in Guangzhou, China also said their discovery added weight to clinical observations that the coronavirus was showing “some characteristics of viruses causing chronic infection”.

The researchers collected killer T cells from five patients who had recently recovered from Covid-19; those immune cells are generated by people after they are infected with Sars-CoV-2, and whose job is to find and destroy the virus. But the killer T cells used in the study were not effective at eliminating the virus in infected cells. When the scientists took a closer look, they found that a molecule known as major histocompatibility complex, or MHC, was missing. The molecule is an identification tag usually present in the membrane of a healthy cell, or in sick cells infected by other coronaviruses such as severe acute respiratory syndrome, or Sars. It changes with infections, alerting the immune system whether a cell is healthy or infected by a virus. However, there is one notable disease that makes MHC molecules disappears from the cell

surface: HIV. The coronavirus removes these markers by producing a protein known as ORF8, which binds with MHC molecules, then pulls them inside the infected cell and destroys them, the researchers said. ORF8, which is also known to play an important role in viral replication, is the gene that is targeted by most commercial test kits to detect viral loads in nose or oral swabs.

The absence of MHC makes the creation of vaccines against Covid-19 problematic, although the study authors had a suggestion: while drugs used to treat Covid-19 patients mainly target enzymes or structural proteins needed for viral replication, Zhang and his team suggested compounds be developed "specifically targeting the impairment of MHC by Open Reading Frame 8, ORF8, and therefore enhancing immune surveillance for Sars-CoV-2 infection".

The South China Morning Post (SCMP) reports that:

> "Earlier studies found the spike protein of the new coronavirus had a structure that allowed it to enter many types of human cells and bind with them. The same structure was also found in HIV, but not in other coronaviruses found in animals such as bats and pangolins."

Another study by researchers in New York and Shanghai also found that the Sars-CoV-2 could kill T cells, or as the SCMP puts it "the discovery came after autopsies in China found immune system destruction similar to that caused by AIDS." The SCMP has pointed out all the same facts – that the coronavirus not only shares genetic material with HIV, but also evades and cripples the immune system in a similar way to HIV. Four decades after HIV – a virus that attacks the immune system – emerged, it has killed about 32 million people globally and there is still no vaccine or drug that can completely cure the disease.

It must be observed that most people that died from Covid-19 was from blood clots in the lung and had pre-existing high blood pressure and vascular disease. They could have been treated with blood thinning medication but were chosen to be ventilated making matters worse. Most of those people were 80 years and older. At this age the immune system is not as good as it was when younger, but none of those people had "crippled" immune systems.

The point is that the virus codes for a protein that down regulates MHC I expression so that infected cells do not trigger an immune response by displaying processed viral proteins on the surface bound to MHC. HIV uses a similar mechanism to avoid immune surveillance. HIV is a retro-virus and is still impossible to cure. A coronavirus infection just becomes chronic when the immune system cannot find a way to defeat it, but it cannot hide inside human host cells like HIV. So chronic for a conventional infection just means the disease festers for a long time, the duration of which is somewhat arbitrarily defined by physicians. But with a retrovirus like HIV chronic always means forever.

However, this does not mean it is chronic like HIV. This is a coronavirus. The coronavirus is not a retrovirus, despite what some people here have been saying. The confusion is between an RNA virus and a retrovirus. While a retrovirus is an RNA virus, not all RNA viruses are retroviruses. The reason a retrovirus like HIV is a chronic infection is that it integrates itself into the host's DNA. No research suggests this about SARS-CoV-2. If the infection is not chronic, the immune system recovers.

SEQUENTIAL INFECTION METHOD

A claim is made that the Covid-10 virus is not laboratory-made is that there is absolutely no bio-engineered designed and constructed Spike S protein artifacts to be found in SARS-CoV-2 as such a construct would stick out like a sore thumb in gene sequencing. This is not factual upon comparing it to all the other coronaviruses: none have the furin based polybasic cleavage site.

Gain of function research is an existential problem facing humanity. A single rogue scientist can start an epidemic whenever he wants. It is a whole lot easier to get samples out of a biolab than say steal a nuclear weapon and a nuclear weapon is a whole less potent.

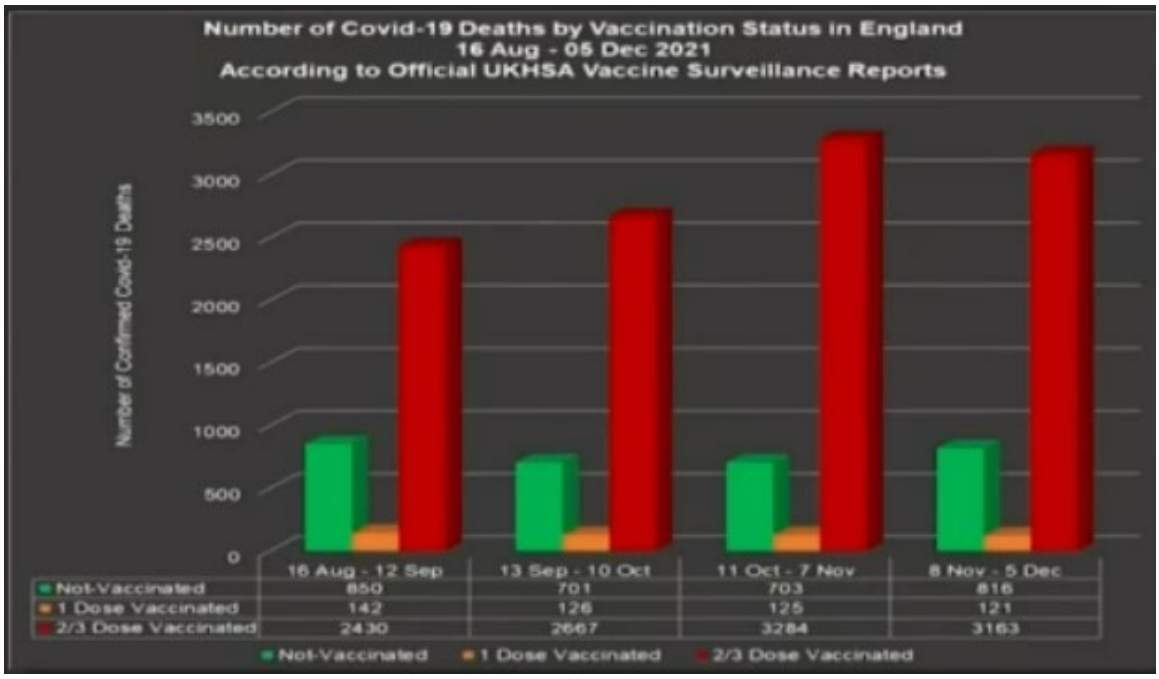
There are many who want to reduce the human population. Why should we allow them possession of the tools to do it?

SEQUENTIAL INFECTION METHOD, ACCELERATED EVOLUTION

Another claim was that there is a very high likelihood that SARS-CoV-2 was an attempt at a vaccine. The fact is that you would never modify the virus to make a vaccine this way. It was a Gain Of Function (GOF) attempt to make a bat virus capable of infecting humans to see what would happen.

It does not mean that SARS-CoV-2 is not a virus created in a lab. It just means it was created using a different technique than constructing the SARS-CoV-2 Spike proteins brick by brick. A common technique that is considered as elegant is sequential infection that mimics Natural Selection but in a "guided, vastly accelerated" manner by lab personal, whereas nature uses trial and error methods that take a long time.

The "Sequential Infection Method" entail infecting and re-infecting a small herd of animal models (such as ferrets) with the SARS virus. The animals in turn also infect each other. The Ferret bronchial cell ACE-2 Receptor Binding Domain (RBD) closely resembles the human ACE-2 bronchial receptor. So with repeated infections the SARS virus rapidly mutates in this animal population. When the animals develop pneumonia, then the researchers have a SARS virus that is now highly transmissible by aerosol droplets that get into the lungs and lock onto the ACE-2 RBD. On first blush, the virus looks to have emerged from "nature" by means of "natural selection" or accelerated evolution.



Single injection provides some protection, then the risk of death increases dramatically after the second and third injection or booster shots in the UK.

THE MINK / FERRET / OTHER POSSIBLE RESERVOIRS RISK

Millions of minks were culled in Denmark in November 2020. Like their close relatives, ferrets, mink are known to be susceptible to coronavirus, and like humans, they can show a range of symptoms, from no signs of illness at all to severe problems, such as pneumonia. It is suspected that ferrets were intentionally used in hiding the origin in the Gain of Function (GOF) work that could have led to the creation of the SARS-CoV-2, CoVid-19 virus.

Mink kept in large numbers on mink farms in Denmark have caught the virus from infected workers. And, in a small number of cases, the virus has “spilled back” from mink to humans, picking up genetic mutations on the way.

Mutations in some mink-related strains involve the spike protein of the virus, which is targeted by some vaccines being developed. If the mutation is on a specific protein that is being currently targeted by the vaccine developers to trigger an immune response in humans then it means that if this new virus strain comes out of the mink back into the humans, even with vaccination, the humans will start spreading it and the vaccine will not be protective.

More than 50 million mink a year are bred for their fur, mainly in China, Denmark, the Netherlands and Poland. Outbreaks have been reported on fur farms in the Netherlands, Denmark, Spain, Sweden, Italy and the USA, and millions of animals had to be culled. Scientists suspect the virus spreads in mink farms through infectious droplets, on feed or bedding, or in dust containing droppings.

Mink have caught the virus from humans, but genetic detective work has shown that in a small number of cases the virus seems to have passed the other way, with the virus

spreading from mink back to humans. Mink have become “reservoirs of the virus” and surveillance is required in other wild and domestic animals.

Mink is the extreme case, but it could be happening out there in animals such as cats, dogs, horses, cattle, birds, bats, chicken, ducks and geese, camels, rodents, horses, sheep and goats, pigs, monkeys, chimpanzees, gorillas and other animals, and we just do not know about it. All we know is that mink have picked up the virus from people; they can be infected and they are spreading it between themselves and it has come back to humans.

In a letter to the journal Science, three scientists, from Denmark, China and Malaysia, wrote: “It is urgent to monitor, restrict, and – where possible – ban mink production.”

SYMPTOMS AND EFFECTS

Figure 68. Hospitalization of Covid-19 patients, China, April 2020.

Research out of the UK shows that all victims had low T cell counts. The virus specifically targets people with low T cell counts. The old, people with weak immune systems are targeted by this virus and the virus attacks the T cells, turning them against themselves and the patient. Medications the raise the level of T cells are being tested as a remedy.

Infection

The virus, officially named SARS-CoV-2, enters the body, generally through the mouth or nose or from food, blood, feces or urine excrements ingestion from an intermediate host. From the mouth or nose,, the virus makes its way down into the air sacs inside the lungs, known as alveoli. Once in the alveoli, the virus uses its distinctive spike S proteins to “hijack” cells. The primary genetic programming of any virus is to make copies of itself, and Covid-19 is no exception. Once the virus’ RNA has entered a cell, new copies are made and the cell is killed in the process, releasing new viruses to infect neighboring cells in the alveolus. This process can occur initially without a person being

aware of the infection, which is one of the reasons Covid-19 has been able to spread so effectively.

Immune Response

The process of hijacking cells to reproduce causes inflammation in the lungs, which triggers an immune response. As this process unfolds, fluid begins to accumulate in the alveoli, causing a dry cough and making breathing difficult in a pneumonia or bronchitis - like fashion. For 80-85 percent of people infected by COVID-19, these symptoms will run their course much as they would with a case of the seasonal influenza.

Severe Symptoms, Cytokine Storm, Acute Respiratory Distress Syndrome ARDS

In 15-20 percent of cases, the immune system's response to inflammation in the lungs can cause what is known as a "cytokine storm". This runaway response can cause more damage to the body's own cells than to the virus it is trying to defeat and is thought to be the main reason for why the conditions of young, otherwise healthy individuals can rapidly deteriorate.

If enough alveoli collapse, acute respiratory distress syndrome (ARDS) can occur, requiring a patient to be "intubed" or placed on a ventilator for breathing assistance. At this stage, the surfactant that helps keep alveoli from collapsing has been diluted, and fluid containing cellular debris is impairing the gas exchange process that supplies oxygen to the bloodstream.

In the most severe cases, Systemic Inflammatory Response Syndrome (SIRS) occurs as the protein-rich fluid from the lungs enters the bloodstream, resulting in septic shock and multi-organ failure. This is often the cause of death for people who have succumbed to a Covid-19 infection.

SOURCES AND ORIGINS

The pandemic viral spread of 2019-2020 is alleged to have been a Gain-of-Function version of a coronavirus 2019n-CoV or Covid-19, which may have originally been obtained from the National Microbiology Laboratory in Winnipeg, Ontario Canada with an infection rate of 83 percent and an incubation period of 7-17 days and possible presymptomatic carriers, and an alleged death rate of 11 percent. The concentration of deaths is in the middle-aged and older vulnerable cohort groups [29]. The virus killing 80 percent of the cases those with larger than 60 years of age with diabetes or immune systems compromises. Scientists have difficulty stop the spread of the flu with a reproductive rate of 1.4. It would be more difficult to stop the spread of this virus with a reproductive rate R_0 number of 2.0 which doubles its infections every 6.2 days until it mutates itself in its host victims into oblivion.

The theory floating in the early days of the pandemic that it stemmed from wild animals at a Wuhan wet market has been officially debunked by Chinese authorities.

A study carried out by Australian researchers found evidence the virus developed in human cell – perhaps in a lab cell culture – before it was unleashed on the world.

National Institutes of Health Director Francis Collins has backtracked in his stance on the virus. In the past, he seemed to support the conclusion of a study finding the virus had a natural origin, but he says the possibility that it escaped from a lab cannot be ruled out.

The former head of MI6, Britain's foreign intelligent service, also supports the lab origin theory. Sir Richard Dearlove told the Telegraph: "I do think that this started as an accident," referring to the Chinese lab, although he does believe that more research is needed to say for certain.

It is not easy for a virus to establish zoonotic transmission, and coronaviruses rarely leap from animal to human infection with high transmissibility**.** There is even less chance to see a coronavirus leap directly from bats to humans. To infect new hosts, mutations need to occur with the viral surface S (spike) proteins and/or envelope and structural genes, so that the mutated viruses can bind and enter the cells of new species, and efficiently complete the replication cycles in the new hosts.

Some scientists argue that coronaviruses can jump directly to humans, without mutating or passing through an intermediate species. However, an intermediate host was clearly needed to establish zoonotic transmission to humans in the previous outbreaks of corona viruses. Many studies suggested that the bat coronavirus jumped from its natural host bats to palm civets and then to humans during the 2003 SARS outbreak, and it jumped from bats to camels and then to humans for the MERS outbreak. So, palm civets and camels would serve as intermediate hosts for zoonotic transmission.

Figure 69. Disinfection of the streets of Wuhan, February 2020.

Figure 70. Forced migration of people in the informal economy in India, with a four-hour warning, cast-out to walk back on foot to their villages, with air, rail and road transport

suspended around March 24, 2020,with many with nowhere to go, with horror stories of food lines forming for starving people, April 2020.

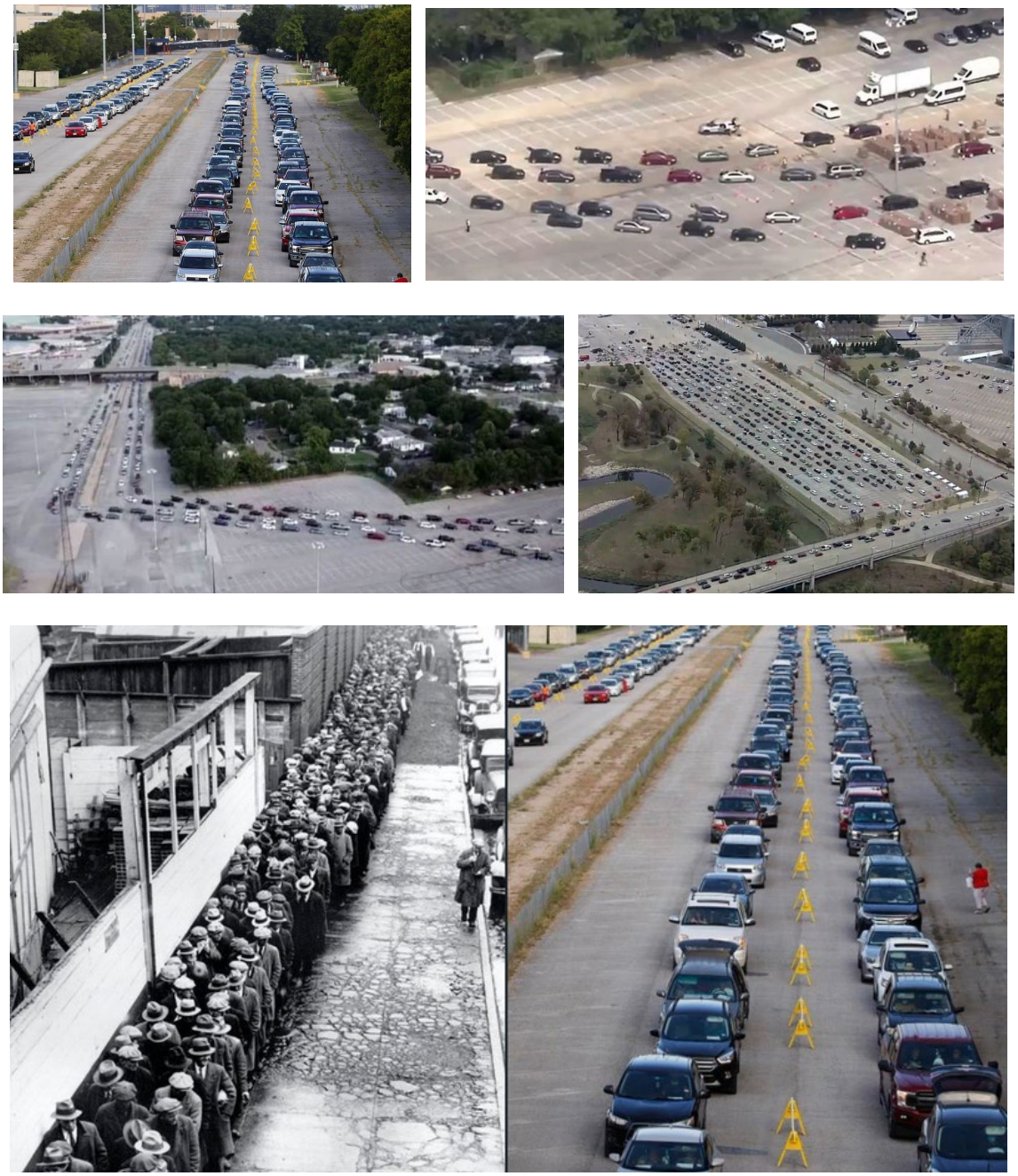


Figure 71. Cars lineups of working class people who were forced out of their jobs collecting food boxes from food banks reminiscent of the Great Depression, Dallas County, Texas, USA, August 11, 2020, November 21, 2020.

Figure 72. Airplane disinfection, April 2020. Classroom protection in China using a combination of a face mask and a plastic face shield used by medical personnel. Movie theater social distancing among young people, Wuhan, China. Car-Testing lines in Los Angeles, California and Madison, Wisconsin, USA, November 2020.

Figure 73. Boarded store from fear of possible social unrest and looting infiltrating political protests, March 2020. Boarded Saks fifth Avenue and Microsoft, Manhattan, New York, August 2020, USA.

Figure 74. Businesses closings as a result of Covid-19 pandemic.

The Covid-19 has caused rapid infection in China and spread to other countries outside China, which led to a global health crisis. The Huanan seafood market is known to be a major outlet for the collection and distribution of live and dead wild animals. These included live wolves, hedgehogs, deer, birds, snakes, goats, hares, and boars that were sold and available in the east section of the seafood market. Pangolins, pigs and birds can be affected by the virus. Rodents are also known to infest seafood markets. Fecal matter and "domesticated" animals like cats, dogs, ferrets, cows, pigs, chickens, hamsters, could also be "carriers." Humans must in fact be considered as "carriers" too in the infection process.

Airport security trays carry pathogens that can cause respiratory illnesses. A recent study in Helsinki confirms that TSA security check points are the most-likely place to "catch something." Plastic trays carried influenza, the human corona virus, rhino virus, and other illness-prompting pathogens. In light of the research, airport trays might eventually have to be replaced with self-cleaning ones.

A Lancet report on January 29, 2020, titled "Genomic characterization and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding," stated that: "A Blast search of the complete genomes of Covid-19 revealed that the most closely related viruses available on GenBank were bat-SL-CoV-ZC45 (sequence identity 87.99%; query coverage 99%) and another SARS-like betacoronavirus of bat origin, bat-SL-CoV-ZXC21 (accession number MG772934;23 87.23%;" "Notably, the 2019-nCoV strains were less genetically similar to SARS-CoV (about 79%) and MERS-CoV (about 50%)." The authors mention that most bats in Wuhan are hibernating and no bats are sold at the Huanan seafood market. Thus, the chance of physical contact from bats to spread the virus to humans or animals at Wuhan is highly unlikely.

Guan Yi and Kwok-yung Yuen of the University of Hong Kong (HKU) et. al. identified severe acute respiratory syndrome coronavirus (SARS-CoV) from caged palm civets from live animal markets in China in 2003. Their studies lead to the subsequent ban on selling palm civets and the closing of all wild animal markets in Guangdong and helped to confine the SARS epidemic. The Asian Palm Civet is a member of the Viverridae family which can be found in southeast Asia, most notably Indonesia. It is a small, cat-sized grey and black viverrid that has a long tail. It essentially resembles a raccoon and cat hybrid. The palm civets feel on fruits, mangoes, insects, and most popularly, coffee berries. Palm civets often venture into cities and suburbs, with people often complaining about civet feces and the noise of the animals' climbing on roofs. Studies have been undertaken to examine and mitigate such human-animal conflict.

Virologist James Lyons-Weller of the Institute for Pure and Applied Knowledge suggested that the coronavirus' genetic sequence which has been publicly released by China contains a unique "middle fragment" encoding a SARS (Severe Acute Respiratory Syndrome) spike protein that appears, according to his genomic analysis, to have been inserted into the Covid-19 virus using "pShuttle" technology. This technique can only be done in a laboratory, as it has never occurred naturally in nature.

Most scientists agree that both the Wuhan Coronavirus and the SARS virus which hit China in 2002-2003 attack the human body through the ACE2 receptor or "Angiotensin-converting enzyme-2", which is an enzyme which plays a role in constriction of the lungs. The ACE2 receptor increase is purely genetic based on the six genetic variations that increase ACE2 receptors, which 92% of Chinese possess and only 52% of Europeans have.

Considering that the populations in Asia have more ACE2 receptors to viruses than westerners, it is possible they were testing how close the proteins in the bat virus were to SARS, and if the bat-Cov could mutate to infect humans.

A study published in Natural Medicine on November 9, 2015, about a disease that can be caused by a SARS-like coronavirus (SHC014-CoV) found in Chinese horseshoe bats reports [29]:

> "The researchers used the SARS reverse genetics system to generate and identify a chimeric virus. In simple terms, this chimeric virus consists

of the surface protein of SHC014 and the backbone of the SARS virus. The chimeric virus can infect human respiratory cells, demonstrating that the surface protein of SHC014 has the necessary structure to bind to key receptors on cells and infect cells. Chimeras can cause disease in mice, but they are not lethal. Studies have shown that viruses currently circulating in bat populations could potentially trigger the potential risk of SARS-CoV (SARS virus) outbreaks."

In addition, as reported by Wuze Ren et. al. at the time the laboratory in Wuhan was a level 3 laboratory before it received the go ahead to construct a level 4 laboratory researchers were splicing HIV into the genetics of SARS, back in 2008, and a paper was published on the work [29]. The first point to note is that the Wuhan laboratory has been using HIV derivatives to investigate SARS. The second is that this study aimed to find whether SARS-like coronaviruses (SL-CoV) found in bats, that normally did not bind to the ACE2 receptors in human lungs, could be modified to do so. It appears that the bat coronavirus got leaked from this BSL-4 lab unintentionally through improper handling of samples and lab animals:

"Severe acute respiratory syndrome (SARS) is caused by the SARS-associated coronavirus (SARS-CoV), which uses angiotensin-converting enzyme 2 (ACE2) as its receptor for cell entry. A group of SARS-like CoVs (SL-CoVs) has been identified in horseshoe bats. SL-CoVs and SARS-CoVs share identical genome organizations and high sequence identities, with the main exception of the N terminus of the spike protein (S), known to be responsible for receptor binding in CoVs.

In this study, we investigated the receptor usage of the SL-CoV S by combining a human immunodeficiency virus-based pseudovirus system with cell lines expressing the ACE2 molecules of human, civet, or horseshoe bat. In addition to full-length S of SL-CoV and SARS-CoV, a series of S chimeras was constructed by inserting different sequences of the SARS-CoV S into the SL-CoV S backbone. Several important observations were made from this study. First, the SL-CoV S was unable to use any of the three ACE2 molecules as its receptor. Second, the SARS-CoV S failed to enter cells expressing the bat ACE2. Third, the chimeric S covering the previously defined receptor-binding domain gained its ability to enter cells via human ACE2"

"Bats have been identified as natural reservoirs for many emerging zoonotic viruses, such as Hendra virus, Nipah virus, and lyssaviruses (6). Although an intermediate host is necessary to amplify most bat viruses and deliver them to human populations, it has been demonstrated that the Nipah virus in Bangladesh is capable of direct bat-to-human transmission (reviewed in reference 13). Since the discovery of SL-CoVs in bats, a large number of CoVs have been discovered in different bat species (26, 29, 35, 39, 43, 44a). It is now clear that bats are reservoirs of a diverse group of CoVs. Considering the documented observations of coinfection of the same bat species by different CoVs, the same CoVs infecting different bat species

(26, 29, 39), the high density of bat habitats, and the propensity for genetic recombination among different CoVs, it is not unreasonable to conclude that bats are a natural mixing vessel for the creation of novel CoVs and that it is only a matter of time before some of them cross species barriers into terrestrial mammal and human populations. The findings presented in this study serve as the first example of host switching achievable for G2b CoVs under laboratory conditions by the exchange of a relatively small sequence segment among these previously unknown CoVs."

In a news article published by the international science journal Nature, the progress, or lack thereof, identifying the natural source of COVID-19 was reviewed. According to the article, COVID-19 probably originated in bats, specifically horseshoe bats, which host two closely related coronaviruses, named RaTG13 and RmYN02, whose genomes are 96% and 93% identical to COVID-19, respectively.

Both coronavirus samples were isolated from bats in Yunnan Province, RaTG13 in 2013 and RmYN02 in 2019, and were studied in the Wuhan Institute of Virology. Wuhan is where the outbreak of COVID-19 originated and about 1,000 miles from Yunnan.

The Nature article does not mention that RaTG13 is actually a duplicate of another bat coronavirus, BtCoV/4991, about which there is nearly no published experimental data since it was isolated in 2013, despite clearly being a Potential Pandemic Pathogen. That is, except for the structure, analyzed only by Chinese scientists, practically nothing is known about RaTG13.

The Nature article also does not mention that the receptor-binding domain of RmYN02 showed only a 61.3% sequence identity with COVID-19, meaning it is highly unlikely that RmYN02 could even bind to human cells. The Nature article suggests that pangolins (scaly anteaters), might be an intermediate host because some pangolin coronaviruses "share up to 92% of their genomes" with COVID-19, presumably bridging the gap between bats and humans. When asked about that possibility, Dr Ralph Baric, a coronavirus expert from the University of North Carolina at Chapel Hill in a March 15, 2020 interview, stated unequivocally that pangolins were not the source of COVID-19:

> "Pangolins have over 3,000 nucleotide changes – no way they are the reservoir species [for COVID-19], absolutely no chance."

Nevertheless, the receptor-binding domain of COVID-19 is structurally closer to pangolins than bats indicating a recombinant event, in this case, likely artificial. In fact, Ralph Baric and Zheng-Li Shi, the "bat woman" from the Wuhan Institute of Virology, conducted just such an artificial receptor-binding domain insertion from a newly isolated bat coronavirus (SHC014) onto the "backbone" from SARS-CoV, the coronavirus responsible for the 2003 pandemic.

In a December 9, 2019 interview, Dr Peter Daszak, President of the EcoHealth Alliance and a long-time collaborator with the Wuhan Institute of

Virology, presumably referring to the Ralph Baric- Zheng-Li Shi experiments, stated "you can manipulate them in the lab pretty easily" inserting a spike protein "into a backbone of another virus." Thus, an artificial recombinant event carried out in the laboratory would be a far better explanation of pangolin-like structures appearing on a bat coronavirus backbone than one occurring in nature, at least given the current state of knowledge.

The most conspicuous sign of COVID-19 genetic manipulation is the presence of a furin polybasic cleavage site, a structure that is not present in any of the coronaviruses so far identified as possible direct ancestors. The authors of the RmYN02 article stretch credulity even further by claiming that RmYN02 has a precursor cleavage site. In reality, it is a weak attempt to offer a naturally-occurring explanation for the presence of the furin polybasic cleavage site in COVID-19.

Unfortunately, the amino acid sequence PAA, the insertion cited by the authors, is chemically neutral, totally unlike COVID-19's polybasic PRRAR sequence and PAA has no ability to cleave anything. Based on the actual evidence, it is unlikely that RmYN02 is a natural close relative of COVID-19.

Although COVID-19 appears to have been "pre-adapted" for human infection, the artificial insertion of the furin polybasic cleavage site may explain a potentially significant point mutation in COVID-19 that may have increased its infectivity. According to the article "The D614G mutation in the SARS-CoV-2 spike protein reduces S1 shedding and increases infectivity,", over the course of the human pandemic, one amino acid position has changed from aspartic acid to glycine, increasing the stability of the spike protein and, thereby, making COVID-19 more infectious. As suggested by the authors, that mutation may have been what is known as a "positive selection" to compensate for the structural instability created after the artificial insertion of the furin polybasic cleavage site. COVID-19 does not appear to be naturally occurring as most of the available evidence indicates otherwise.

Viral shedding is possible from a vaccine, but not typical. It was the case with the original polio vaccine, which used live virus in the vaccine, and that was also part of their intent, to give passive immunity to persons that were exposed to the feces of those inoculated.

The mRNA vaccines are an RNA modifier of the host. It is doubtful that the 'vaccinated' are going to be shedding spike proteins that will affect others, if it does, it should be exhibiting a similar response to a normal human encountering a previously unknown pathogen-that is to say the host will start producing antibodies to it if it does indeed.

The HIV insert that this virus is man-made. It may also have a malaria insert which would explain why Hydro-chloro-quinolone HCQ and Invectin, both anti-parasitic, are helpful in prophylaxis and treatment.

In order to make a virus jump from one animal to another one can pick an intermediate host and infect a few generations of that animal, such as mice, in the lab, until the virus has successfully made the jump. Ferrets, for instance, apparently have the same ACE2 receptors as humans, which makes them the perfect intermediate host. One just transfect a few generations of ferrets and can successfully make the jump to a virus that will readily infect humans in a sped-up

evolution process. Nature does the job quickly and efficiently. “Sequential infection” just speeds up mutations and natural selection. People work with the CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) gene editing tool every day. It is no longer possible to keep such research secret. The cat is out of the bag. The research has developed so quickly over the last 10-15 years, that it is no longer possible to keep this type of thing really secret. Too many researchers have the tools to analyze the bioweapons and see what makes them tick. What is chilling for the present and future is that the tools to investigate are basically the tools to make up new bugs.

AMERICAN CDC INVESTIGATION

A scathing Op-Ed in the Wall Street Journal concludes that SARS-CoV-2 "was most likely uncontained in a laboratory where it was being worked on, and that it escaped unintentionally."

Authored by former CDC Director Dr. Robert Redfield and NYU clinical professor Dr. Marc Siegel, the Op-Ed calls out the Chinese government for preventing the CDC from visiting Wuhan, China or the Wuhan Institute of Virology in early 2020 - which forced USAhiv investigators to "put together the circumstantial pieces of the puzzle on our own."

The doctors note:

> “On Sept. 12, 2019, coronavirus bat sequences were deleted from the institute’s database. Why? It changed the security protocols for the lab. Why? It put out requests for more than $600 million for a new ventilation system. What prompted this new need?
>
> In January 2020 two hypotheses emerged about the origin of the novel coronavirus: that it began in a bat, then infected another animal before spreading to humans in a Wuhan “wet market,” where wild animals are sold for meat; or that it emerged from the Wuhan laboratory. The wet-market story was pushed by the Chinese CDC and the World Health Organization. Public-health leaders argued that Covid-19 was like SARS and MERS, earlier coronaviruses that emerged from bats and spread through an intermediate animal.
>
> But neither of those viruses has ever evolved to the point where it can transmit efficiently from one human to the next. There have been fewer than 10,000 cases of each virus world-wide since SARS was discovered in 2003 and MERS in 2012. What virus comes out of a bat cave and infects humans by the millions? It’s not biologically plausible. If instead it evolved slowly over many years in nature, how come no one knew of it?”

What does bear investigation, they write, is the hypothesis that SARS-CoV-2 was "taught" to infect humans using humanized mice (grafted with human tissue

and immune cells) in order to test whether the virus's 'cleavage site' was manipulated to more easily infect a human cell.

They also note a "growing body of circumstantial evidence" supporting the lab-leak theory - including info gleaned by the US State Department that Wuhan lab workers fell ill with Covid-like symptoms in the fall of 2019.

> "The story of SARS-Cov-2 started long before January 2020. We believe the virus was most likely uncontained in a laboratory where it was being worked on, and that it escaped unintentionally. A Harvard study of satellite images revealed a shutdown of traffic around the Wuhan lab in the late summer and early fall of 2019. Weeks later, in late September, the hospital parking lots were filling up.
>
> There were hallmarks of scientific arrogance and failures in the containment system. China's CDC initially appeared to be out of the loop but later became a key messenger, selling the natural-origin and wet-market theory. Another apparent misdirection was several key scientists' insistence on a narrow definition of "gain of function" research to include remodeling, overt bioengineering, shaping or constructing a virus. As far as we're concerned, if a virus is taught to or evolves in a lab to infect human tissue more efficiently, that's gain of function."

HIV STRINGS INSERTIONS GOF RESEARCH IN THE USA

Retroviruses are valuable research tools in molecular biology, and they have been used successfully in gene delivery systems. Virologist Yoshihiro Kawaoka of the University of Wisconsin at Madison, Wisconsin, and Tokyo University pioneered HIV-enabled Gain of Function in flu-related viruses around 2012.

According to: https://www.sciencemag.org/news/2019/02/exclusive-controversial-experiments-make-bird-flu-more-risky-poised-resume

> "Controversial lab studies that modify bird flu viruses in ways that could make them more risky to humans will soon resume after being on hold for more than 4 years. ScienceInsider has learned that last year, a U.S. government review panel quietly approved experiments proposed by two labs that were previously considered so dangerous that federal officials had imposed an unusual top-down moratorium on such research.
>
> One of the projects has already received funding from the National Institutes of Health's (NIH's) National Institute of Allergy and Infectious Diseases (NIAID) in Bethesda, Maryland, and will start in a few weeks; the other is awaiting funding.
>
> The outcome may not satisfy scientists who believe certain studies that aim to make pathogens more potent or more likely to spread in mammals are so risky they should be limited or even banned. Some are upset because the government's review will not be made public. "After a

deliberative process that cost $1 million for [a consultant's] external study and consumed countless weeks and months of time for many scientists, we are now being asked to trust a completely opaque process where the outcome is to permit the continuation of dangerous experiments," says Harvard University epidemiologist Marc Lipsitch.

One of the investigators leading the studies, however, says he's happy he can resume his experiments. "We are glad the United States government weighed the risks and benefits … and developed new oversight mechanisms. We know that it does carry risks. We also believe it is important work to protect human health," says Yoshihiro Kawaoka of the University of Wisconsin in Madison and the University of Tokyo. The other group that got the green light is led by Ron Fouchier at Erasmus University Medical Center in Rotterdam, the Netherlands.

In 2011, Fouchier and Kawaoka alarmed the world by revealing they had separately modified the deadly avian H5N1 influenza virus so that it spread between ferrets. Advocates of such gain of function (GOF) studies say they can help public health experts better understand how viruses might spread and plan for pandemics. But by enabling the bird virus to more easily spread among mammals, the experiments also raised fears that the pathogen could jump to humans. And critics of the work worried that such a souped-up virus could spark a pandemic if it escaped from a lab or was intentionally released by a bioterrorist. After extensive discussion about whether the two studies should even be published (they ultimately were) and a voluntary moratorium by the two labs, the experiments resumed in 2013 under new U.S. oversight rules.

But concerns reignited after more papers and a series of accidents at federal biocontainment labs. In October 2014, U.S. officials announced an unprecedented "pause" on funding for 18 GOF studies involving influenza or the Middle East respiratory syndrome or severe acute respiratory syndrome viruses. (About half were later allowed to continue because the work didn't fit the definition or was deemed essential to public health.)

There followed two National Academy of Sciences workshops, recommendations from a federal advisory board, and a new U.S. policy for evaluating proposed studies involving "enhanced potential pandemic pathogens" (known as ePPPs). In December 2017, NIH lifted the funding pause and invited new GOF proposals that would be reviewed by a committee with wide-ranging expertise drawn from the Department of Health and Human Services (HHS) in Washington, D.C., and other federal agencies.

Now, the HHS committee has approved the same type of work in the Kawaoka and Fouchier labs that set off the furor 8 years ago. Last summer, the committee reviewed the projects and made recommendations about risk-benefit analyses, safety measures to avoid exposures, and communications plans, an HHS spokesperson says.

After the investigators revised their plans, the HHS committee recommended that they proceed. Kawaoka learned from NIH on 10 January

that his grant has been funded. Fouchier expects the agency may hold off on making a funding decision until after a routine U.S. inspection of his lab in March.

Kawaoka's grant is the same one on H5N1 that was paused in 2014. It includes identifying mutations in H5N1 that allow it to be transmitted by respiratory droplets in ferrets. He shared a list of reporting requirements that appear to reflect the new HHS review criteria. For example, he must immediately notify NIAID if he identifies an H5N1 strain that is both able to spread via respiratory droplets in ferrets and is highly pathogenic, or if he develops an EPPP that is resistant to antiviral drugs. Under the HHS framework, his grant now specifies reporting timelines and who he must notify at the NIAID and his university.

Fouchier's proposed projects are part of a contract led by virologists at the Icahn School of Medicine at Mount Sinai in New York City (most of Project 5, Aim 3.1, and Project 6 in this letter). They include identifying molecular changes that make flu viruses more virulent and mutations that emerge when H5N1 is passaged through ferrets. The HHS panel did not ask that any proposed experiments be removed or modified. Suggestions included clarifying how his team will monitor workers for possible exposures and justifying the strains they plan to work with, which include H7N9 viruses, Fouchier says.

HHS cannot make the panel's reviews public because they contain proprietary and grant competition information, says the spokesperson. But critics say that isn't acceptable. "Details regarding the decision to approve and fund this work should be made transparent," says Thomas Inglesby, director of Center for Health Security of the Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland. The lack of openness "is disturbing. And indefensible," says microbiologist Richard Ebright of Rutgers University in Piscataway, New Jersey. The critics say the HHS panel should at least publicly explain why it thought the same questions could not be answered using safer alternative methods.

One researcher who has sympathized with both sides in the debate finds the safety conditions imposed on Kawaoka reassuring. "That list… makes a lot of sense," says virologist Michael Imperiale of the University of Michigan in Ann Arbor. "At this point I'm willing to trust the system."

*Clarification, 9 February, 10:30 a.m.: This story has been updated to clarify that one goal of the controversial experiments is to make the H5N1 virus transmissible in mammals (often ferrets), not humans.

*Update, 11 February, 2:46 p.m.: This story has been updated with reaction from a number of scientists, and a clarification of the studies proposed by Fouchier."

HIV STRINGS INSERTIONS GOF RESEARCH AT WUHAN

According to a report by Radio Free Asia (RFA), French pentathlon world champion Elodie Clouvel said that when she and her boyfriend Valentin Belaud took part

in the 2019 Military World Games in Wuhan in October 2020, many French athletes, including herself, fell ill. At the time they all assumed it to be the flu, but she said that some of them were quite sick. She went on to say that she had recently visited a military doctor who told her she may have had coronavirus, as many on the French team had been ill at the same time.

The RFA report pointed out that former Italian fencing Olympian Matteo Tagliariol also said that when he participated in the Military World Games, he and five roommates all got sick with symptoms often seen in COVID-19 patients and experienced a long recovery time afterward. He said his fever and difficulty breathing continued even a week after returning home.

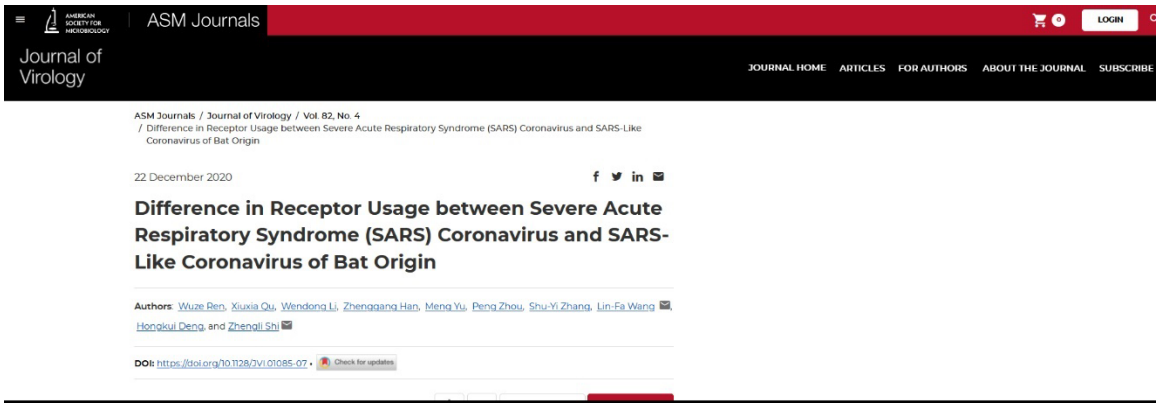
Antibiotics did not work, and it took three weeks for him to recover. His son and partner also fell ill; then, a couple of months later, the coronavirus outbreak made the news.

Several Swedish athletes were also reportedly unwell, including swimmer Raphael Stacchiotti. These suspected cases support the view of some Swedish epidemiologists that the virus may have been spreading in Sweden as early as November 2020.

Nearly 10,000 athletes from 100 countries participated in the Wuhan sporting event. The international medical journal "Infection, Genetics and Evolution" on May 5, 2021 published a British study on its website indicating that COVID-19 may have already been spreading rampantly between Oct. 6 and Dec. 11, 20201according to CNA.
https://www.taiwannews.com.tw/en/news/3932712

It was early on suggested that Covid-19 was a bioweapon and that it "escaped" from the Wuhan lab. Since then, the topic has been censored as has the fact that NIH's Anthony Fauci funded its development and has been involved in funding such work since the 1980's.

You do not just splice genomes with HIV to make it more infectious for no good reason other than biological weapons production. From:
https://journals.asm.org/doi/full/10.1128/JVI.01085-07:



ABSTRACT

Severe acute respiratory syndrome (SARS) is caused by the SARS-associated coronavirus (SARS-CoV), which uses angiotensin-converting enzyme 2 (ACE2) as its receptor for cell entry. A group of SARS-like CoVs (SL-CoVs) has been identified in horseshoe bats. SL-CoVs and SARS-CoVs share identical genome organizations and high sequence identities, with the main exception of the N terminus of the spike protein (S), known to be responsible for receptor binding in CoVs. In this study, we investigated the receptor usage of the SL-CoV S by combining a human immunodeficiency virus-based pseudovirus system with cell lines expressing the ACE2 molecules of human, civet, or horseshoe bat. In addition to full-length S of SL-CoV and SARS-CoV, a series of S chimeras was constructed by inserting different sequences of the SARS-CoV S into the SL-CoV S backbone. Several important observations were made from this study. First, the SL-CoV S was unable to use any of the three ACE2 molecules as its receptor. Second, the SARS-CoV S failed to enter cells expressing the bat ACE2. Third, the chimeric S covering the previously defined receptor-binding domain gained its ability to enter cells via human ACE2, albeit with different efficiencies for different constructs. Fourth, a minimal insert region (amino acids 310 to 518) was found to be sufficient to convert the SL-CoV S from non-ACE2 binding to human ACE2 binding, indicating that the SL-CoV S is largely compatible with SARS-CoV S protein both in structure and in function. The significance of these findings in relation to virus origin, virus recombination, and host switching is discussed.

On Sept. 12, 2019, coronavirus bat sequences were deleted from the Wuhan Institute's database. Gain of Function chimeric HIV spliced heritage HIV/BJ01-S https://jvi.asm.org/content/jvi/82/4/1899.full.pdf. From the Journal of Virology, February 2008 https://journals.asm.org/doi/full/10.1128/JVI.01085-07:

> "A group of SARS-like CoVs (SL-CoVs) has been identified in horseshoe bats. SL-CoVs and SARS-CoVs share identical genome organizations and high sequence identities, with the main exception of the N terminus of the spike protein (S), known to be responsible for receptor binding in CoVs. In this study, we investigated the receptor usage of the SL-CoV S by combining a **human immunodeficiency virus-based pseudovirus system** with cell lines expressing the ACE2 molecules of

> human, civet, or horseshoe bat. In addition to full-length S of SL-CoV and SARS-CoV, a series of S chimeras was constructed by inserting different sequences of the SARS-CoV S into the SL-CoV S backbone. Several important observations were made from this study. First, the SL-CoV S was unable to use any of the three ACE2 molecules as its receptor. Second, the SARS-CoV S failed to enter cells expressing the bat ACE2. Third, the chimeric S covering the previously defined receptor-binding domain gained its ability to enter cells via human ACE2, albeit with different efficiencies for different constructs. **Fourth, a minimal insert region (amino acids 310 to 518 [of HIV/BJ01-S]) was found to be sufficient to convert the SL-CoV S from non-ACE2 binding to human ACE2 binding**, indicating that the SL-CoV S is largely compatible with SARS-CoV S protein both in structure and in function.

Another theory is that the spike protein itself is a self-replicating parasite. That the "virus" was engineered to be a vector for the spike protein. Today it is technologically possible. The spike has properties of an endotoxin, prion & parasite. The model for it was constructed on the malaria parasite.

Some of the symptoms linger for 6 months including intermittent exhaustion and respiratory waves like malaria. In fact the treatment for malaria is HCQ and zinc. That might be why President Donald Trump mentioned HCQ early-on. Because he may have known that the disease had a malarial base as a bioweapon.

The majority of the countries where malaria is still present have had low Covid problems. Many people in those places take an HCQ pill once a week as a preventative from malaria. To base the bioweapon on malaria is brilliant because very few medical people/labs in Western countries even know how to identify malaria in a screening or under a microscope. It is not necessary for them to know because malaria does not exist in North America, Europe, Russia and Japan.

RECOMMENDED EARLY STAGE COVID-19 TREATMENTS

This treatment was administered to USA President Donald Trump. There are two broad phases of a coronavirus infection: the first where the virus is the problem and the second, deadly phase, when the immune system goes into overdrive and starts causing massive collateral damage to other organs.

Treatments fall into two camps: those that directly attack the virus and are more likely to be useful in the first phase and drugs to calm the immune system which are more likely to work in the second. The drugs that are being used are:

Dexamethasone Steroid

This steroid saves lives by calming the immune system, but it needs to be used at the right time. Give it too early and the drug could make things worse by impairing the body's ability to fight off the virus. This is not a drug you would usually give in the "mild" stage of the disease.

A trial of the drug which took place in the UK showed that the benefit kicked in at the point people need oxygen. The World Health Organization WHO advises using the steroid in “severe and critical” cases if the blood oxygen levels did dip below 94%, which is one of the National Institutes of Health criteria for “severe illness”.

Those low oxygen levels are not sustained and the gap between someone needing transient oxygen support and advanced Covid is massive.

A person could be incapacitated because of the effects that the steroid can have on the mind. Dexamethasone’s side effects include anxiety, altered mood and cognitive impairment, but these are more common with prolonged use.

Monoclonal antibody therapy

This is a combination of antibodies, made by the company Regeneron, which mimic our own immune response. The antibodies physically stick to the coronavirus so they cannot get inside the body’s cells and they make the virus more “visible” to the rest of the immune system.

The company published results on its website showing the cocktail reduced the amount of virus in the body as well as the time it took patients to recover. However, this was in people who did not need hospital treatment and the data has not been seen by scientists or doctors.

The approach makes scientific sense and there is huge hope it will be effective. However, the evidence in patients is still very limited and these monoclonals are still classed as an experimental drug given to a handful of people outside those trials to undergo the treatment under what is known as “compassionate use”.

Remdesivir

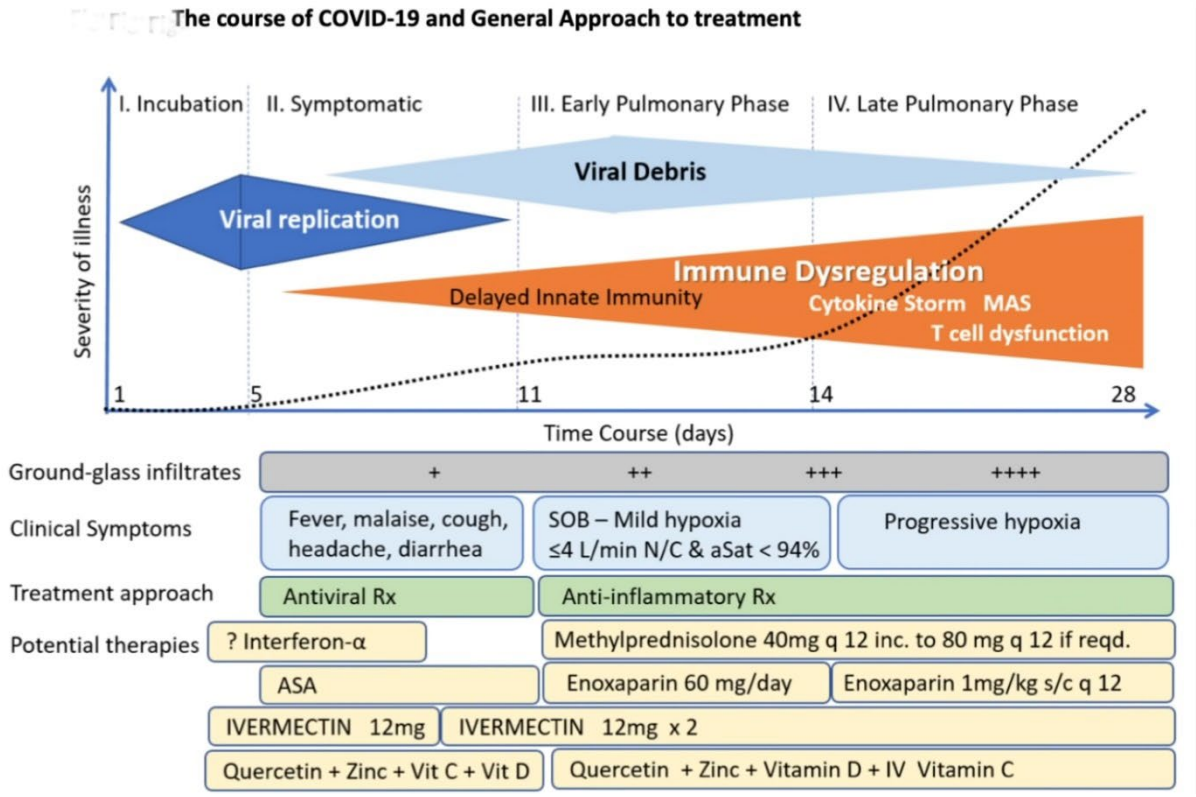
This intravenous antiviral drug was first developed as a treatment for Ebola. It works by confusing the virus as it looks chemically similar to some of the raw materials the virus needs to replicate. This disrupts the virus’s ability to make thousands of copies of itself. Clinical trials have shown the drug cuts the duration of symptoms from 15 days down to 11. However, there is no evidence that lives have been saved with remdesivir. Like monoclonal antibodies, remdesivir is likely to have its biggest impact early on in the course of an infection.

Remdesivir must be administered intravenously during the period of viral replication, and is beneficial if administered properly. Other theurapeutic protocols and treatment therapies except ventilation tubulation and immune deregulation by anti-inflammatory agents are not unfortunately widely considered in the USA by control of the regulatory agencies, even though they are attempted widely in other countries. These include alpha-interferon, ivermectin, zinc, vitamin D, vitamin C, Quercetin.

Table . Comparison of Remdesivir antiviral treatment during viral replication process to control group.

	Remdesivir Treated group percent	Control Placebo group percent
Number of individuals	541	521
Median recovery time	10 d	15 d
Need for oxygen	13 d	21 d
Mortality by day 15	6.7	11.9
Mortality by day 29	11.4	15.2
Serious adverse effects	24.6	31.6

Hazard Ratio, HR = 0.73 implies Beneficial Effect of 27 percent.



Antiviral Remdisivir must be administered in an early stage of the infection during the viral replication stage.

OTHER DRUGS

These include zinc, vitamin D, famotidine, melatonin and aspirin. It is not clear if any of these are deliberately for Covid 19.

Zinc is a mineral that does have a role in the immune system, but there is no evidence that such supplements improve people's ability to fight the virus.

Vitamin D has been routinely added to milk in the USA. The justification is to prevent rickets. Vitamin D is extremely important for general good health and that people need far more than the official "recommended daily amounts" or RDA. Vitamin D is known as the sunshine vitamin as it is made in the skin in response to sunlight. It also has a role in a healthy immune system, but there is no evidence that taking supplements helps against Covid-19.

Famotidine decreases stomach acid production and is used for people with stomach ulcers or reflux. There are small studies suggesting it may help, but the quality is considered low and researchers have called for more research.

Melatonin is a hormone the body makes in the evening and helps us nod off. It is sometimes given as a treatment for insomnia.

Aspirin is a pain killer and blood thinner that is used to reduce the risk of blood clots. Unusual blood clotting has been seen in Covid-19 patients and it may also calm inflammation in the body. There are trials of aspirin in Covid-19, but no evidence it is useful.

ROSE LAUREL OLEANDER-NERIUM SNAKE OIL

Oleandrin is drawn from the Nerium oleander plant, an evergreen shrub native to northern Africa, the eastern Mediterranean and Southeast Asia. It is also known as rose laurel, adelfa, rosenlorbeer and karavira. It has been used in traditional medicine to treat hemorrhoids, ulcers, leprosy and as an abortifacient, aka a drug to induce abortions, although there is no evidence that it is safe or effective for any of these medicinal purposes.

The Rose Laurel plant is highly toxic to humans and animals because of compounds including oleandrin. Eating just one leaf from the plant can be fatal for an adult, and all parts of the plant are poisonous. Oleandrin poisoning symptoms occur several hours after consumption, and include vomiting, abdominal pain, dizziness, skin turning blue, low blood pressure, low body temperature and respiratory paralysis. Symptoms can last two or three days, and hospitalization is often necessary. Even skin contact with the plant's sap can result in rashes or sores.

A hot water extract of the plant trademarked as Anvirzel has shown some promise in cancer treatment, where it has appeared to slow the growth of tumors and even killed some cancer cells in laboratory settings (aka test tubes). But Anvirzel has not been proven to be effective in the human body yet, so it is still considered an "investigational new drug" that is only being used in approved clinical trials. Memorial Sloan Kettering Cancer Center notes that Anvirzel is not an approved treatment in the United States.

It is also being looked at for treating HIV. A test tube study published in 2012 found that Anvirzel lowered the infectivity of HIV; but keep in mind that something that works in a test tube does not always work in the human body.

A July 2020 study out of Texas showed that, in test tubes, oleandrin could inhibit the coronavirus in monkey kidney cells. The United States Army Medical Research Institute of Infectious Diseases (USAMRIID) also conducted some

preliminary testing of oleandrin against SARS-CoV-2 (the novel coronavirus causing COVID-19). The results were "inconclusive". One of the authors of the Texas study, Robert Newman, is the chairman of the Phoenix Biotechnology advisory board — the company developing the oleandrin product.

BIOLOGICAL SAFETY LEVEL 3, BSL-3 LABS

The USA Department of Homeland Security (DHS) is constructing a new and expanded national Bio and Agro-defense facility in Manhattan, Kansas. DHS has estimated that the 50-year risk (defined as having an economic impact of $9-50 billion) of a release from its lab at 70 percent.

A National Research Council committee inspected these DHS estimates and concluded "The committee finds that the risks and costs could well be significantly higher than that". A subsequent committee report (NAP, 2012) continued:

> "The committee was instructed to judge the adequacy and validity of the uSSRA [updated Site-Specific Risk Assessment]. The committee has identified serious concerns about (1) the misapplication of methods used to assess risk, (2) the failure to make clear whether and how the evidence used to support risk assessment assumptions had been thoroughly reviewed and adequately evaluated, (3) the limited breadth of literature cited and the misinterpretation of some of the significant supporting literature, (4) the failure to explain the criteria used to select assumptions when supporting literature is conflicting, (5) the failure to consider important risk pathways, and (6) the inadequate treatment of uncertainty. Those deficiencies are not equally problematic, but they occur with sufficient frequency to raise doubts about the adequacy and validity of the risk results presented. In most instances (e.g., operational activities at the NBAF), the identified problems lead to an underestimation of risk; in other instances (e.g., catastrophic natural hazards), the risks may be overestimated. As a result, the committee concludes that the uSSRA is technically inadequate in critical respects and is an insufficient basis on which to judge the risks associated with the proposed NBAF in Manhattan, Kansas."

China, having opened its first lab in Wuhan in 2018, is planning to roll out a national network of BSL-4 labs. Like many other countries, it is investing significantly in disease surveillance and collection of viruses from wild animal populations and in high-risk recombinant virus research with Potential Pandemic Pathogens (PPPs).

Even in the limited case of SARS-like coronaviruses, since the quelling of the original SARS outbreak in 2003, there have been six documented SARS disease outbreaks originating from research laboratories, including four in China. These outbreaks caused 13 individual infections and one death. In response to such

concerns the USA banned certain classes of experiments, called gain of function (GOF) experiments, with PPPs in 2014, but the ban; actually a funding moratorium, was lifted in 2017.

Virologist Nikolai Petrovsky of Flinders University, Australia addressed the question of whether the natural zoonosis pathway was viable. He told the Media Centre: "no natural virus matching to COVID-19 has been found in nature despite an intensive search to find its origins."

Petrovsky goes on to describe the kind of experiment that, in principle, if done in a lab, would obtain the same result as the hypothesized natural zoonotic transfer–rapid adaptation of a bat coronavirus to a human host:

> "Take a bat coronavirus that is not infectious to humans, and force its selection by culturing it with cells that express human ACE2 receptor, such cells having been created many years ago to culture SARS coronaviruses and you can force the bat virus to adapt to infect human cells via mutations in its spike protein, which would have the effect of increasing the strength of its binding to human ACE2, and inevitably reducing the strength of its binding to bat ACE2.
>
> Viruses in prolonged culture will also develop other random mutations that do not affect its function. The result of these experiments is a virus that is highly virulent in humans but is sufficiently different that it no longer resembles the original bat virus. Because the mutations are acquired randomly by selection there is no signature of a human gene jockey, but this is clearly a virus still created by human intervention."

Petrovsky believes that current experimental methods could have led to an altered virus that escaped. The experiment mentioned by Petrovsky represents a class of experiments called passaging. "Passaging" is the placing of a live virus into an animal or cell culture to which it is not adapted and then, before the virus dies out, transferring it to another animal or cell of the same type. Passaging is often done iteratively. The theory is that the virus will rapidly evolve, since viruses have high mutation rates, and become adapted to the new animal or cell type. Passaging a virus, by allowing it to become adapted to its new situation, creates a new pathogen.

The most famous such experiment was conducted in the lab of Dutch researcher Ron Fouchier. Fouchier took an avian influenza virus (H5N1) that did not infect ferrets (or other mammals) and serially passaged it in ferrets. The intention of the experiment was specifically to evolve a PPP. After ten passages the researchers found that the virus had indeed evolved, to not only infect ferrets but to transmit to others in neighboring cages. They had created an airborne ferret virus, a Potential Pandemic Pathogen (PPP), and a storm in the international scientific community.

The second class of experiments that have frequently been the recipients of criticism are Gain of Function GOF experiments. In GOF research, a novel virus is deliberately created, either by in vitro mutation or by cutting and pasting together two (or more) viruses. The intention of such reconfigurations is to make viruses more infectious

by adding new functions such as increased infectivity or pathogenicity. These novel viruses are then experimented on, either in cell cultures or in whole animals. These are the class of experiments banned in the USA from 2014 to 2017:

> "Gain-of-function research changes animal viruses to make them harmful to human beings using the pretext that doing so helps defend against such mutations should they arise naturally. But they rarely if ever do. But what does happen quite commonly are lab accidents. Bottom line – the research is unethical, horribly dangerous, and a massive waste of research dollars."

Chinese researchers are speaking about three bat coronaviruses that exhibit naturally-occurring, but not the same, inserts on the s1/s2 spikes that are the reason that Covid-19 binds so well on the ACE2 receptors on the human namely: RmYN01, RmYN02 and the unknown and unproven RaTG13 (no existing specimens to check). They claim that these correspond between 93% – 96% to the makeup of Covid-19 but much less on their ability to infect humans.

According to Colin Butler, June 28, 2020:

> "In 2012 I co-authored, with Peter Daszak and others, an editorial in EcoHealth which in part was critical of gain of function studies (though we used different language) see: https://link.springer.com/article/10.1007/s10393-012-0768-4.
>
> My recollection is that Peter was originally resistant to the cautionary note I was able to introduce to that editorial. My priority was the risk, Peter thought the benefits were far more plausible and important. Eight years later I am personally unaware of significant benefits flowing from such gain of function research, but even more concerned about the risk. I thought COVID-19 could have been engineered very early (check my twitter statements) because I was incredulous one so infectious to humans could have evolved "naturally". Like others, the protests of researchers like Peter Daszak and Jeremy Farrar (head of the Wellcome Trust) left me skeptical – how could they "know" for sure it wasn't engineered? Also, they had clear conflicts of interest – to maintain their entry to China and (perhaps) to protect their Chinese collaborators from censure. I could be wrong, but at the very least the laboratory theory remains plausible, and the reasoning that it must be "natural" is unconvincing to me.

Dr. Francis Boyle Creator Of BioWeapons Act Says Coronavirus Is Biological Warfare Weapon
https://greatgameindia.com/dr-francis-boyle-creator-of-bioweapons-act-says-coronavirus-is-biological-warfare-weapon/

> "Francis Boyle is a professor of international law at the University of Illinois College of Law. He drafted the U.S. domestic implementing legislation for the Biological Weapons Convention, known as the Biological

Weapons Anti-Terrorism Act of 1989, that was approved unanimously by both Houses of the U.S. Congress and signed into law by President George H.W. Bush.

In an exclusive interview given to Geopolitics and Empire, Dr. Boyle discusses the coronavirus outbreak in Wuhan, China and the Biosafety Level 4 laboratory (BSL-4) from which he believes the infectious disease escaped. He believes the virus is potentially lethal and an offensive biological warfare weapon or dual-use biowarfare weapons agent genetically modified with gain of function properties, which is why the Chinese government originally tried to cover it up and is now taking drastic measures to contain it. The Wuhan BSL-4 lab is also a specially designated World Health Organization (WHO) research lab and Dr. Boyle contends that the WHO knows full well what is occurring.

Dr. Boyle also touches upon GreatGameIndia‘s exclusive report Coronavirus Bioweapon – where we reported in detail how Chinese Biowarfare agents working at the Canadian lab in Winnipeg were involved in the smuggling of Coronavirus to Wuhan’s lab from where it is believed to have been leaked.

Dr. Boyle’s position is in stark contrast to the mainstream media’s narrative of the virus being originated from the seafood market, which is increasingly being questioned by many experts.

Recently, American Senator Tom Cotton of Arkansas also dismantled the mainstream media’s claim on Thursday that pinned the coronavirus outbreak on a market selling dead and live animals.

In a video accompanying his post, Cotton explained that the Wuhan wet market (which Cotton incorrectly referred to as a seafood market) has been shown by experts to not be the source of the deadly contagion.

Cotton referenced a Lancet study which showed that many of the first cases of the novel coronavirus, including patient zero, had no connection to the wet market — devastatingly undermining mainstream media’s claim.

“As one epidemiologist said: ‘That virus went into the seafood market before it came out of the seafood market.’ We still don’t know where it originated,” Cotton said.

“I would note that Wuhan also has China’s only bio-safety level four super laboratory that works with the world’s most deadly pathogens to include, yes, coronavirus.”

Such concerns have also been raised by J.R. Nyquist, the well-known author of the books “Origins of the Fourth World War” and “The Fool and His Enemy,” as well as co-author of “The New Tactics of Global War”. In his insightful article he published secret speechs given to high-level Communist Party cadres by Chinese Defense Minister Gen. Chi Haotian explaining a long-range plan for ensuring a Chinese national renaissance – the catalyst for which would be China’s secret plan to 357esveratr viruses.

Nyquist gave three different data points for making his case in analyzing Coronavirus. He writes:

The third data point worth considering: the journal GreatGameIndia has published a piece titled "Coronavirus Bioweapon – How China Stole Coronavirus From Canada And Weaponized It."

The authors were clever enough to put Khan's Virology Journal article together with news of a security breach by Chinese nationals at the Canadian (P4) National Microbiology Lab in Winnipeg, where the novel coronavirus was allegedly stored with other lethal organisms. Last May, the Royal Canadian Mounted Police were called in to investigate; by late July the Chinese were kicked out of the facility. The chief Chinese scientist (Dr. Xiangguo Qiu) was allegedly making trips between Winnipeg and Wuhan.

Here we have a plausible theory of the NcoV organism's travels: first discovered in Saudi Arabia, then studied in Canada from whence it was stolen by a Chinese scientist and brought to Wuhan. Like the statement of Taiwan's intelligence chief in 2008, the GreatGameIndia story has come under intensive attack. Whatever the truth, the fact of proximity and the unlikelihood of mutation must figure into our calculations.

It's highly probable that the 2019-nCoV organism is a weaponized version of the NcoV discovered by Saudi doctors in 2012.

Meanwhile, the mainstream media's narrative still maintains that the origin of the 2019 Coronavirus is the Wuhan Seafood Market. After GreatGameIndia published the story on Coronavirus Bioweapon – not only were our 358esverat tinkered with and our reports blocked by Facebook on the flimsy reason that they could not find GreatGameIndia Facebook page, but the report itself was viciously attacked by Foreign Policy magazine, PolitiFact (known widely as Facebook's propaganda arm) and BuzzFeedNews.

It is not GreatGameIndia alone which is being viciously attacked. Zero Hedge, a popular alternate media blog was suspended by Twitter for publishing a story related to a study by Indian scientists finding 2019 Wuhan Coronavirus to be not naturally evolved, raising the possibility of it being created in a lab. Shockingly, the study itself came under intense online criticism by Social Media experts resulting in the scientists withdrawing the paper.

In retaliation India has launched a full-scale investigation against China's Wuhan Institute of Virology. The Indian government has ordered an inquiry into a study conducted in the Northeastern state of Nagaland (close to China) by researchers from the U.S., China and India on bats and humans carrying antibodies to deadly viruses like Ebola.

The study came under the scanner as two of the 12 researchers belonged to the Wuhan Institute of Virology's Department of Emerging Infectious Diseases, and it was funded by the United States Department of Defense's Defense Threat Reduction Agency (DTRA).

The study, conducted by scientists of the Tata Institute of Fundamental Research, the National Centre for Biological Sciences

(NCBS), the Wuhan Institute of Virology, the Uniformed Services University of the Health Sciences in the U.S. and the Duke-National University in Singapore, is now being investigated for how the scientists were allowed to access live samples of bats and bat hunters (humans) without due permissions.

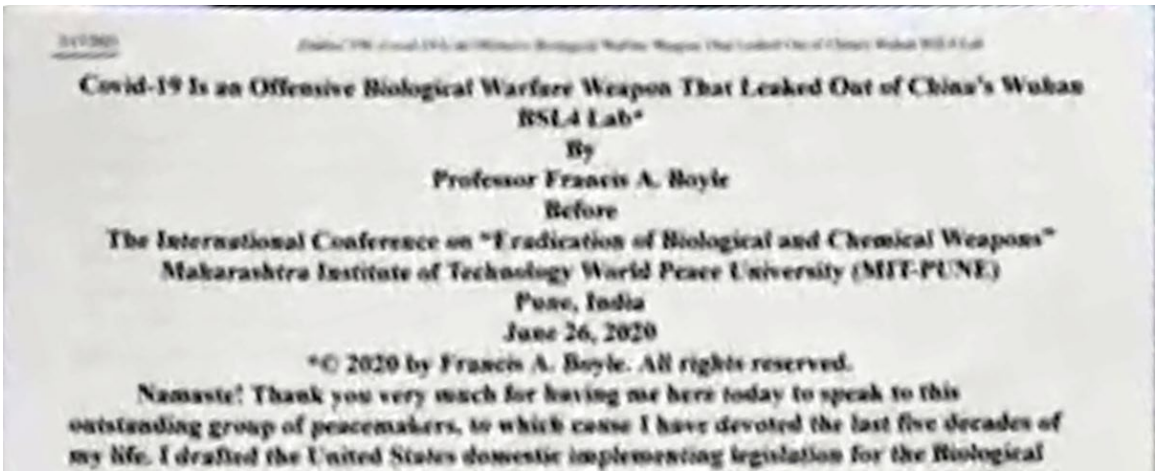
The results of the study were published in October last year in the PLOS Neglected Tropical Diseases journal, originally established by the Bill and Melinda Gates Foundation.

As the author J.R. Nyquist puts it:

'We must have an investigation of the outbreak in Wuhan. The Chinese must grant the world total transparency. The truth must come out. If Chinese officials are innocent, they have nothing to hide. If they are guilty, they will refuse to cooperate.'

The real concern here is whether the rest of the world has the courage to demand a real and thorough investigation. We need to be fearless in this demand and not allow "economic interests" to play a coy and dishonest game of denial. We need an honest inquiry. We need it now."

If a person immune-compromised, the last line of defense is the T-cells, which target and eliminate infected cells. With a compromised immune system, the T-cells will go nuclear and kill healthy tissue along with infected, and result in death. This is not actually caused by the virus and could in fact happen from any number of infections, or without any pathogen present. Some people with autoimmune disorder actually have no infectious disease, but their body starts destroying itself for no reason at all.



Covid-19 Is an Offensive Biological Warfare Weapon That Leaked Out of China's Wuhan BSL4 Lab*

By

Professor Francis A. Boyle

Before

The International Conference on "Eradication of Biological and Chemical Weapons"
Maharashtra Institute of Technology World Peace University (MIT-PUNE)
Pune, India
June 26, 2020

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Namaste! Thank you very much for having me here today to speak to this outstanding group of peacemakers, to which cause I have devoted the last five decades of my life. I drafted the United States domestic implementing legislation for the Biological

Figure 75. Dr. Francis Boyle, University of Illinois at Urbana-Champaign, USA. Raised issue of breaching of the Nuremberg Code on criminal and evil human experimentation in deployment of mRNA gene therapies and covid-19 vaccines without prior animal experimentation. Makes the point that corona viruses are common cold viruses, and there has not been a successful vaccine against the cold viruses. Suggests World War III is being fought on two fronts: the covid-19 vaccine as well as the gene therapies or vaccines. Suggests that 500,000 USA armed forces healthy individuals were forcibly inoculated with original shots, resulting in suspected about 11,000 deaths and 100,000 disabilities. Extrapolating to just the USA population of 370 million, (370/0.5) x 11,000 = 8,140,000 are at death risk, and (370/0.5) x 100,000 = 74,000,000 are at risk of disabilities. Thirty percent of military personnel in the USA declined further inoculations against covid-19 on the basis that they are healthy individuals; opting to face the virus risk rather than the gene therapies/vaccines risk. Extrapolation to a global population of 6 billion, humanity faces accordingly a dual possible risk of (6 / 0.37) x 8,140,000 = 131,999,999 deaths and (6 / 0.37) x 74,000,000 = 1,199,999,999 or 1.2 billion or about 1.2 / 6 = 0.2 or 20 percent of the world population suffering disabilities. The Merck pharmaceutical Company withdrew from the Covid-19 vaccines race.

Some researchers have even combined GOF and passaging experiments by using recombinant viruses in passaging experiments. Such experiments all require recombinant DNA techniques and animal or cell culture experiments. But the very simplest hypothesis of how Sars-CoV-2 might have been caused by research is simply to suppose that a researcher from the WIV or the WCDCP became infected during a collecting expedition and passed their bat virus on to their colleagues or family. The natural virus then evolved, in these early cases, into Sars-CoV-2. For this reason, even collecting trips have their critics. Epidemiologist Richard Ebright called them “the definition of insanity“. Handling animals and samples exposes collectors to multiple pathogens and returning to their labs then brings those pathogens back to densely crowded locations.

A level 4 lab P-4 lab is the highest level of biosafety precautions, and is appropriate for work with “agents that could easily be aerosol-transmitted within the laboratory and cause severe to fatal disease in humans for which there are no available vaccines or treatments.”

According to the CDC's "Biosafety in Microbiological and Biomedical Laboratories" manual, P-3 labs are appropriate for work involving microbes which can cause serious and potentially lethal disease via the inhalation route. This type of work can be done in clinical, diagnostic, teaching, research, or production facilities. Here, the precautions undertaken in BSL-1 and BSL-2 labs are followed, as well as additional measures including:

All laboratory personnel are provided medical surveillance and offered relevant immunizations (where available) to reduce the risk of an accidental or unnoticed infection.

All procedures involving infectious material must be done within a biological safety cabinet.

Laboratory personnel must wear solid-front protective clothing (i.e. gowns that tie in the back). This cannot be worn outside of the laboratory and must be discarded or decontaminated after each use.

A laboratory-specific biosafety manual must be drafted which details how the laboratory will operate in compliance with all safety requirements.

In addition, the facility which houses the BSL-3 laboratory must have certain features to ensure appropriate containment. The entrance to the laboratory must be separated from areas of the building with unrestricted traffic flow. Additionally, the laboratory must be behind two sets of self-closing doors (to reduce the risk of aerosols escaping). The construction of the laboratory is such that it can be easily cleaned. Carpets are not permitted, and any seams in the floors, walls, and ceilings are sealed to allow for easy cleaning and decontamination.

Additionally, windows must be sealed, and a negative flow ventilation system installed which forces air to flow from the "clean" areas of the lab to the areas where infectious agents are handled. Air from the laboratory must be filtered before it can be recirculated.

According to the CDC, biosafety level 3 is commonly used for research and diagnostic work involving various microbes which can be transmitted by aerosols and/or cause severe disease. These include Francisella tularensis, Mycobacterium tuberculosis, Chlamydia psittaci, Venezuelan equine encephalitis virus, Eastern equine encephalitis virus, Coxiella 361esveratr, Rift Valley fever virus, Rickettsia 361esveratro, several species of Brucella, chikungunya, yellow fever virus, West Nile virus, Yersinia pestis and the SARS coronavirus, SARS-Cov-2, and MERS coronavirus.

USE OF HIV DRUG KALETRA, KALEDIVIR, ALPHA-INTERFERON

Conspiracy theories and rumors circulated on the Chinese Internet claiming the virus is part of a USA conspiracy to spread germ weapons. Aids or HIV drugs were used to treat the infection, as there is no cure for either HIV or this virus. All those drugs do for HIV is suppress the immune system, so it does not go into hyper drive. That is likely what it is doing, if it is doing anything.

Specifically, AbbVie Inc's HIV drugs were used as an ad-hoc treatment for pneumonia caused by the novel coronavirus while the global search for a cure continued. The Beijing branch of China's National Health Commission said that a combination of

lopinavir and ritonavir, sold under the brand name Kaletra by AbbVie, is part of its latest treatment plan for patients infected by the virus. The NHC said that while there was not yet any effective anti-viral drug, it recommended patients be given two lopinavir and ritonavir tablets twice a day and a dose of alpha-interferon through nebulization twice daily.

Retroviruses are valuable research tools in molecular biology, and they have been used successfully in gene delivery systems. Virologist Yoshihiro Kawaoka of the University of Wisconsin at Madison, Wisconsin, and University of Tokyo pioneered HIV-enabled Gain of Function in flu-related viruses.

Figure 76. Kaletra or its generic form Kaledivir is an HIV drug. Virologist Yoshihiro Kawaoka of the University of Wisconsin at Madison, Wisconsin, USA and Tokyo University, Japan, pioneered HIV-enabled Gain of Function, GOF in flu-related viruses, until a backlash of ethical scientists demanded and obtained a ban on GOF which was later removed. The prescription-only HIV medicine acts as a protease inhibitor to slow virus replication and patients are reported to have improved in 24-36 hours of treatment. It is ordered in bulk by the Russian health ministry and handed out to HIV patients for free. Demand for Kaletra flourished on the Russian black market by speculators. HIV drugs cannot fully treat Covid-19 due to difference in viruses and the way they attack; a retrovirus versus a respiratory virus.

There has been successful treatment schedules in Thailand and Singapore using Lopinavir / Ritonavir (name brand Kaletra) that acts as a protease inhibitor to slow virus replication and patients improved in 24-36 hours of treatment. Chloroquine previously used with Malaria has been suggested as a medication. Japanese drug-makers to ramped up production of Avigan. Antivirals like Gilead's Remdesivir have also shown effectiveness. The USA military used the drug to treat the American soldiers who have been infected.

NUCLEAR STERILIZATION OF "HOT ZONES" RISK, THE ANDROMEDA STRAIN PARADOX

It is sobering to realize the existence of the inevitable option of the use of nuclear sterilization by high energy gamma ray radiation from an exploding nuclear device remains at the top of options of last resort. This may deemed necessary in containing the spreading

of a focal “hot zone” decontamination of an otherwise uncontrollable biological infection situation without attainable remedies or vaccines.

Michael Crichton’s 1969 science fiction techno-thriller novel, movie and TV mini-series, “The Andromeda Strain”, is about an extraterrestrial plague arriving in New Mexico on a crashed military satellite. The satellite was intentionally designed to capture upper-atmosphere microorganisms for Gain-of-Function, GOF bio-weapon exploitation seeking an ultimate biological weapon. It returned with a deadly microorganism, named Andromeda, that kills through nearly instantaneous blood clotting. “Wildfire”, a protocol for a government-sponsored team of scientists intended to contain threats of this nature is activated. Upon investigating, the scientific team discovers that the neighboring town’s people either died in mid-stride or went “quietly nuts” and committed bizarre suicides.

The story contains an apparent paradox. There are only two survivors from the small town where the satellite crashed, and they have nothing in common: a 69-year-old man addicted to Sterno, which are the cans of methanol alcohol used to fuel the fires under restaurant chafing dishes or buffet servers, and a healthy infant. The scientists learn that the current form of Andromeda grows only within a narrow pH range; in a too-acidic or too-alkaline growth medium, it will not multiply. Andromeda’s ideal pH range is 7.39–7.43, within the range found in normal human blood.

It is determined that the only two survivors survived because both had abnormal blood pH values. The alcoholic’s acidotic blood from the consumption of Sterno and aspirin. The infant blood was alkalotic from hyperventilation. Eventually, the apparent paradox is resolved: the baby had been constantly crying after the satellite crashed, causing its blood to become alkalotic. The Andromeda Strain only thrives within the normal human pH range.

By the time the scientists realize this, Andromeda which uses energy to multiply has mutated into a form that degrades the lab’s plastic seals and escapes its containment. A self-destruct nuclear weapon is automatically armed to sterilize the lab when it detects the containment breach, triggering its detonation countdown to prevent the spread of the infection. As the nuclear device arms, the scientists realize that given Andromeda’s ability to generate matter directly from energy, the organism would be able to consume the released energy and ultimately benefit from a nuclear explosion, which was averted by eventually defusing the device.

Andromeda is suspected to have eventually mutated into a benign form and migrated to the upper atmosphere, where the oxygen content is lower, better suiting its growth. The novel’s epilogue suggests that a crewed spacecraft, Andros V, was incinerated during atmospheric re-entry, presumably because Andromeda had eaten its tungsten/plastic laminate heat shield and caused it to burn up.

USE OF REMDESIVIR, GILEAD SCIENCES

According to a study published in the New England Journal of Medicine, NEJM. Remdesivir, which was authorized to treat Covid-19 in a group of 1,063 adults and children (split into two groups, one receiving placebo instead of Remdesivir) who need i) supplemental oxygen, ii) a ventilator or iii) extracorporeal membrane oxygenation (ECMO), only significantly helped those on supplemental oxygen. The study found no

marked benefit from Remdesivir for those who were healthier and did not need oxygen or those who were sicker, requiring a ventilator or a heart-lung bypass machine.

The NEJM, almost apologetically, stated that "the lack of benefit seen in the other groups might have stemmed from a smaller number of patients in each group." Still, as a result of the partial benefit for patients in the supplemental oxygen group, the study from the National Institute of Allergy and Infectious Diseases was evaluated early and led to the authorization of Remdesivir before the full trial was completed. The primary outcome measure was the time to recovery, defined as the first day, during the 28 days after enrollment, on which a patient satisfied categories 1, 2, or 3 on the eight-category ordinal scale. The categories were as follows:

1. not hospitalized, no limitations of activities;
2. not hospitalized, limitation of activities, home oxygen requirement, or both;
3. hospitalized, not requiring supplemental oxygen and no longer requiring ongoing medical care (used if hospitalization was extended for infection-control reasons);
4. hospitalized, not requiring supplemental oxygen but requiring ongoing medical care (Covid-19–related or other medical conditions);
5. hospitalized, requiring any supplemental oxygen;
6. hospitalized, requiring noninvasive ventilation or use of high-flow oxygen devices;
7. hospitalized, receiving invasive mechanical ventilation or extracorporeal membrane oxygenation (ECMO); and
8. death.

Another disappointment: the study found that overall "mortality was numerically lower in the Remdesivir group than in the placebo group, but the difference was not significant", in other words the alleged "miracle drug" has largely the same effect as a placebo in terms of overall disease mortality.

The study authors also note that the "findings in our trial should be compared with those observed in a randomized trial from China in which 237 patients were enrolled (158 assigned to remdesivir and 79 to placebo).... That trial failed to complete full enrollment (owing to the end of the outbreak), had lower power than the present trial (owing to the smaller sample size and a 2:1 randomization), and was unable to demonstrate any statistically significant clinical benefits of Remdesivir." Finally, the study found that while mortality was modestly lower for the Remdesivir arm, it was not significantly so, at 7.1% at 14 days on drug versus 11.9% on placebo.

In conclusion, while the "preliminary findings support the use of Remdesivir for patients who are hospitalized with Covid-19 and require supplemental oxygen therapy" the study goes on to warn that "given high mortality despite the use of Remdesivir, it is clear that future strategies should evaluate antiviral agents in combination with other therapeutic approaches or combinations of antiviral agents to continue to improve patient outcomes in Covid-19.

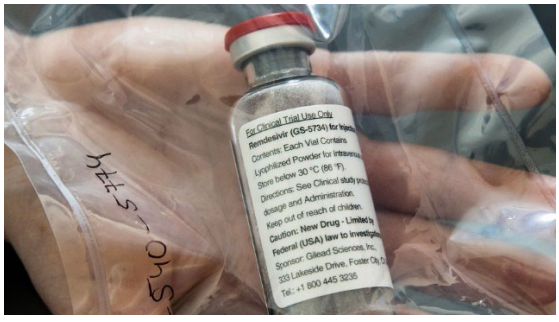
It must be noted that:

> "All of these patients were started on these treatment regimens within 48 hours of diagnosis. The study specifically excludes those patients whose treatment started later, anyone whose therapy was started while they were on mechanical ventilation, or anyone received Remdesivir as well."

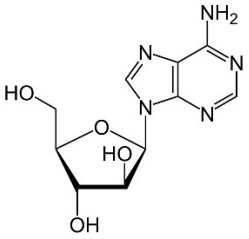
Zinc and azithromycin interfere with each other and should not be taken at the same time. The zinc sulfate should be given, then the, then the azithromycin, which is not there to fight the virus itself. Azithromycin interferes with availability of zinc for the hydroxychloroquine. Hydroxycloroquine is a man-made synthetic substance that has some medical properties similar to the natural molecule quinine. They both act as zinc ionophores. So does Quercetin which is naturally found in the skin of grapefruit and in onions. Other citrus fruits with bitter rind also contain Quercetin. Quercetin offers protection from the virus when used with vitamin C, D, and zinc. Maybe Remdesivir works better with zinc too.

Critique of the apparently flawed study is here presented:

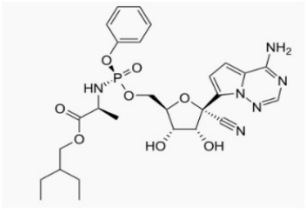
> "The problem with the Lancet study and others is that they tested the drug on people in the hospital...very ill people...people already at full viral load and experiencing extreme immune responses i.e. cytokine storm reaction. The drug has at least two mechanisms of action...it prevents viral replication and it calms/tamps down the immune response hence why it's prescribed for autoimmune diseases. It should be tested on people in the very early stage of COVID before they are at full viral load and it should be tested as a prophylactic. Once people are in the ICU unable to breathe it's too late to use a replication inhibitor. You can compare it to a bacterial infection in that early treatment with the appropriate antibiotic will stop and resolve the infection. If the infection is allowed to go untreated the patient goes septic...infection gets into the bloodstream and ravages the patients internal organs, etc. and administering antibiotics then may not be enough to save the patient. Early treatment is key to favorable outcomes."



vidarabine



remdesivir



FranceSoir

Pictogramme DANGER POUR LA SANTE

Ces produits rentrent dans une ou plusieurs de ces catégories :

- **produits cancérogènes :** ils peuvent provoquer le cancer
- **produits mutagènes :** ils peuvent modifier l'ADN des cellules et peuvent alors entraîner des dommages sur la personne exposée ou sur sa descendance (enfants, petits-enfants...)
- **produits toxiques pour la reproduction :** ils peuvent avoir des effets néfastes sur la fonction sexuelle, diminuer la fertilité ou provoquer la mort du fœtus ou des malformations chez l'enfant à naître
- **produits qui peuvent modifier le fonctionnement de certains organes comme le foie, le système nerveux**
- **produits qui peuvent entraîner de graves effets sur les poumons et qui peuvent être mortels s'ils pénètrent dans les voies respiratoires**
- **produits qui peuvent provoquer des allergies respiratoires** (asthme, par exemple).

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THE LANCET

Log in

ARTICLES | ONLINE FIRST

Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial

Yeming Wang, MD † · Dingyu Zhang, MD † · Prof Guanhua Du, PhD † · Prof Ronghui Du, MD † · Prof Jianping Zhao, MD † · Prof Yang Jin, MD † · et al. Show all authors · Show footnotes

· Published: April 29, 2020 · DOI: https://doi.org/10.1016/S0140-6736(20)31022-9 · Check for updates

Summary

Background

No specific antiviral drug has been proven effective for treatment of patients with severe coronavirus disease 2019 (COVID-19). Remdesivir (GS-5734), a nucleoside analogue prodrug, has inhibitory effects on pathogenic animal and human coronaviruses, including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in vitro, and inhibits Middle East respiratory syndrome coronavirus, SARS-CoV-1, and SARS-CoV-2 replication in animal models.

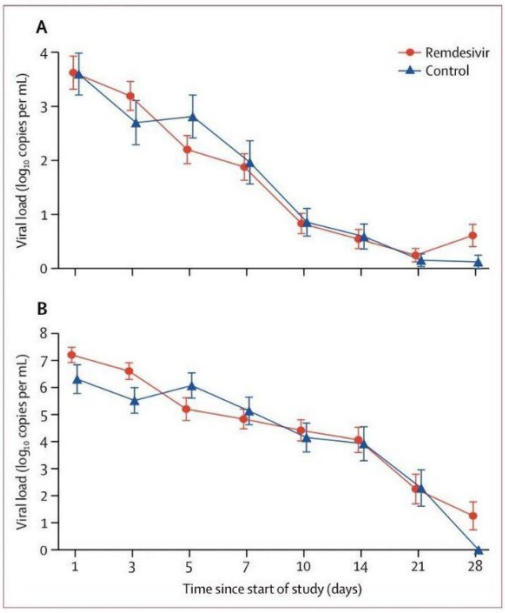


***Figure 3*: Viral load by quantitative PCR on the upper respiratory tract specimens (A) and lower respiratory tract specimens (B)**
Data are mean (SE). Results less than the lower limit of quantification of the PCR assay and greater than the limit of qualitative detection are imputed with half of actual value; results of patients with viral-negative RNA are imputed with 0 $\log_{10}$ copies per mL.

Figure 77. Remdesivir viral drug from Gilead Sciences as a possible remedy for Covid-19 patients. Gilead sells six out of the top ten pharma drugs for HIV with over $12 billion a year. In a trial among University of Chicago faculty members, a physician said when some people start taking the drug, fevers come down and some come off ventilators. A small clinical data set published in The New England Journal of Medicine showcased that 68% of 53 hospitalized patients who had received Remdesivir on a compassionate-use basis showed clinical improvement. On the other hand, a Lancet paper on the Rendesivir trial in China shows no impact on the viral load clinically.

Veklury (remdesivir) is an analog of Adenosine, a molecule used in cardiology whose pharmacodynamic effect is at the root of potential cardiac side effects, and which is also responsible for pulmonary adverse events. Its short lifespan in the body (which is explained by the carbon-carbon bridge between the ribose part and the adenine part) generally allows this toxicity to be quickly controlled. Gilead claims to have transformed this bridge to make the molecule more stable. You have to realize that Veklury (remdesivir) (GS5734) is a prodrug, which means that once metabolized in the body, it will break down to give the active molecule, identified as GS-441524.

Vaccines against viruses are a non-solution. Viruses mutates, so that new yearly or more frequently vaccines are always required. A treatment minimizing/curing the virus' effects is what is needed. Long term effects of any vaccine can never be determined in the short time of the virus' spread.

A first-generation therapeutic antiviral against the Covid-19 virus, Remdesivir cut the duration of symptoms from 15 days down to 11 in clinical trials at hospitals around the

world. Experts said it would be a fantastic result if confirmed, but not a magic bullet for the disease. A trial was run by the USA National Institute of Allergy and Infectious Diseases (NIAID) and 1,063 people took part. Some patients were given the drug while others received a placebo or dummy treatment. The mortality rate was 8 percent in people given Remdesivir and 11.6 percent in those given a placebo. This result is not statistically significant, meaning that scientists cannot tell if the difference is real. The overall benefit in survival was 30 percent.

A trial of the same drug in Wuhan, China, reported in the Lancet medical journal, reported that it was ineffective. Unfortunately, antivirals work poorly in acute disease. This has to do with their mechanism of action, and host response. Antivirals usually target some aspect of viral replication/assembly/transmission. Remdesivir is a clever pharmacologic prodrug that inhibits a key piece of RNA viruses that mammals doon't have – the RNA-dependent RNA polymerase, and inhibits viral replication. Unfortunately, by the time you are symptomatic with a virus, you are usually already high/peak viral load. So, when you give an antiviral to someone who is already ill, the damage from the virus is largely done.

A study, published in The New England Journal of Medicine, April 10, 2020, has investigated the Compassionate use of the drug Remdesivir for patients with severe cases of Covid-19. Compassionate use is better described as using an unlicensed therapy to treat a patient because there are no other treatments available. Research based on this kind of use should be treated with extreme caution because there is no control group or randomization, which are some of the hallmarks of good practice in clinical trials. Is impossible to discern whether there is a treatment effect or not. This is in part due to the mixed patient population, ranging from those needing low dose oxygen, who are more likely to survive anyway, to much more severe cases. The latter group of patients show a much more mixed picture. There is also a wider question of which are the right patient populations to look at. There is an increasing view that the most serious consequences of the disease result from the immune response as opposed to viral replication per se. The performance of anti-viral treatments in general has been disappointing, perhaps for this reason. However, a bigger effect with these drugs might therefore be expected earlier in the disease rather than later phases.

People are not dying from the Covid-19 virus per se, but from the oxidative damage caused by the immune system. Acute Respiratory Distress Syndrome ARDS, causes mass inflammation and fluid build-up in the lungs depriving the body of oxygen and drowning the patient.

Other drugs being investigated for Covid-19 include those for malaria and HIV which can attack the virus as well as compounds that can calm the immune system response. It is thought that the antivirals may be more effective in the early stages of the disease, and the immune drugs later in the disease.

Remdesivir is an antiviral initially developed to treat Ebola, but was never approved for that, or any other, medical purpose because of its toxicity. It is a nucleotide analogue drug, which means that it mimics the essential building blocks that the viral replication machinery needs to build new copies of its genome. Unlike similar, bespoke drugs developed to treat viruses such as HIV and hepatitis C virus (HCV), Remdesivir is a broad-spectrum jack-of-all-trades, master-of-none antiviral, meaning that it can interfere with the replication machinery of a number of different viruses. Remdesivir caused liver damage in 24 percent of patients in Chinese trials and possibly renal failure. Tests were reportedly

dropped for lack of available subjects to be enrolled for the trials. There were some adverse events (60%) reported in a study, some of them serious (23%), including multiple organ failure, septic shock, acute kidney injury, and hypotension.

USA federal trial indicated that the drug Remdesivir could shorten the time to recovery from Covid-19 by about a third: "Although a 31 percent improvement does not seem like a knockout 100 percent, it is a very important proof of concept because what it has proven is that a drug can block this virus." A competing treatment that indisputably works and is in actual phase 2/3 trials is called Remestemcel by mesoblast.

Suzhou-based BrightGene Bio-Medical Technology said in a statement filed to the Shanghai Stock Exchange that it has developed the technology to synthesize the active pharmaceutical ingredients of Remdesivir, Gilead Sciences' drug that was developed as a treatment for Ebola and Marburg Fever virus infections. While BrightGene said that it intends to license the drug from Gilead Sciences, its move to start manufacturing at this early stage is highly unusual and a potential infringement of the American company's intellectual property. It comes a week after Chinese researchers filed an application to patent the drug to treat the new Covid-19 coronavirus even though preliminary studies indicate liver damage due to its toxicity in 23 percent of patients.

Chloroquine is an immune system suppressor. Remdesivir actually attaches/inserts itself to the RNA chain of the virus and stops it from replicating. Remdesivir uses an organic compound Adenosine. Adenosine is one of four building blocks to RNA. Chloroquine has a long list of very unpleasant side effect and it really does not attack the virus at all. It just stops the body from employing a scorched earth policy to fight the virus. Adenosine, on the other hand will cause hair to grow on the chest. Adenosine has been shown to promote thickening of hair on people with thinning hair.

Chinese scientists speculate that drugs targeting the furin enzyme could potentially hinder the virus' replication inside the human body. Drugs up for consideration include "a series of HIV-1 therapeutic drugs such as Indinavir, Tenofovir Alafenamide, Tenofovir Disoproxil and Dolutegravir and hepatitis C therapeutic drugs including Boceprevir and Telaprevir". Several reports come from doctors who self-administered HIV drugs after testing positive for coronavirus, however there have been no clinical tests to confirm the theory.

It may accidentally been released from Wuhan Institute of Virology, CAS (Chinese Academy of Science); the only P4 level biosafety laboratory in China which was studying: "the world's most dangerous pathogens", particularly using: "bats to research the molecular mechanism that allows Ebola and SARS-associated coronaviruses to lie dormant for a long time without causing diseases." Bats carry viruses but do not get sick. They have not been researched by scientists before.

The bats subjects would be kept and maintained in a different part of the facility than the agents' storage. If for some reason, there was a breach of containment in the live subject part of the facility it could have escaped into the wild. A live subject facility always has the highest risk of a breach.

A bat has a normal body temperature as high as 106 ^{o}F. Viral activity is checked by high temperatures, with considerable sensitivity. If humans could temporarily elevate their core temperature to 106 ^{o}F without dying, there would be a broad range of immunity benefits. Unfortunately, high fever in humans above 40 ^{o}C is dangerous to the brain, causing febrile seizures.

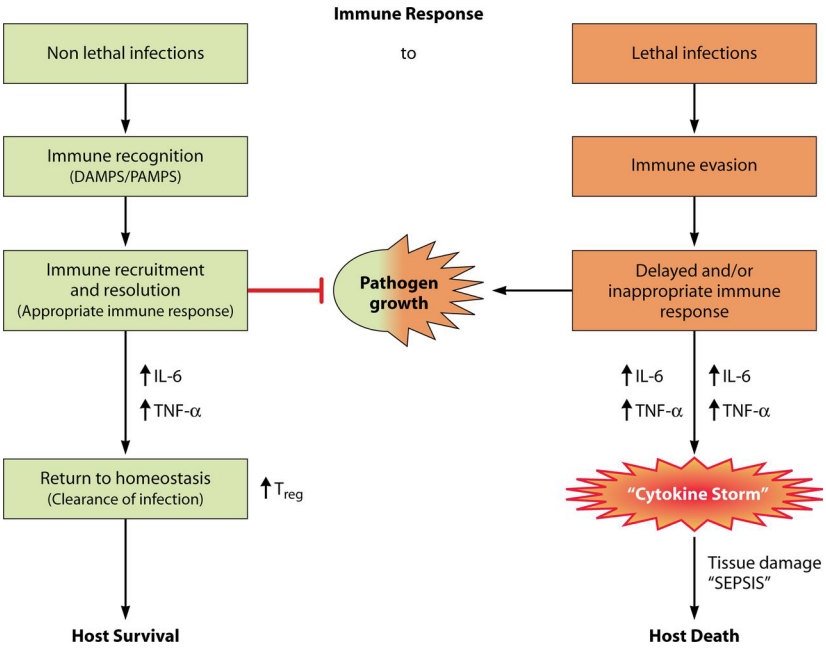


Figure 78. Immune system response, Cytokine storm, Sepsis.

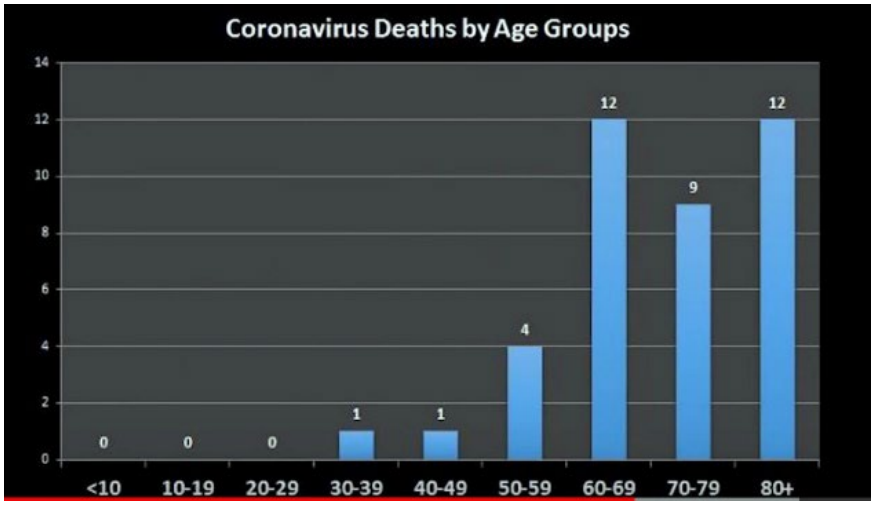


Figure 79. Covid-19 mortality according to age group, 2019-2020.

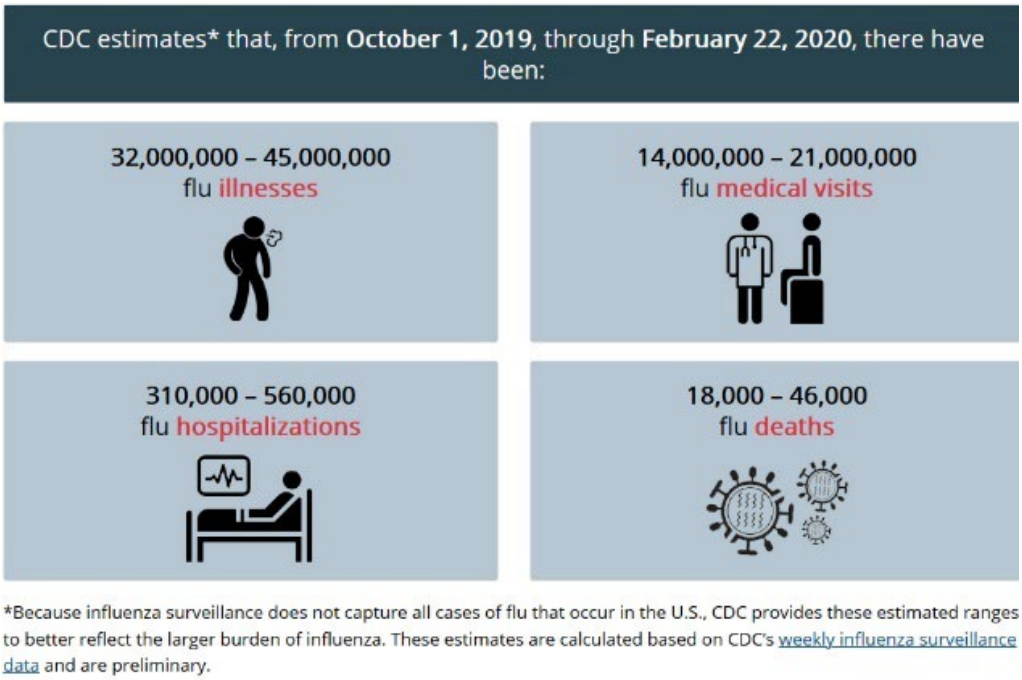


Figure 80. Seasonal and Covid-19 flu occurrence statistics, USA, February 2020. Rumor is that Pentagon is internally projecting 3 million deaths within 6-12 months. Source: CDC Screen grab.

The National Institute of Allergy and Infectious Diseases (NIAID) tested Gilead Sciences Inc.'s Remdesivir in combination with Eli Lilly & Co.'s rheumatoid arthritis drug Olumiant in COVID-19 patients as part of a randomized, controlled clinical trial that led to the authorization of Remdesivir. This study will enroll 1,000 people at more than 100 sites in the USA and abroad, to "examine if adding an anti-inflammatory agent to the Remdesivir regimen can provide additional benefit for patients."

A number of medicines that have been previously approved by the FDA to treat rheumatoid arthritis have been proposed as possible COVID-19 treatments, including Regeneron Pharmaceuticals Inc. and Sanofi's Kevzara and Roche Holding AG's Actemra. Olumiant, which was developed by Incyte Corp. is licensed to Lilly.

Only two types of therapies – Remdesivir and Hydroxycholoroquine and Chloroquine – are authorized by the FDA as COVID-19 treatments.

Bats are known to harbor highly pathogenic viruses like Ebola, Marburg, Hendra, Nipah, and SARS-CoV (Corona Virus), and yet they do not show clinical signs of disease. In a paper published in the journal Cell Host and Microbe, scientists at the Wuhan Institute of Virology in China find that in bats, an antiviral immune pathway called the STING-interferon pathway is dampened, and bats can maintain just enough defense against illness without triggering a heightened immune reaction or hyper immune response or cytokine storm:

> "Compared with terrestrial mammals, bats have a longer lifespan and greater capacity to co-exist with a variety of viruses. In addition to cytosolic DNA generated by these viral infections, the metabolic demands

> of flight cause DNA damage and the release of self-DNA into the cytoplasm. However, whether bats have an altered DNA sensing/defense system to balance high cytosolic DNA levels remains an open question. We demonstrate that bats have a dampened interferon response due to the replacement of the highly conserved serine residue (S358) in STING, an essential adaptor protein in multiple DNA sensing pathways. Reversing this mutation by introducing S358 restored STING functionality, resulting in interferon activation and virus inhibition. Combined with previous reports on bat-specific changes of other DNA sensors such as TLR9, IFI16, and AIM2, our findings shed light on bat adaptation to flight, their long lifespan, and their unique capacity to serve as a virus reservoir."

And:

> "Inflammation is the body's first line of defense against infection or injury, responding to challenges by activating innate and adaptive responses. Microbes have evolved a diverse range of strategies to avoid triggering inflammatory responses. However, some pathogens, such as the influenza virus and the Gram-negative bacterium Francisella tularensis, do trigger life-threatening "cytokine storms" in the host which can result in significant pathology and ultimately death. For these diseases, it has been proposed that downregulating inflammatory immune responses may improve outcome."

What kills a person is not the virus but the collateral damage by the immune system when it 'nukes' the body. Nothing goes undetected by the immune system in a normal healthy human. Some viruses do cause a more robust response which is what kills. It was the older people with slightly weaker immune systems who survived the Spanish Flu in 1916-1917. It killed young people mostly.

There seems to exist is a balance between bats and the pathogens they carry. With viruses, bats may have evolved to dampen certain pathways. In humans and other mammals, an immune-based over-response to one of these and other pathogenic viruses can trigger severe illness. For example, in humans, an activated STING pathway is linked with severe autoimmune diseases.

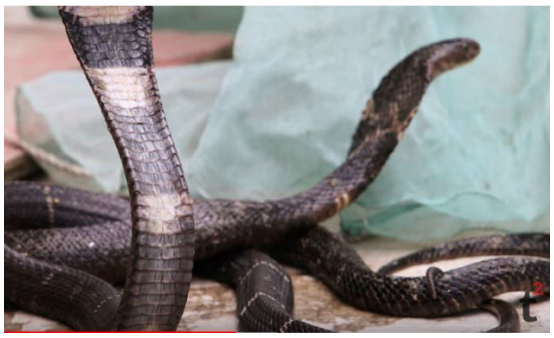


Figure 81. Pangolins, civets, snakes, camels and bats were considered as vectors before human transmission was observed. Horseshoe bat, *Rhinolophus macrotis,* (Rhinolophidae) are wild animals that live in caves in their mountainous region far west at Yunnan. Bats are allegedly the reservoir hosts to the Ebola Virus, Middle East Respiratory Syndrome (MERS) and other diseases. However, the precise ways these viruses are transmitted to humans are currently debated. It is not believed it was a state-sanctioned release. Faulty ventilation or disposal systems, an escape of a subject animal from confinement or an inadvertent infection of a staff member may have caused a release from a research facility. A low possibility exists that some low-level employee may have, unaware of the possible consequences, consumed or disposed of deceased test animals as a food item. In 2003, China briefly banned wildlife trade in response to Sars, but business resumed within a year.

Bats, as the only flying mammal, have a lot of stress on their system that has caused them to evolve immune systems that are resistant to the viruses that they carry. A balance exists between bats and the pathogens they carry. With viruses, bats may have evolved to dampen certain pathways. Macrobats or giant flying foxes are genetically related to humans as mammals and are carriers of Marburg-Ebola, Nipah, SARS (to civets), and dozens of

other diseases. Macrobats subsist on a diet of fruit, the host environment for coronavirus and Ebola. The big fruit bats are suspects in spreading Covid-19. The Wuhan basin is outside the foraging range of Macrobats, with fruit bats being confined to Southern China and Southeast Asia.

In human history, people have been chasing infectious diseases one after another. Bats appear to be a 'super-mammal' relative to these deadly viruses. By identifying a weakened but not defunct STING pathway, researchers could obtain some new insight into how bats fine-tune antiviral defenses to balance an effective, but not an overt, response against viruses. This defense strategy evolved as part of three interconnected features of bat biology: they are flying mammals, have a long lifespan, and host a large viral reservoir. Adaptation to flight likely caused positive selection of multiple bat innate immune and DNA damage repair genes. These adaptations may have shaped certain antiviral pathways (STING, interferon, and others) to make them good viral reservoir hosts and achieve a tolerable balance. An antiviral immune channel called "interferon gene-stimulating protein-interferon" in the bat's body is inhibited, so that the bat could just resist the disease without triggering a strong immune response. The results were published in Cells, Hosts and Microorganisms, which aroused the attention of the academic community.

Genetically engineering various immune pathways, such as the STING pathway in bats, to make the bats susceptible to infection, can create in the process potentially a super-resistant bug. Work at Wuhan may have broken the protein strings that made the Corona Virus flu killable by humans in an attempt to break the bat strings so they could figure out how to adapt the bat DNA to humans. Looks like researchers were experimenting around with DNA encoded SARS like proteins that inhibit immune response.

Modifying the bat's DNA to see what would break it in order to explore how one could produce a serum that would replicate what a bat's DNA does in humans. The ultimate goal would be to create a serum to make people more like bats. Literally people with immune systems like bats, or batmen and batwomen.

The viral ACE2 receptors in the lung alveoli are alleged to have a higher concentration in populations in Asia than non-Asian regions. There may be a motive for China's enemies to develop a GoF or Gain of Function virus that targets Chinese at a much higher rate than anyone else, than it is for the Chinese to create a bioweapon that primary targets their own. They have zero motivation to develop it, and if they did, they would dispose of it immediately, lest it falls into nefarious hands. Moreover, Europeans and other populations have been affected by Covid-19.

Research may have been aimed at understanding how carrier species suppress the viral immune response in order to use that knowledge for human treatments. The study of mutant Coronavirus strains that overcame the natural immunity of some bats; may have generated "superbug" Coronavirus strains, which are not resistant to any natural immune pathway, and appear to have unintentionally escaped out in the world**: "**The viral horse is out of the biolab stable."

HERD IMMUNITY

The Economist developed an excess mortality model that calculates as many as 27.2 million excess deaths over the course of the covid-19 pandemic. The official covid-19 deaths are 6.5 million - a difference of 20.7 million

The 1918-1919 Spanish Flu pandemic took 1.5 to 2 years to run its course, and killed 80 to 100 million people globally, when the world population was 23 percent of what it is today. That would be the equivalent of 400 million deaths today. We must add to that the number of people who need hospital care not for Covid-19 but for other life-threatening conditions that happen every day, but will be unable to get adequate medical intervention when the healthcare systems are overwhelmed and crushed by the Covid-19 pandemic, which will add more people to the death count.

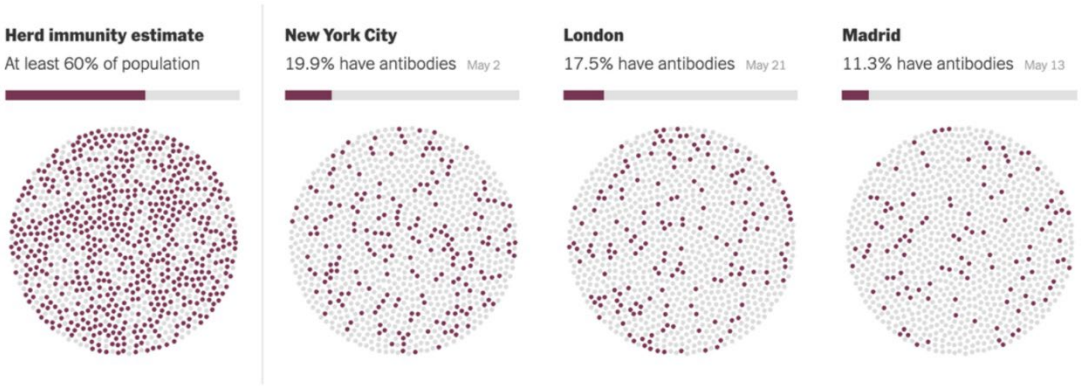


Figure 82. Herd immunity levels reached at different locations at different dates, 2020.

Coronaviruses are zoonotic entities being transmitted between animals and people. Among humans it is transmitted by coughing, sneezing and close personal contact such as touching or shaking hands followed by touching one's face, touching an object or surface and then touching mouth, nose or eyes before washing hands and fecal contamination.

The signs of infection include fever, cough, shortness of breath, bone pain and gastro-intestinal problems. In severe cases pneumonia, kidney failure and Severe Acute Respiratory Syndrome, SARS as well as death occur.

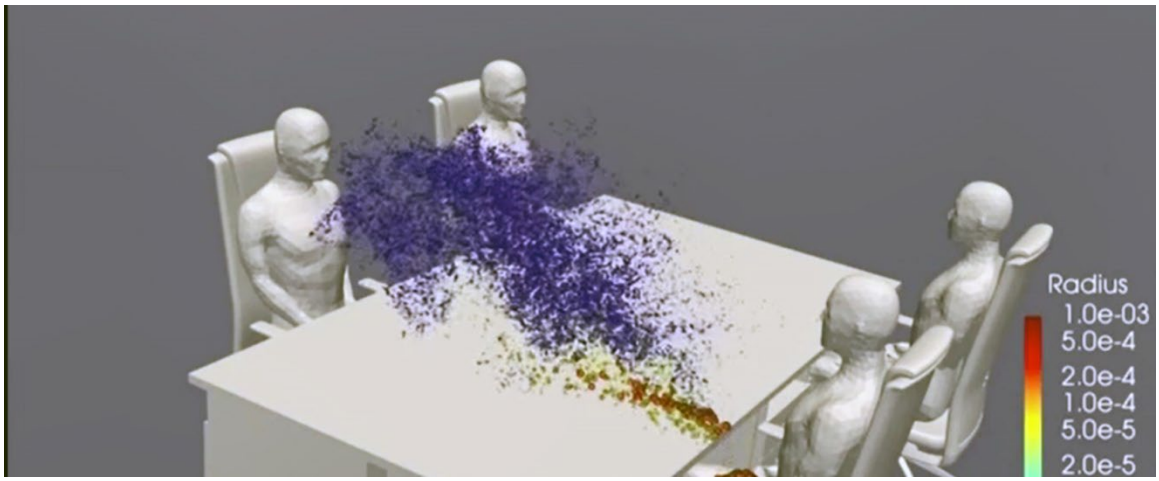


Figure 83. Aerosols generated by coughing can spread up to 7 feet. The spread is more distant under low humidity dry indoor enclosed conditions.

In the absence of therapeutic treatments or a vaccine for viruses, it is suggested that there is safety in numbers or "Herd Immunity." The aim would be to allow immunity to build up among members of the population who are least at risk of dying from an infection. If one suppresses something very hard, when one releases those measures it bounces back, and it bounces back at the wrong time. What we do not want is for everybody to end up getting it in a short period of time, so we swamp and overwhelm the health services. The aim is to try and reduce the peak, broaden the peak, spread it over time, or flatten the curve, not necessarily suppress it completely.

The aim is to build up a herd immunity, so more people are immune to the disease, thereby reducing the rate of transmission and protecting those who are most at risk of dying from the disease. The approach represents a polar opposite to that implied by a national-emergency declaration. The idea is to separate those at a lower risk of dying from the higher-risk group, namely people who are over 70 years in age and have pre-existing conditions. Some 60 percent of the lower-risk group contracts the virus and builds up an immunity, according to this herd-immunity notion, which lowers the risk of giving it to the higher-risk group. Its success is premised on the ability to keep those two groups separated, which is a challenging approach.

Social distancing is the other alternative. There is an advantage to coming down with a virus that has been around for hundreds, if not a couple of thousand years such as the flu. Covid-19 has only been around for a short period. Those aged nine months and younger are believed to have the strongest natural defenses against the virus.

A China-based study of more than 72,000 people found that men had a Covid-19 fatality rate of 2.8 percent versus 1.7 percent for women. Women may have a stronger immune system as a genetic advantage to help babies during pregnancy. In China, nearly fifty percent of men smoke tobacco versus 2 percent of women, which could be a reason for the gender disparity.

Covid-19 has a fatality rate of 3.4 percent, according to World Health Organization director-general Tedros Adhanom Ghebreyesus. By comparison, the mortality rate of influenza is 0.1 percent, according to USA National Institute of Allergy and Infectious Diseases Director Anthony Fauci.

Those aged 70 to 79 have an 8 percent Covid-19 fatality rate, which climbs to 14.8 percent for those 80 and older, a Chinese study found. The rate was 49 percent among critical cases and elevated among those with pre-existing conditions to between 5.6 percent and 10.3 percent, depending on the condition. Telling people to stay home and keep their distance from each other worked for China, as did the travel ban and locking down more than a dozen cities to help lower the rate of new cases and slow the spread of the virus.

The herd immunity concept challenges the facts. The reason China and South Korea were able to flatten the curve and even hammer it downward within 2 to 3 months was because they adopted strict isolation and did not let the spread of the infection rip around. Draconian measures were implemented to isolate and quarantine the populations, and mass testing was performed to identify and isolate pre-symptomatic people.

HERD IMMUNITY EXPERIENCE IN SWEDEN

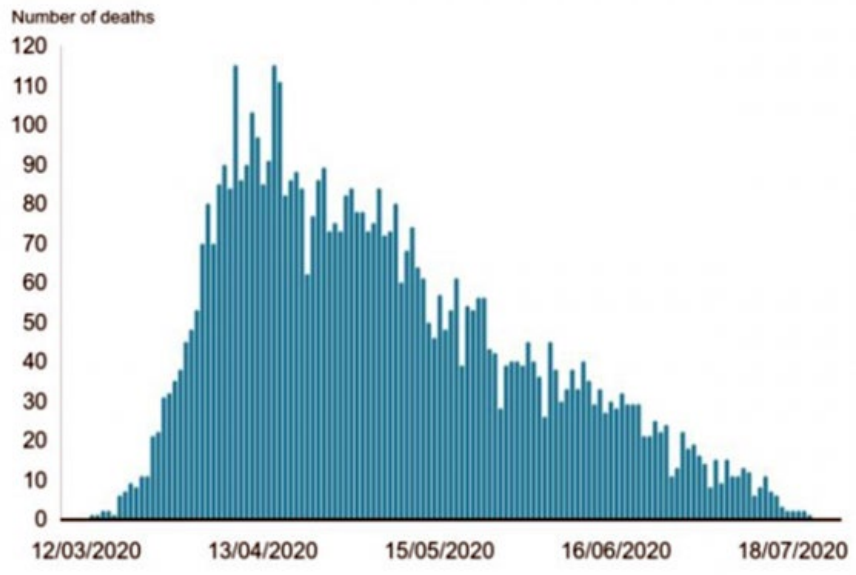


Figure 84. Number dying per day with confirmed Covid-19, Sweden. Source: Public Health Agency, Sweden.

Sweden was criticized for not imposing lockdowns like the USA and the other European countries. Sweden implemented a policy that recommended that people maintain a safe distance between each other, and they banned gatherings of 50 people or more. They also asked their elderly citizens to isolate themselves and to avoid interacting with other people as much as possible. Swedes were encouraged to work, to exercise and to get on with their lives as they would normally even though the world was still in the throes of a global pandemic.

The theory was never to “fight” the virus which is among the most contagious infections in the last century, but to protect the old and vulnerable while allowing the young, low-risk people to circulate, contract the virus, and develop the antibodies they need to fight similar pathogens in the future. The result was that Sweden’s death rate =.057%, about 10 times that of Finland death rate =.0059%. Norway death rate =.0047% (Sweden’s

death rate 11 times higher) and Denmark death rate =.016% (Sweden's death rate 4 times higher). The extra fatalities were in nursing homes and other long-term care facilities. They have openly admitted that those facilities should have been given extra protection. There is no reason why so many Swedes had to die.

Sweden's top health authority reported that people who have had the novel coronavirus are likely to be immune for at least six months after being infected, whether they have developed antibodies or not. A recent study from King's College in London showed that the level of antibodies may drop to a degree that makes them undetectable as soon as three months after infection.

However, the body also mounts other forms of immunity responses, including from T-cells, which appear to play an important role in protecting against reinfection with Covid-19. Research from Sweden's Karolinska Institute indicated that about twice as many people infected by Covid-19 have developed a T-cell mediated immunity response as those who have a detectable level of antibodies. The risk of being reinfected and of transmitting the disease to other people is thought to have become low and Sweden achieved a fairly high rate of herd immunity.

This means that antibody testing does not tell the whole story but that T-cells and cross-immunity also prevent transmission to otherwise healthy people. However, thousands more people died in Sweden than in neighboring countries that imposed lockdowns, but Sweden's economy fared little better. The elevated death toll resulting from Sweden's approach has been clear for many weeks, especially among its elderly. What is only now emerging is how Sweden, by letting its economy run unimpeded, has still suffered business-destroying, prosperity-diminishing damage, and at nearly the same magnitude as its neighbors. Sweden suffered a vastly higher death rate while failing to collect on the expected economic gains, cruelly culled its vulnerable elderly population, the unhealthy, morbid obese, diabetics, hypertension and those with comorbidities as it acquired herd immunity. Most of their dead were in nursing homes.

What Sweden missed is that there are vulnerable people among us and we are morally and ethically obligated to look after them as best we can.

PRESYMPTOMATIC INFECTIONS

Only 22 percent of people testing positive for coronavirus reported having symptoms on the day of their test, according to the Office for National Statistics (ONS) in the UK. This hammers home the importance of "presymptomatic transmission" – spread of the virus by people who are not aware they're carrying it. Health and social care staff appeared to be more likely to test positive.

While the ONS survey includes relatively small numbers of positive swab tests (120 infections in all) making it hard to make any strong conclusions about who is most likely to be infected, there are some patterns coming through in the data:

1. Those in people-facing health or social care roles, and working outside their homes in general, were more likely to have a positive test.
2. People from ethnic minority backgrounds were more likely to have a positive antibody test, suggesting a past infection.
3. White people were the least likely proportionally to test positive for antibodies.

4. There was also some evidence that people living in larger households were more likely to test positive than those in smaller households.

Although men are more likely to die from coronavirus than women, this study did not find a difference in how likely they were to contract the infection.

A group of Japanese experts led by Hiroshi Nishiura, an epidemiologist at Hokkaido University, wrote in a letter to the International Journal of Infectious Diseases in February 2020:

> "The number of novel coronavirus cases worldwide continues to grow, and the gap between reports from China and statistical estimates of incidence based on cases diagnosed outside China indicates that a substantial number of cases are underdiagnosed."

Based on his research, Hiroshi Nishiura placed the proportion of presymptomatic Japanese patients evacuated from Wuhan, ground zero of the outbreak in China, at 30.8 percent, similar to classified Chinese government data.

Another useful point of reference is the data collected from the Diamond Princess cruise ship, which was quarantined for weeks at port in Yokohama, Japan. All of its passengers and crew were tested, with 712 people testing positive; 334 of whom were presymptomatic, according to official Japanese figures.

In Hong Kong, 16 of 138 confirmed cases as of March 14, 2020 were presymptomatic or presymptomatic, according to Ho Pak Leung, a professor with the microbiology department of the University of Hong Kong. This implies that the number of actual infections is far higher than the reported cases, which means that the case mortality rate is actually far lower than the 3.4 percent being reported. The unnecessary panic is then an economically disastrous overreaction.

Another explanation is that the tests generate false positives suggesting that the testing may not be reliable or possibly contaminated.

CHRONIC COVID-19 INFECTIONS

Typically, patients infected with Covid-19 will test negative on nucleic acid throat swabs roughly 20 days after detection. However, for a small number of patients, throat swabs will produce positive tests for more than 40 days.

The existence of patients who still test positive raises the question of whether they are still infectious. It is possible that these tests might be picking up errant pieces of genetic material leftover from the infection. But it is also possible that the virus could have burrowed deep enough to become chronic. Scientists say, that is not 'typical' behavior for a naturally occurring coronavirus. It could be related to the HIV gene insertions into the virus through Gain Of Function GOV activities.

People have to take two tests to confirm infection by Covid-19. One test is given that shows "coronavirus". Then a person must take another one to narrow it down to "Covid-19", as reported. Reporting "covid cases", could be any previous cold or flu that you a person ever had. "Covid" can be anything from a cold virus to a flu virus. That means it could have been a virus a person had 3 years ago that you have antibodies from.

Covid means coronavirus disease, and all of these viruses are coronavirus. Covid-19 means that it is the latest one that they found in 2019. The flu and colds are all coronaviruses. They all have the corona, which is the proteins that extend out all over the body of the virus. Forty test labs in Florida had 100 percent false positives for months. Then they got caught and were all shut down,

Scientists say there is a "little possibility" that humans can be lifelong carriers of this virus. But it is not impossible. Whatever the reality might be, infectious disease experts in China are recommending that these patients be kept in isolation in what one imagines as a singularly hellish experience for the unfortunate patients. Whether this is evidence of chronic infection, or simply an extended process of "viral shedding", the issue has perplexed some of China's greatest virologists.

ULTRAVIOLET OUTDOOR TREATMENT

Figure 85. Influenza Spanish Flu patients getting ultraviolet radiation treatment at the Camp Brooks emergency open-air hospital in Boston, 1918-1919. Source: USA National Archives.

Medics found during the Spanish flu pandemic that severely ill flu patients nursed outdoors recovered better than those treated indoors. A combination of fresh uncontaminated air and sunlight seems to have prevented deaths among patients and infections among medical staff. There is scientific support for this occurrence. Research shows that outdoor air is a natural disinfectant. Fresh air can kill the flu virus and other harmful germs. Equally, sunlight is germicidal and there is now evidence it can kill the flu virus. In addition, exposure to sunlight enhances the production of the D vitamin in the human body, which may be a factor in the recovery process.

During the great pandemic, two of the worst places to be were military barracks and troop transport ships. Overcrowding and bad ventilation put soldiers and sailors at high

risk of catching influenza and the other infections that often followed it such as pneumonia. As with the Covid-19 outbreak, most of the victims of so-called `Spanish flu' did not die from influenza: they died of pneumonia and other complications.

When the influenza pandemic reached the East coast of the United States in 1918, the city of Boston was particularly badly hit. So the State Guard set up an emergency hospital. They took in the worst cases among sailors on ships in Boston harbor. The hospital's medical officer had noticed the most seriously ill sailors had been in badly-ventilated spaces. So he gave them as much fresh air as possible by putting them in tents. And in good weather they were taken out of their tents and exposed to solar radiation. At this time, it was common practice to put sick soldiers outdoors. Open-air therapy, as it was known, was widely used on casualties from the Western Front. And it became the treatment of choice for another common and often deadly respiratory infection of the time; tuberculosis. Patients were put outside in their beds, covered with blankets, to breathe fresh outdoor air. Or they were nursed in cross-ventilated wards with the windows open day and night. The open-air regimen remained popular until antibiotics replaced it in the 1950s.

Medical doctors who had first-hand experience of open-air therapy at the hospital in Boston were convinced the regimen was effective. It was adopted elsewhere. If one report is correct, it reduced deaths among hospital patients from 40 per cent to about 13 per cent. According to the Surgeon General of the Massachusetts State Guard:

> "The efficacy of open air treatment has been absolutely proven, and one has only to try it to discover its value."

Patients treated outdoors were less likely to be exposed to the infectious germs that are often present in conventional hospital wards. They were breathing clean air in what must have been a largely sterile environment. We know this because, in the 1960s, Ministry of Defense scientists proved that fresh air is a natural disinfectant. Something in it, which they called the Open Air Factor, is far more harmful to airborne bacteria and the influenza virus than indoor air. They could not identify exactly what the Open Air Factor is. But they found it was effective both at night and during the daytime.

Their research also revealed that the Open Air Factor's disinfecting powers can be preserved in enclosures if ventilation rates are kept high enough. Significantly, the rates they identified are the same ones that cross-ventilated hospital wards, with high ceilings and big windows, were designed for. But by the time the scientists made their discoveries, antibiotic therapy had replaced open-air treatment. Since then the germicidal effects of fresh air have not featured in infection control, or hospital design. Yet harmful bacteria have become increasingly resistant to antibiotics.

Exposing infected patients to solar ultraviolet radiation may have helped because it inactivates the influenza virus. It also kills bacteria that cause lung and other infections in hospitals. During the First World War, military surgeons routinely used sunlight to heal infected wounds. They thought it was a disinfectant.

What they did not know is that prime advantage of placing patients outside in the sun is they can synthesize vitamin D in their skin if sunlight is strong enough. This was not discovered until the 1920s. Low vitamin D levels are now linked to respiratory infections and may increase susceptibility to influenza. Also, the body's biological rhythms appear to influence how humans resist infections. Research suggests they can alter the inflammatory

response to the flu virus. As with vitamin D, at the time of the 1918-1919 pandemic, the important part played by sunlight in synchronizing these rhythms was not known.

AIRBORNE TRANSMISSION BY AEROSOLS AND DROPLETS, CENTRAL AIR CONDITIONING

The World Health Organization (WHO) has stressed that, primarily, Covid-19 spreads through very close personal contact. The virus-laden droplets exhaled from a sick person's mouth and nose, the thinking goes, are heavy, and fall to the ground before they can get much farther than 6 feet.

As the pandemic unfolded, contact tracing studies have shown this is not always the case. In China, an air conditioner pushed virus-laden air across three tables in a restaurant, infecting people seated at each one. Researchers reviewed video from the restaurant and saw many of these patrons were more than 6 feet apart from one another, suggesting that the virus traveled through the air.

In Washington State in the USA, one person at a choir practice infected 52 of the other participants; it is thought the singing could have led more virus to linger in the air. Carefully controlled laboratory studies are also suggesting that under the right indoor conditions, SARS-CoV-2 can float in the air and, to a certain degree, spread that way:

> "One infamous case of Covid-19 superspreading occurred during a two-and-a-half-hour-long choir practice of the Skagit Valley Chorale in Mount Vernon, Washington. Fifty-three of the 61 choir members who attended the rehearsal later fell ill and were confirmed or suspected to have Covid-19. Two of the group later died. It is thought a single member of the choir who had developed "cold-like symptoms" a couple of days before the rehearsal may have been responsible for the spread."

In July 2020, the WHO changed its language to recognize that fact. "Short-range aerosol transmission, particularly in specific indoor locations, such as crowded and inadequately ventilated spaces over a prolonged period of time with infected persons cannot be ruled out," the WHO now states. This change came after a letter appeared in the Journal Clinical Infectious Diseases, co-signed by 239 scientists and engineers, which implored WHO and other public health agencies that "it's time to address airborne transmission of Covid-19." With the WHO's recognition of this mode of transmission, the authors hope, communities can think more about the ventilation of indoor spaces and perhaps engineer solutions to make these spaces safer.

Scientists have been debating whether respiratory diseases like the flu and coronavirus should be labeled "airborne" for a century. More commonly, the "airborne" designation is only applicable to extremely contagious diseases, like measles. When people exhale, sneeze, or cough, they release a cloud of gas and liquid droplets. If those droplets are relatively big, they are heavy and fall to the ground before evaporating, like raindrops do. Others are smaller and made smaller still by evaporation. These smaller droplets can linger in the air longer, drifting on air currents for perhaps hours. If a droplet is small enough, the moisture in it evaporates before it has the chance to reach the ground. If there

is stuff like germs in that droplet, they become light enough to float on air currents, like the dust you can see suspended in the air. These particles are often called aerosols.

William Wells is a scientist who studied tuberculosis transmission in the 1930s. In a 1934 paper, Wells concluded: “It appears, therefore, that transmission of infection through air may take one of two forms depending upon the size of the infected droplet.”

The prototypical airborne diseases include measles, chickenpox, and tuberculosis, and they are extremely contagious. On average, one person infected with measles will infect 12 to 18 others.

The big drops include diseases like the flu, whooping cough, the common cold, and coronaviruses are primarily large droplet-borne. With these diseases, only the closest contacts to an infected person get infected because large droplets quickly fall to the ground (within 6 feet or so). It is also possible for these big drops to fall on surfaces, and those surfaces can become contaminated too. Luckily, in the case of Covid-19, there is a growing consensus that getting sick from touching contaminated surfaces is rare.

University of Leicester virologist Julian Tang, says that there may be a difference in the immune response with these airborne diseases that makes saliva and mucous less viscous, leading to more virus in small drops. Also, Tang writes in an email, “it is possible (though no one has studied this yet) that exhaled breath from measles/chickenpox cases may just be shedding much more virus (maybe millions of virus per minute) compared to respiratory viruses, which only exhale 100s to 1000s of viruses per minute.”)

There is growing theoretical evidence for the airborne spread of the coronavirus. Lab studies, in idealized conditions, also show that the virus can live in an aerosolized form for up to 16 hours. Multiple studies have found evidence of the virus’s RNA in the air of hospital rooms. But the WHO notes “no studies have found viable virus in air samples,” meaning the virus was either incapable of infecting others or was in very small quantities unlikely to infect others. Viruses can degrade quickly outside the body. Also, dose matters. Small exposures to the virus may not be enough to get a person sick.

Contact tracing studies show airborne transmission may be possible in confined indoor spaces. Lab studies note the theoretical possibility of airborne transmission. But that is only one part of the answer to the question “which air is safe to breathe?” Epidemiologists come at this question from another angle, looking at patterns of virus spread observed in the real world and working backward to determine if airborne spread factors in. The infamous choir practice in Washington State is an example of where airborne transmission might have happened. But what made this event so risky was the convergence of many risk factors: the singing activity (during which the infected person released viral particles into the air), the time spent together (the practice was 2.5 hours), and the interaction between the choir members in an enclosed space (not only did they all practice together, they also split up into smaller groups and shared cookies and tea).

A study from China investigated an outbreak that started at a Buddhist temple event, tracing much of the spread to the confines of one of the buses transporting people to the function. The bus had one sick person aboard, and 24 out of 67 people on that bus got sick, possibly indicating airborne transmission. Those who sat by the windows fared better, indicating the importance of ventilation.

Health care workers are trained to respond to outbreaks: “We’ve trained for decades to say, airborne is tuberculosis, measles, chickenpox, droplet is flu and pertussis and

meningitis," Saskia Popescu, a hospital epidemiologist in Arizona, says. "And that is, unfortunately, kind of antiquated. But that's how we've always done it."

A patient with a dangerous airborne disease often needs to be put in a room with an air pressure lower than the rest of the rooms in the building. That way, no virus in the air of that room can escape it since air flows from high pressure to low pressure. For droplet transmission, health care workers can be a little more lax; they can wear simple surgical masks during routine care and can save high-filtration (and sometimes scarce) respirators for the most dangerous procedures and cases.

The recognition that Covid-19 can spread through the air should not really change how we, individually, protect ourselves and others against it. Six feet of distance between people is still a good barrier to prevent spread via large drops. Mask-wearing could help prevent both large drops and small drops from being released in the first place. Time matters too: the longer we spend in an enclosed, poorly ventilated space with others, the greater the chances of being exposed to an infectious dose of the virus.

An indoor space where the air is constantly refreshed with air from the outdoors is better than one where the air is stagnant. The American Society of Heating, Refrigerating and Air-Conditioning Engineers has published extensive guidelines on how to reopen buildings with increased ventilation during the pandemic.

VENTILATION DECONTAMINATION

It is the air we breathe more than the surfaces we touch that needs to be kept clean. Researchers at the University of Nebraska Medical Center reported in a paper published in Nature that they had found coronavirus-filled aerosols — small airborne particles of fluid — in the air of COVID-19 patients' hospital rooms.

If coronavirus-contaminated aerosols can indeed hang in the air, perhaps for hours, then "mitigating airborne transmission should be at the front of our disease-control strategies for COVID-19," Joseph Allen of Harvard's Healthy Building program wrote in the Washington Post.

Schools in particular "definitely present a challenge," says Barry Po, president of connected solutions for mCloud Technologies, a provider of cloud-based remote HVAC management. Many school buildings in the USA are old and poorly ventilated, which makes them prime locations for indoor transmission.

The easiest way is simply opening windows whenever possible, which dilutes the amount of virus in the air. In Japan windows are kept open in subway trains, which has helped prevent outbreaks in the country's crowded transit system.

Portable HEPA filters, which can cost as little as a few hundred dollars, are capable of capturing particles as small as the novel coronavirus and could be used to clean individual classrooms.

Commercial HVAC systems can be adjusted to increase the number of times they exchange air per hour, analysts from McKinsey said in a report last month.

Increasing ventilation decreases energy efficiency, and Po estimates that net energy costs for buildings could increase by at least 10% in the COVID-19 era.

The use of specialized UV light to deactivate coronavirus in the air or on surfaces. Fred Maxik, the founder of Healthe Lighting, developed Far UVC 222, a short-wave UV light spectrum that the company reports can neutralize 99.9% of coronavirus in a space.

The UV light breaks the chemical bonds in the virus, Maxik says, making it incapable of replicating.

Unlike the UVB rays in sunlight that can damage DNA and cause skin cancer, Far UVC 222 doesn't penetrate the human body. The Healthe system has been installed in Seattle's reopening Space Needle, as well as the practice facilities of the Miami Dolphins.

UVC light disinfecting products usually deploy either mercury lamps or LEDs as light source. Currently, mercury lamps are more widely adopted for disinfecting products given its lower production cost and higher power output. However, UVC LEDs featuring smaller size, adoption flexibility and longer lifetime also attract increasing attention in the industry.

UVC mercury lamps with better optical power and lower price have been the major source for most UVC disinfecting products. But LED makers have also improved their UV technology and achieved breakthroughs recently years. Manufacturers such as AquiSense, Asahi Kase, Crystal IS, Dowa, High Power Lighting, Seoul Viosys, Stanley, Violumas and more have produced UVC LEDs with advanced efficiency and higher power output.

UVC mercury lamps are larger and heavier comparing to LEDs, thus limiting its applications. Mercury lamps usually serve as a big device installed with fixtures or a large movable lamp which can hardly combined with other applications. On the other hand, with compacted size, UVC LEDs can be easily integrated with different home appliances like air conditioners, air purifiers or even washing machines. UVC LEDs are often adopted for portable products.

UVC LEDs can fully operate once turned on and do not need preheating while it takes about 10 to 30 minutes for mercury lamps deliver required UV dose for disinfection.

UVC light not only kills virus, it can also cause damages to human skin and eye. Therefore, when using disinfecting products based on either mercury lamps or LEDs, it is important to avoid direct exposure of the light. The Global Lighting Association has provided guidelines focusing on UVC disinfection products for manufacturers and users to prevent potential hazard of such applications.

The safety guidelines or standards available at the moment mostly base on mercury lamps. Safety standards of UVC LEDs have yet be defined with effective verification as they do not take big market share. But since UVC LEDs are easily adopted with portable products like UVC light wands, which have been popular disinfecting products for the consumer market, people need to pay extra attention when using such devices and avoid direct exposure to the skin and eyes.

FACE MASKS CORONAVIRUS AND FLU

Cambridge scientists tested particles 5 times smaller than the corona viruses using surgical masks against homemade masks of different materials. What they found is that surgical masks blocked 89 percent of the airborne particles, cotton mix T shirt 70 percent, and at the low end, a simple scarf blocks 48 percent.

People believe even a good mask, say N95 type, can prevent a virus particle with a dimension of 30-50 nm, or 0.03 microns can be blocked using even an N95 mask with 0.1-0.3 micron pores, 100-300 nm. If the mask has 200 nm pores and from electron micrographs of the virus, it is under 50 nm and spherical in shape, if one is wearing an N95 mask, and most people are just wearing improvised masks or ones with much larger pores,

most viruses will become embedded in the porous material and some will go straight through it and a person will concentrate them as he goes about his errands or, worse, exercise.

Vigorous breathing and air flow into and out of the nasal and mouth cavities with direct access to the lungs with a concentrated source of the virus in direct contact, one is actually increasing his chance of viral infection.

When they say N95 to mean it blocks 95 percent of small particles, they do not mean 30-50 nm viral particles, they mean only bacteria or dust with sizes greater than 1,000 nm or 1 micron. The reality is that the mask protects a person in front of you against your own exhaled particles. The masks are not meant to protect their wearers.

Surgical masks came in short supply in China and elsewhere. They were worn 100 years ago, during the Great Pandemic, to try and stop the influenza virus spreading. While surgical masks may offer some protection from infection, they do not seal around the face. So they do not filter out small airborne particles.

In 1918-1919, anyone at the emergency hospital in Boston who had contact with patients had to wear an improvised face mask. This comprised five layers of gauze fitted to a wire frame which covered the nose and mouth. The frame was shaped to fit the face of the wearer and prevent the gauze filter touching the mouth and nostrils. The masks were replaced every two hours; properly sterilized and with fresh gauze put on. They were a forerunner of the N95 respirators in use in hospitals to protect medical staff against airborne infection.

TEMPORARY HOSPITALS

Staff at hospitals during the Spanish Flu event kept up high standards of personal and environmental hygiene. No doubt this played a big part in the relatively low rates of infection and deaths reported then. The speed with which their hospital and other temporary open-air facilities were erected to cope with the surge in pneumonia patients was another factor.

Today, many countries are not prepared for a severe influenza pandemic. Their health services will be overwhelmed if there is one. Vaccines and antiviral drugs might help. Antibiotics may be effective for pneumonia and other complications. But much of the world's population will not have access to them. If another 1918-1919 comes, or the Covid-19 crisis gets worse, history suggests it might be prudent to have tents and pre-fabricated wards ready to deal with large numbers of seriously ill cases. Plenty of fresh air and a little sunlight might help too.

SOAP AND ALCOHOL DISINFECTION

Soap is a good disinfectant for most viruses as it is a self-assembled nanoparticle in which the weakest link is the lipid or fatty bilayer. Soap dissolves the virus' fat membrane, and the virus falls apart as it becomes inactive as viruses are not alive. Yet they can remain active outside the body for days.

According to Palli Thordarson, professor at the School of Chemistry at the University of New South Wales, Sydney, Australia, disinfectants, or liquids, wipes, gels and creams containing alcohol and soap have a similar effect but are not as good as regular

soap. Apart from alcohol and soap, antibacterial agents in those products do not affect the virus structure. Soap is the best, but alcohol wipes are good when soap is not practical or handy. Soap outcompetes the interactions between the virus and the skin surface, and the virus gets detached and falls apart.

Most viruses consist of three key building blocks: RNA, proteins and lipids. The RNA is the viral genetic material — it is similar to DNA. The proteins have several roles, including breaking into the target cell, assisting with virus replication and basically being a key building block (like a brick in a house) in the virus structure.

The lipids then form a coat around the virus, both for protection and to assist with its spread and cellular invasion. The RNA, proteins and lipids self-assemble to form the virus. Critically, there are no strong "covalent" bonds holding these units together.

Instead, the viral self-assembly is based on weak "non-covalent" interactions between the proteins, RNA and lipids. Together, these act together like Velcro, so it is hard to break up the self-assembled viral particle. Still, we can do it — with soap!

Most viruses, including the coronavirus, are between 50-200 nanometers — so they truly are nanoparticles. Nanoparticles have complex interactions with surfaces they are on; it's the same with viruses. Skin, steel, timber, fabric, paint and porcelain are very different surfaces.

When a virus invades a cell, the RNA "hijacks" the cellular machinery like a computer virus and forces the cell to make fresh copies of its own RNA and the various proteins that make up the virus.

These new RNA and protein molecules self-assemble with lipids (readily present in the cell) to form new copies of the virus. That is, the virus does not photocopy itself; it makes copies of the building blocks, which then self-assemble into new viruses.

All those new viruses eventually overwhelm the cell, and it dies or explodes, releasing viruses that then go on to infect more cells. In the lungs, viruses end up in the airways and mucous membranes.

When people cough, or especially when they sneeze, tiny droplets from the airways can fly up to 30 feet. The larger ones are thought to be main coronavirus carriers, and they can go at least 7 feet. These tiny droplets end up on surfaces and dry out quickly. But the viruses are still active. What happens next is all about supramolecular chemistry and how self-assembled nanoparticles (like the viruses) interact with their environment.

A powerful supramolecular chemistry concept effectively says: Similar molecules appear to interact more strongly with each other than dissimilar ones. Wood, fabric and skin interact fairly strongly with viruses. Contrast this with steel, porcelain and at least some plastics, such as Teflon. The surface structure also matters. The flatter the surface, the less the virus will "stick" to the surface. Rougher surfaces can actually pull the virus apart. So why are surfaces different? The virus is held together by a combination of hydrogen bonds (like those in water) and hydrophilic, or "fat-like," interactions. The surface of fibers or wood, for instance, can form a lot of hydrogen bonds with the virus.

In contrast, steel, porcelain or Teflon do not form much of a hydrogen bond with the virus. So the virus is not strongly bound to those surfaces and is quite stable.

For how long does the virus stay active? The novel coronavirus is thought to stay active on favorable surfaces for hours, possibly a day. What makes the virus less stable? Moisture ("dissolves"), sunlight (UV light) and heat (molecular motions). The skin is an ideal surface for a virus. It is organic, of course, and the proteins and fatty acids in the dead

cells on the surface interact with the virus through both hydrogen bonds and the “fat-like” hydrophilic interactions.

So when one touches a steel surface with a virus particle on it, it will stick to his skin and, hence, get transferred on to his hands. But he is not yet infected. If he touches his face, though, the virus can get transferred. And now the virus is dangerously close to the airways and the mucus-type membranes in and around your mouth and eyes. So the virus can get in and you are infected. That is, unless your immune system kills the virus.

If the virus is on your hands, you can pass it on by shaking someone’s else hand. Kisses, well, that’s pretty obvious. It goes without saying that if someone sneezes in your face, you’re stuck.

So how often do you touch your face? It turns out most people touch the face once every two to five minutes. So you’re at high risk once the virus gets on your hands, unless you wash off the active virus. So let’s try washing it off with plain water. It might just work. But water “only” competes with the strong “glue-like” interactions between the skin and virus via hydrogen bonds. The virus is sticky and may not budge. Water isn’t enough.

Soapy water is totally different. Soap contains fat-like substances known as amphiphiles, some structurally similar to the lipids in the virus membrane. The soap molecules “compete” with the lipids in the virus membrane. That is more or less how soap also removes normal dirt of the skin. The soap molecules also compete with a lot other non-covalent bonds that help the proteins, RNA and the lipids to stick together. The soap is effectively “dissolving” the glue that holds the virus together. Add to that all the water.

The soap also outcompetes the interactions between the virus and the skin surface. Soon the virus gets detached and falls apart like a house of cards due to the combined action of the soap and water. Boom, the virus is gone!

The skin is rough and wrinkly, which is why you need a fair amount of rubbing and soaking to ensure the soap reaches every nook and cranny on the skin surface that could be hiding active viruses.

Alcohol-based products include all “disinfectants” and “antibacterial” products that contain a high share of alcohol solution, typically 60%-80% ethanol, sometimes with a bit of isopropanol, water and a bit of soap. Ethanol and other types of alcohol do not only readily form hydrogen bonds with the virus material but, as a solvent, are more lipophilic than water. Hence, alcohol does dissolve the lipid membrane and disrupt other supramolecular interactions in the virus. However, you need a fairly high concentration (maybe 60%-plus) of the alcohol to get a rapid dissolution of the virus. Vodka or whiskey (usually 40% ethanol) won’t dissolve the virus as quickly. Overall, alcohol is not as good as soap at this task.

Nearly all antibacterial products contain alcohol and some soap, and that does help kill viruses. But some also include “active” bacterial killing agents, such as triclosan. Those, however, do basically nothing to the virus. To sum up, viruses are almost like grease-nanoparticles. They can stay active for many hours on surfaces and then get picked up by touch. Then they get to our face and infect us because most of us touch our face frequently.

Water is not effective alone in washing the virus off our hands. Alcohol-based products work better. But nothing beats soap — the virus detaches from the skin and falls apart readily in soapy water.

Supramolecular chemistry and nanoscience tell us not only a lot about how the virus self-assembles into a functional, active menace, but also how we can beat viruses with something as simple as soap.

SERUM THERAPY, POLYMERASE CHAIN REACTION, PCR TEST

A real-time Reverse-transcription Polymerase Chain Reaction (PCR) test is available, but only certain high-precision testing labs can perform it. The blood serum must be collected within three days of onset of the symptoms (urine for PCR testing can be used up to 14 days after the onset of symptoms), and the CDC is not promising anyone will get test results back in less than three weeks.

The PCR test has been set at 40 cycles instead of the initial 25-30 maximum. This results in a large number of positive assumed infections. If the number of cycles is reset to 25-30 cycles, no infections would be detected, and the pandemic would be proclaimed as being over. This is a political and economic game that can go on forever.

If the antibodies from recovered patients can be isolated, they can be injected as a treatment into those patients exhibiting symptoms as a possible cure.

PATHOGENS R_0, R-NOUGHT TRANSMISSIBILITY, BASIC REPRODUCTION NUMBER

The Measured Case Fatality Rate is defined as:

$$Measured\ CaseFatality\ Rate = \frac{Total\ number\ of\ new\ deaths\ due\ to\ disease}{Total\ number\ of\ incident\ patients\ with\ disease}$$

Since the denominator is hard to determine as many tested people may have acquired immunity and do not display symptoms, estimates of this ratio is highly questionable if only a limited number of people are tested for the disease. It is usually not known how many people have been infected. The denominator does not count the number of people who have been infected and have recovered. What needs to be done is to determine through serological studies how many people in the population have been exposed to the virus, not just those that have been tested. Thus the reported fatality rate is just a guess. The denominator needs serological testing for the presence of antibodies to the virus in the tested population.

Table 17. Reproduction R_0 Number of diseases. Average number of infected people per sick person.

R_0, Reproduction Number	Disease
16.0	Measles
6.0	Smallpox
6.0	Rubella
4.5	Mumps
3.5	SARS
2.5	COVID-19

2.0	Ebola
1.5	Influenza
0.8	MERS

Table 18. Historical average mortality rates.

Event	Mortality rate percent
SARS	15
Smallpox	30
Ebola	50
Pneumonic Plague	95
Covid-19 Pandemic	0.6? 1.0? 3.4?

The infectivity rate, R_0, is how many people one infected individual infects on average, for a given population. Factors such as herd immunity, climate and other causes can affect this, but for Covid-19 it was observed around 2.5 people per infected person which means it spreads aggressively. Evidence of super-spreaders like SARS are also observed. For reasons not fully understand, most SARS carriers did not get other people sick. Some infected 50 or more.

Aside from concerns over severe cases flooding Intensive Care Units, ICUs, with a higher apparent severity case than most, the main factor that is concerning about Covid-19 has been the long incubation period and presymptomatic transmission through proximity alone, something not seen before.

Coronaviruses cause respiratory and intestinal infections in animals and humans. They were not considered to be highly pathogenic to humans until the outbreak of severe acute respiratory syndrome (SARS) in 2002 and 2003 in Guangdong province, China, as the coronaviruses that circulated before that time in humans mostly caused mild infections in immunocompetent people. Ten years after SARS, another highly pathogenic coronavirus, Middle East respiratory syndrome coronavirus (MERS-CoV) emerged in Middle Eastern countries. SARS coronavirus (SARS-CoV) uses angiotensin-convertingenzyme 2 (ACE2) as a receptor and primarily infects ciliated bronchial epithelial cells and type II pneumocytes, whereas MERS-CoV uses dipeptidyl peptidase 4 (DPP4; also known as CD26) as a receptor and infects unciliated bronchial epithelial cells and type II pneumocytes. SARS-CoV and MERS-CoV were transmitted directly to humans from market civets and dromedary camels, respectively, and both viruses are thought to have originated in bats.

A pathogen's ability to spread depends on its transmissibility, or how easily the bug can hop from one host to the next. Scientists estimate how efficiently a bug spreads between people by calculating a number known as R_0, pronounced R-nought.

It is also known as the "basic reproduction number," R_0 predicts the number of people who can catch a given bug from a single infected person. Diseases such as polio, smallpox and rubella have R_0 values in the 5 to 7 range; such values mean that, on average, one sick person would be likely to infect five to seven people who were not resistant to the virus, according to the Centers for Disease Control and Prevention (CDC). The measles

virus ranks among the most highly transmissible diseases on the planet, with an estimated R_0 value of 12 to 18.

Chinese health officials confirmed more and more cases of Covid-19, scientists around the world rushed to estimate R_0 for the new virus. Last week, several reports placed the figure between 2 and 3, while the World Health Organization reported that the virus's R_0 falls slightly lower, at between 1.4 and 2.5. Other estimates have surpassed this range, hovering above 3.5.

Diseases with an R_0 below unity typically disappear from a population before becoming widespread, as infected people recover faster than the bug can be transmitted to new hosts. In general, you want an R_0 below unity; that's how you know the disease is under control," An R_0 above unity suggests that a given disease will continue to spread, but the number doesn't reveal how quickly transmission will take place.

Remember that R_0 represents the average number of people that could be infected by a single contagious person; that seemingly straightforward number can reflect a variety of scenarios. An infection might ripple through a population in even waves, with each diseased person infecting a similar number of people. Alternatively, transmission might occur in sudden spurts, with a few so-called super-spreaders passing on the infection to many people at once while other infected individuals recover before infecting anyone at all.

In the early days of an outbreak, scientists cannot map these transmission patterns in detail, because they have too few data points. Such is the case with Covid-19. In addition, R_0 estimates vary from location to location, as disease transmission depends on how often people in the affected area come into contact with each other and how prevalent infection is in a given population.

R_0 values also depend on characteristics of the infection itself, including how long infected people remain contagious, whether presymptomatic people can pass on the disease and how long the bug can survive outside the body, according to a study published in the January 2019 issue of the journal Emerging Infectious Diseases.

Chinese health officials reported isolated cases of disease transmission from presymptomatic people, but the CDC has not yet reviewed this data or verified the conclusion. An epidemic is not driven by presymptomatic carriers. Historically, symptomatic carriers "shed" far more of the virus than presymptomatic people during outbreaks of respiratory infection.

Airplane passengers seated next to the window may be the least likely to pick up the virus from an infected person onboard, as people in the window seat move about the cabin less often and come into contact with fewer people passing in the aisles, according to National Geographic. People seated in the same row as an infected person, however, stand the highest risk of infection.

Imported goods from China should not carry infectious strains of the virus, especially given that most coronaviruses can survive on surfaces for only a matter of hours. The average person can lower their risk of infection by washing their hands, covering their mouth when coughing or sneezing, and staying home when ill.

Low temperature and high air humidity further increase viruses' lifespan. Disinfection solutions based on the chemicals ethanol, hydrogen peroxide, or sodium hypochlorite are effective against coronaviruses. If these agents are applied in appropriate

concentrations, they reduce the number of infectious coronaviruses from one million to only 100 pathogenic particles within one minute.

ZINC, HYDROXYCHLOROQUINE AND AZITHROMYCIN COMBINATION FOR PROPHYLAXIS AND AS A POSSIBLE TREATMENT

The Association of American Physicians and Surgeons (AAPS) presented studies that report results of treating Covid-19 with the anti-malaria drugs chloroquine (CQ) and hydroxychloroquine (HCQ, Plaquenil®). Its use is associated with side effects including heart QT interval prolongation, ventricular tachycardia and ventricular fibrillation causing sudden cardiac arrest risk. On April, 24, 2020, the FDA, which licenses medicines in the USA, issued a warning about the dangers of using the substances because of reports of heart rhythm problems in patients.

A suggested treatment was:

1. Hydroxychloroquine HCQ 200mg twice a day for 5 days,
2. Azithromycin 500mg once a day for 5 days,
3. Zinc sulfate 220mg once a day for 5 days.

The HCQ opens up a channel into the cells so that the zinc can go in and bounce the virus. It must be noted that taking 15 times the daily amount of Zinc is sure to cause some heart and neurological problems. Zinc competes with copper. Copper is necessary for regulating the heart and the nervous system.

Chloroquine is a malarial drug first discovered in 1934. It is still in use for malaria management, although the most common species of malaria-causing organisms are long resistant to it. Hydroxychloroquine (Plaquenil) also has anti-malarial activity but is much more commonly used to treat certain auto-immune disorders, including rheumatoid arthritis, and systemic lupus erythematosus.

Both of these materials are structurally related to quinine, the famous ‘Jesuit Bark’ or Chinchona spp. That was the first effective treatment for malaria and the chemical that gives tonic water its unique flavor. Both pharmaceuticals are long out of patent protection, so generic versions are widely available. Depending on locale, a typical month-long treatment with hydroxychloroquine in the developing world was about $4.65. Both drugs are on the World Health Organization’s List of Essential Medicines.

Quinine-analog drugs have the potential for side effects. Some are mild (diarrhea, nausea, tinnitus) others can be quite serious (inflammation of the retina, anemia, cardiac instability). Chloroquine and hydroxychloroquine preferentially collect in the lungs, which helps increase potency with smaller doses. However, part of risk is due to the medications also collecting more in cells with melanin, which include skin and eye cells. Damage to the eyes can be a risk with large doses or extended use as a malaria or autoimmune disease treatment. People with cardiac problems may also be more at risk of adverse cardiac reactions. There is also a significant risk of interactions with other medications when taken simultaneously. Because of this, both chloroquine and hydroxychloroquine are available only by prescription.

Chloroquine and hydroxychloroquine have an extensive research basis as antivirals. There are two mechanisms by which these drugs exert antiviral effects:

2. Endosome Alkalinizer

The process of viral entry involves the transport of the viral genome across host cell membranes, and the subsequent release of the virus genome into the host cell's body or cytoplasm. Enveloped viruses like SARS-CoV-2 accomplish the delivery of their genomes into the cytoplasm of the host cells by binding to surface molecules on the outer membrane of susceptible cells and fusing their outer envelopes with host cell membranes. This leads to the virus being internalized into bubble-like vesicle inclusions known as endosomes.

In order to initiate replication, the virus requires that the endosome has a low acidic pH value. Both materials are weak bases or alkaline pH, and are rapidly taken up into the endosome, where they raise the pH to a point where viral replication can not take place. The virus is therefore unable to release its genetic material into the cell and replicate.

3. Zinc Transporter

The mineral zinc is involved in many different cellular processes, and has proven crucial for the proper protein folding, the activity of various cellular enzymes, and most genetic transcription factors. In solutions such as water, zinc exists in its ionic form (Zn2+), where two of its electrons are lost to form the positive Zn2+ ion. This ionic aspect is what makes zinc interesting from an antiviral perspective. However, even though zinc performs so many critical functions, the cell is not terribly interested in accumulating high levels of it. The intracellular concentration of free Zn2+ is maintained at a relatively low level by metallothioneins, which are small molecules that bind metals like zinc, copper and other heavy metals. The cell aggressively throttles Zn2+ because, at elevated concentrations, it can serve as an intracellular signal molecule, and trigger cell suicide (apoptosis), or even block protein synthesis. In addition, the cell membrane itself tends to repel zinc ions from binding.

Zinc is an anti-viral mineral. High intracellular concentrations inhibit the replication of RNA type viruses, such as SARS-CoV-2. Zinc does this by blocking RNA-dependent RNA polymerase (RdRp), the core enzyme of their multiprotein replication and transcription complex that is critical for the copying of viral RNA. In high concentrations, zinc can block coronavirus reproduction, but the cell is typically disinclined to tolerate high levels of zinc due to concerns about its other actions.

Interestingly, there are molecules that can act as facilitators and enhance the entry of zinc into the cell. These are known as zinc ionophores. In addition to its effects on endosome pH, chloroquine has also been demonstrated to be a zinc ionophore.

In addition to chloroquine, the nutraceuticals quercetin bioflavonoid and epigallocatechin-gallate or green tea polyphenol are also zinc ionophores. Quercetin plus zinc is being tested as an anti-viral in human clinical trials for the treatment of Covid-19. The combination had already made it through animal trials for use against Ebola and SARS-CoV1, and was approved by the FDA for human clinical trials.

The anti-parasitic drug ivermectin appears to have ionophore activity, as does the antioxidant 393esveratrol. Getting zinc into the cell is dependent on having adequate levels of zinc outside the cell. Zinc absorption does vary by individual. Physiological stressors, such as infection and inflammation, tend to deplete zinc concentration, which needs supplementation.

Artemisia Annua or Sweet Wormwood, a natural Quinine, has been suggested in place of the Hydroxychloroquine which must be prescribed. It is used to treat drug resistant malaria. Used with Zinc on viral positive people decreased symptoms in 24 hours with no symptoms other than mild fatigue in 48 hours.

To date, the total number of reported patients treated with HCQ, with or without zinc and the widely used antibiotic azithromycin, is 2,333, writes AAPS, in observational data from China, France, South Korea, Algeria, and the USA. Of these, 2,137 or 91.6 percent improved clinically. There were 63 deaths, all but 11 in a single retrospective report from the Veterans Administration where the patients were severely ill. The antiviral properties of these drugs have been studied since 2003. Particularly when combined with zinc, they hinder viral entry into cells and inhibit replication. They may also prevent overreaction by the immune system, which causes the cytokine storm responsible for much of the damage in severe cases, explains AAPS. HCQ is often very helpful in treating autoimmune diseases such as lupus and rheumatoid arthritis. Additional benefits shown in some studies, AAPS states, is to decrease the number of days when a patient is contagious, reduce the need for ventilators, and shorten the time to clinical recovery.

Peer-reviewed studies published from January through April 20, 2020, provide clear and convincing evidence that HCQ may be beneficial in COVID-19, especially when used early, states AAPS.

Viruses are suppressed in the human cell by zinc. If large amounts of zinc enter the cell, the virus is stymied. A tree in South America is claimed to concentrate it in its bark and was used indigenously to suppress fever, it is called Cinquona. Past generations drank it as tonic water containing quinine, an antipyretic or antifever agent especially useful in treating malaria. Millions of people use it to treat many viruses and parasites as HCQS. Pills with the imprint HCQS are White, Elliptical / Oval and have been identified as Hydroxychloroquine Sulfate 200 or 400 mg. It is supplied by Ranbaxy Pharmaceuticals Inc. Hydroxychloroquine is used in the treatment of Lyme disease, arthritis; dermatomyositis; malaria prevention; malaria; rheumatoid arthritis and belongs to the drug classes antimalarial quinolines, anti-rheumatics.

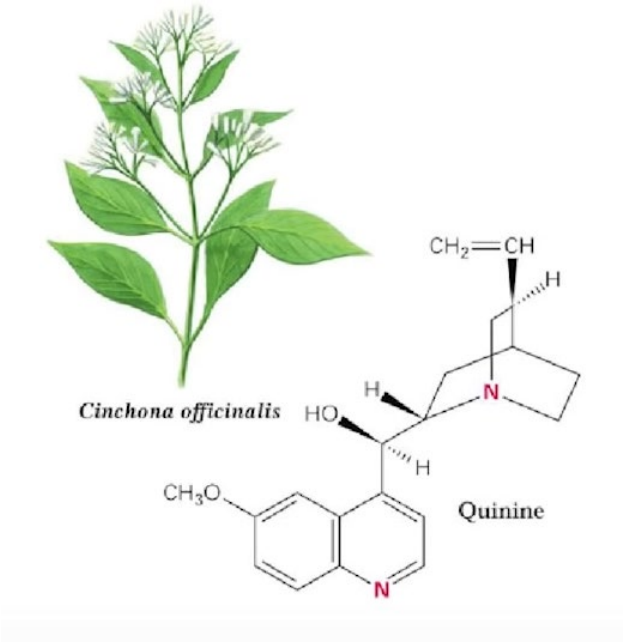


Figure 86. Quinine.

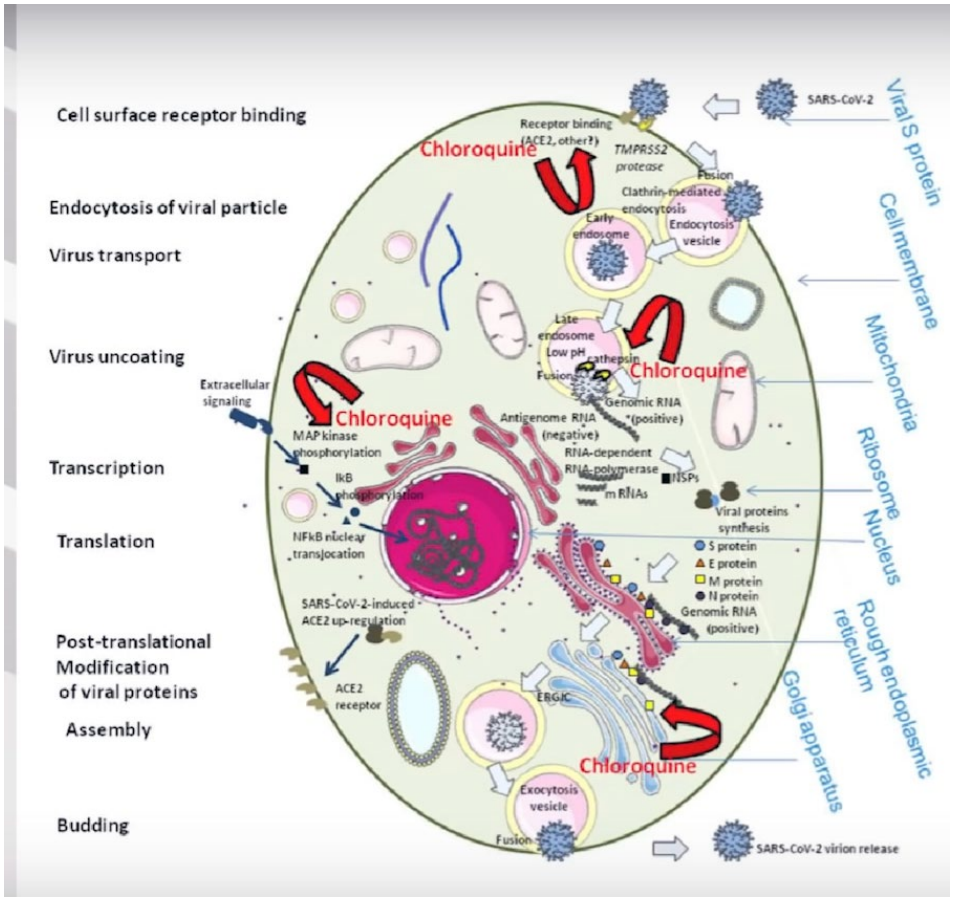


Figure 87. Chloroquine activity at the nucleus level.

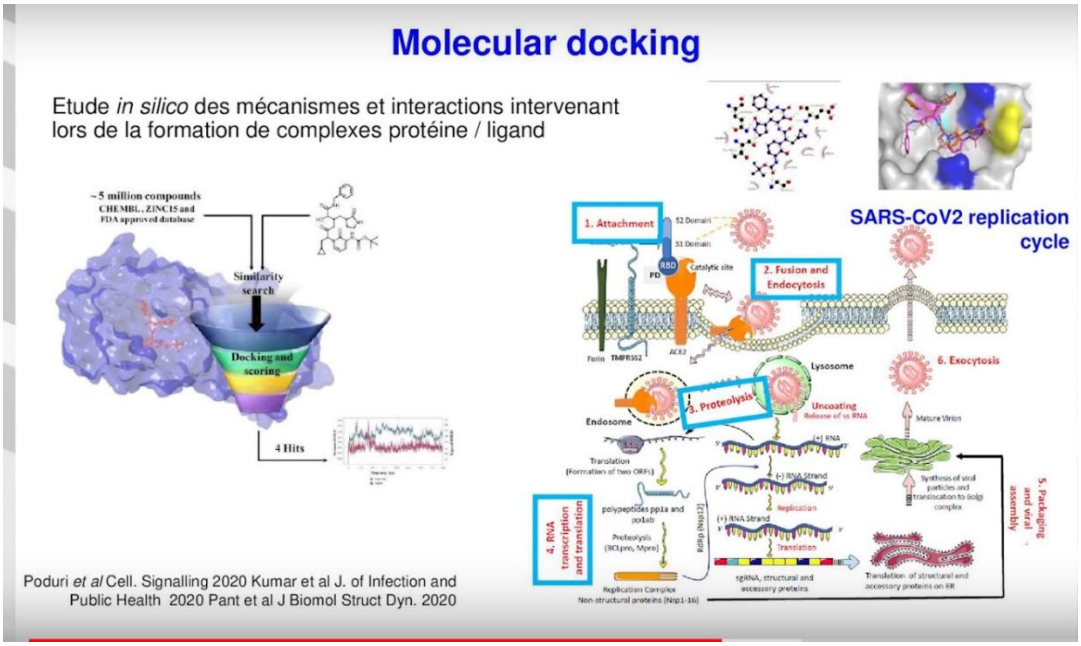


Figure 88. Molecular docking model of SARS-CoV2 replication cycle.

	µM	EC50	EC90	CC50	SI
Antibiotique	Azithromycine	2.12	8.65	>40	>19
Antibiotique	Spiramycin	7.95	10.45	>40	>5
IPP	Omeprazole	17.06	38.01	>40	>2.35
Beta-bloquant	Oxprenolol hydrochloride	20.22	>40	>40	>2
	Hydroxy-chloroquine	4.17	25.49	>40	>10
Anti H1	Clemizole hydrochloride	23.94	38.23	>40	>1.7
Prostaglandine E1	Alprostadil	5.39	62.40	>40	>7.4
Antiintégrase	Dolutegravir	22.04	42.81	>40	>1.8
Antibiotique	Sulfadoxine	35.37	45.11	>40	>1.13
Antidépresseur	Opipramol dihydrochlo	5.05	5.97	>40	>7.9
Anti-arythmique	Quinidine hydrochlorid	5.11	>40	>40	>7.8
IPP	Vonoprazan	38.58	41.01	>40	>1
Anti-hormonal	Exemestane	7.51	9.86	>40	5.3
Anesthésique	Dyclonine hydrochlorid	10.00	>40	>40	>4
Antipsychotique	Spiperone	2.49	13.10	>40	>16
Antiviral	Arbidol	10.7	15.2	>40[a]	>3.7
CONTROLE	Remdesivir 7 exp	1.67 ± 0.59	2.53 ± 0.67	nd	nd

Tests de sensibilité *in vitro* sur cultures cellulaires à haut débit

Compound	APPROVED	Category	Ranking CPE Assay	Concentration (µM)	% Viral Inhibition
Acitretin	FDA *(psoriasis)*	Retinoic acid receptor agonist	155	2,5	40
Tamibarotene	Japan *(promyelocytic acute leukemia)*	Retinoic acid receptor agonist	165	2,5	48,1
Tretinoin	FDA *(promyelocytic acute leukemia)*	Retinoic acid receptor agonist	102	1	42,1
Astemizole	RETIRE EN FRANCE				
Chloroquine	FDA	Antimalarial	2960	1	48,714
Clofazimine	FDA	Anti-infective	61	2,5	49,351

Figure 89. Two of the highest antiviral activities against Covid-19 were Azithromycin, SI>19, an antibiotic and anti-malarial Hydroxy-chloroquine CQ-IC50 1.38 µM, S1>10. Also active are the antihistamine astemizole (retired in France) and the anti-psoriasis molecule acitretin. Source: Méditerranée Infection.

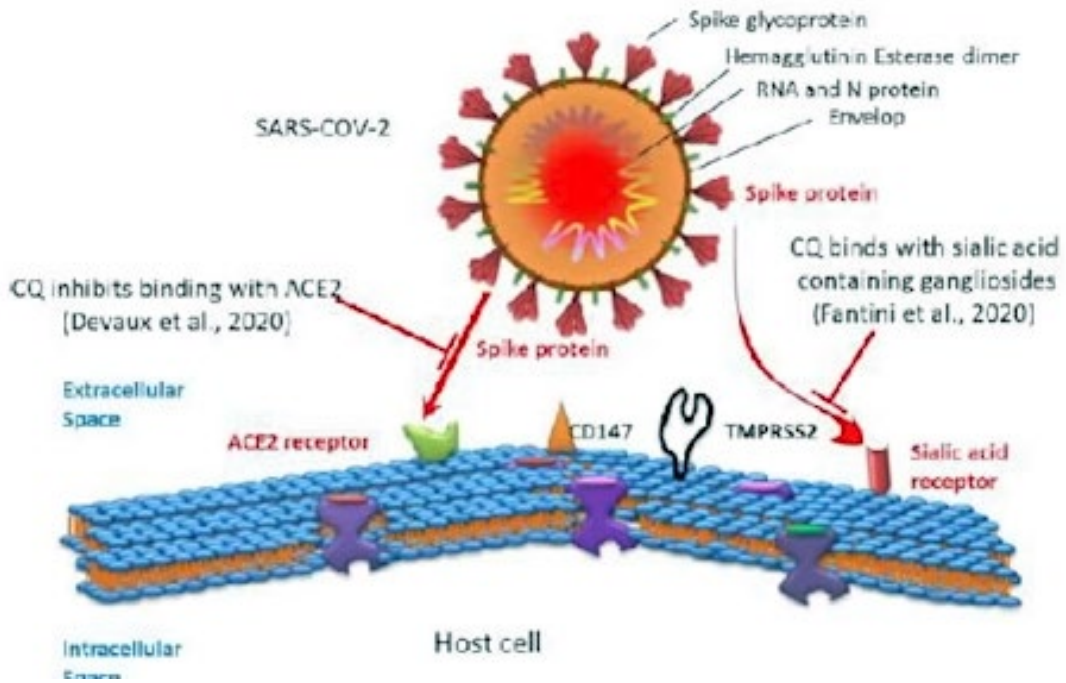


Figure 90. Chloroquine activity at cell surface.

According to Wikipedia:

"Cinchona has been historically sought after for its medicinal value, as the bark of several species yields quinine and other alkaloids that were

the only effective treatments against malaria during the height of European colonialism, which made them of great economic and political importance. Carl Linnaeus named the genus in 1742 based on a claim that the plant had cured the wife of the Count of Chinchón, a Spanish viceroy in Lima, in the 1630s, though the veracity of this story has been refuted. The curative properties of cinchona were known much earlier."

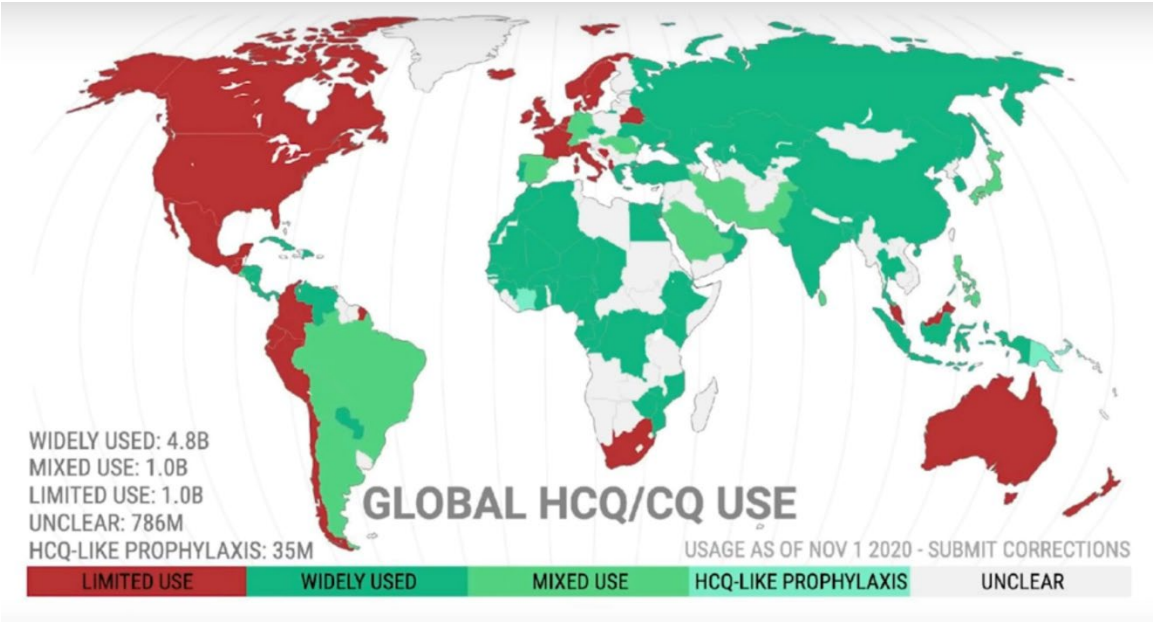
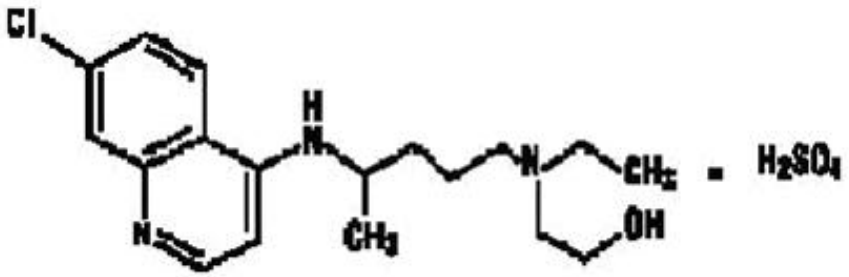


Figure 91. Global use of Hydroxychloroquine.



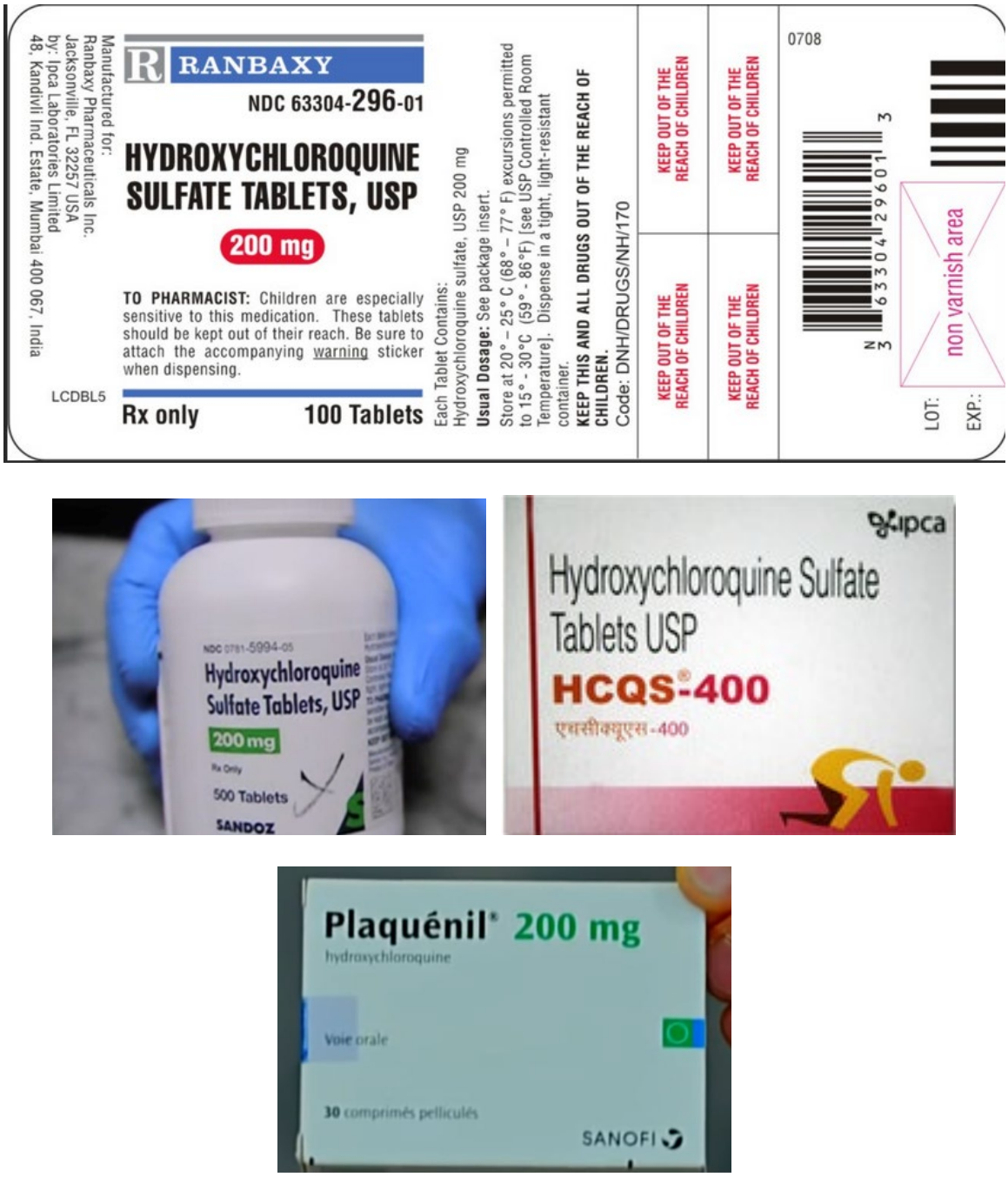


Figure 92. Hydroxychlororoquine Sulfate, HQS, Plaquénil tablets.

A study, entitled “Chloroquine is a potent inhibitor of SARS coronavirus infection and spread,” was completed and published on August 22, 2005 by the National Institute of Health, NIH. Chloroquine, a relatively safe, effective and cheap drug used for treating many human diseases including malaria, amoebiosis and human immunodeficiency virus is effective in inhibiting the infection and spread of SARS CoV in cell culture. The fact that the drug has significant inhibitory antiviral effect when the susceptible cells were

treated either prior to or after infection suggests a possible prophylactic and therapeutic use.

A French study reports:

> "The new study, of which the abstract was released today, was performed at IHU Méditerranée Infection, Marseilles, France. A cohort of 1061 COVID-19 patients, treated for at least 3 days with the Hydroxychloroquine-Azithromycin (HCQ-AZ) combination and a follow-up of at least 9 days was investigated.
> Key findings are:
> No cardiac toxicity was observed.
> A good clinical outcome and virological cure was obtained in 973 patients within 10 days (91.7%).
> A poor outcome was observed for 46 patients (4.3%); 10 were transferred to intensive care units, 5 patients died (0.47%) (74-95 years old) and 31 required 10 days of hospitalization or more."
>
> The authors conclude that:
> "The HCQ-AZ combination, when started immediately after diagnosis, is a safe and efficient treatment for COVID-19, with a mortality rate of 0.5%, in elderly patients. It avoids worsening and clears virus persistence and contagiosity in most cases."

In Brazil, medical staff of the army when they go on missions in the amazon jungle, use it as a prophylactic treatment against malaria. Lupus and rheumatoid arthritis patients take it for life at a dose of 400 mg per day. The USA Army mandated soldiers in Afghanistan to take hydroxychloroquine daily to prevent malaria. If you got malaria and were not taking your pills you were subject to UCMJ (Uniform Code of Military Justice). Same with the anthrax shots.

With each dose, the difference between safe limit and toxic limit are so narrow that its administration has to be done under supervision. Each dose may need to be determined by checking blood levels, not just as easy as one tab three times per day. The next dose may have to be decided by what is the concentration left in the blood. Of concern is Long QT syndrome; a rare disorder. Experts think that about 1 in 7,000 people in the USA has long QT syndrome. But no one knows for sure, because long QT syndrome often goes undiagnosed. It is a rare electrical heart disorder which can be made more dangerous with Hydroxychloroquine and some other drugs.

It must be noted that Chloroquine phosphate and Hydroxychloroquine are similar, but the phosphate used in fish tanks is much more toxic. The extra hydroxy group makes the latter more soluble, and easier for the kidneys to filter out of the blood.

The Corona Virus has been around for a long time. The CDC recognized a treatment for it in 2005 that breaks down the cell walls of the virus as Chloroquine phosphate used in the treatment of Malaria. Chloroquine; an artificial form of "quinine", seems to block the coronavirus in lab studies. In treating malaria patients, the drug has been used to reduce fever and inflammation. The state of New York started 70,000 trials of "Hydroxychloroquine" combined with "Azithromycin" in March 2020. It is now in generic form and no new patents are available. It costs only $50 per treatment.

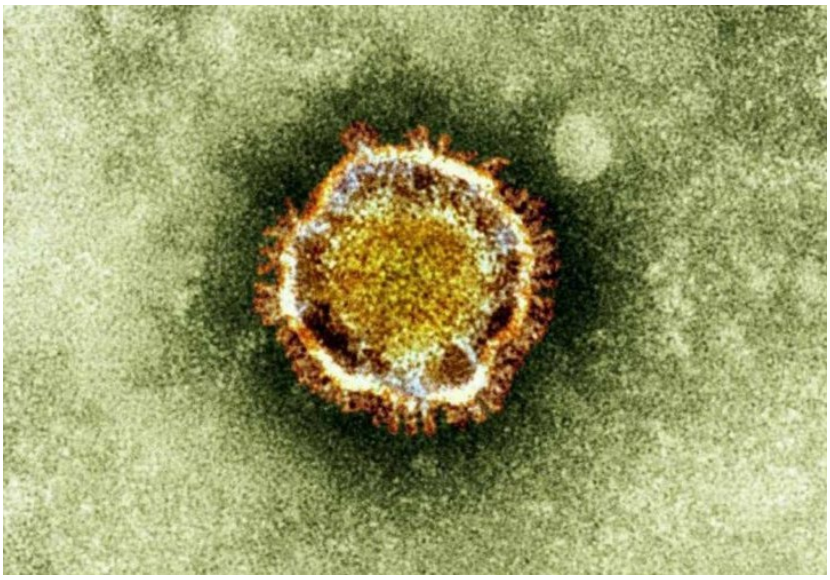


Figure 93. Image released by the British Health Protection Agency showing an electron microscope image of a coronavirus, part of a family of viruses that cause ailments including the common cold and SARS.

Many Nigerian households still use tablets containing chloroquine for treating malaria even though it was banned in 2005 because of its side effects. Lagos soon began dealing with a spate of people being poisoned from overdoses of chloroquine.

Virology Journal BMC

Virol J. 2005; 2: 69.
Published online 2005 Aug 22. doi: 10.1186/1743-422X-2-69

PMCID: PMC1232869
PMID: 16115318

Chloroquine is a potent inhibitor of SARS coronavirus infection and spread

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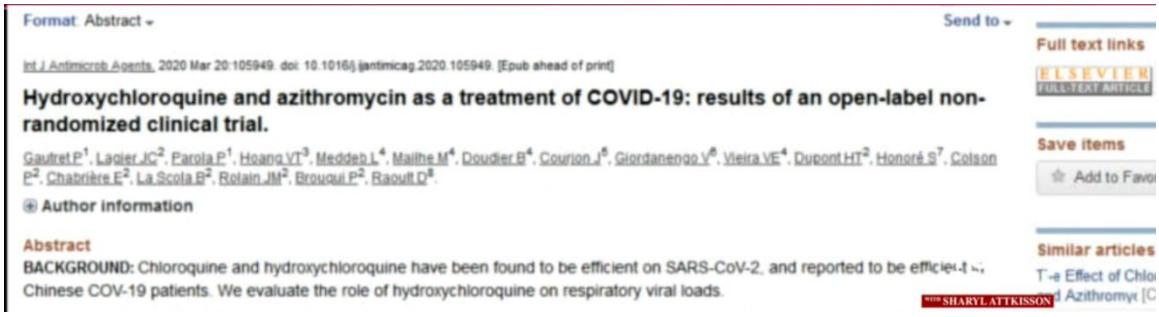
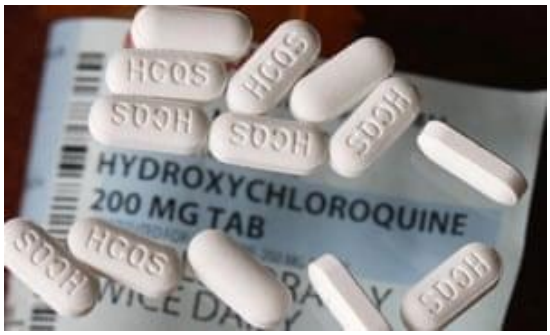
Abstract

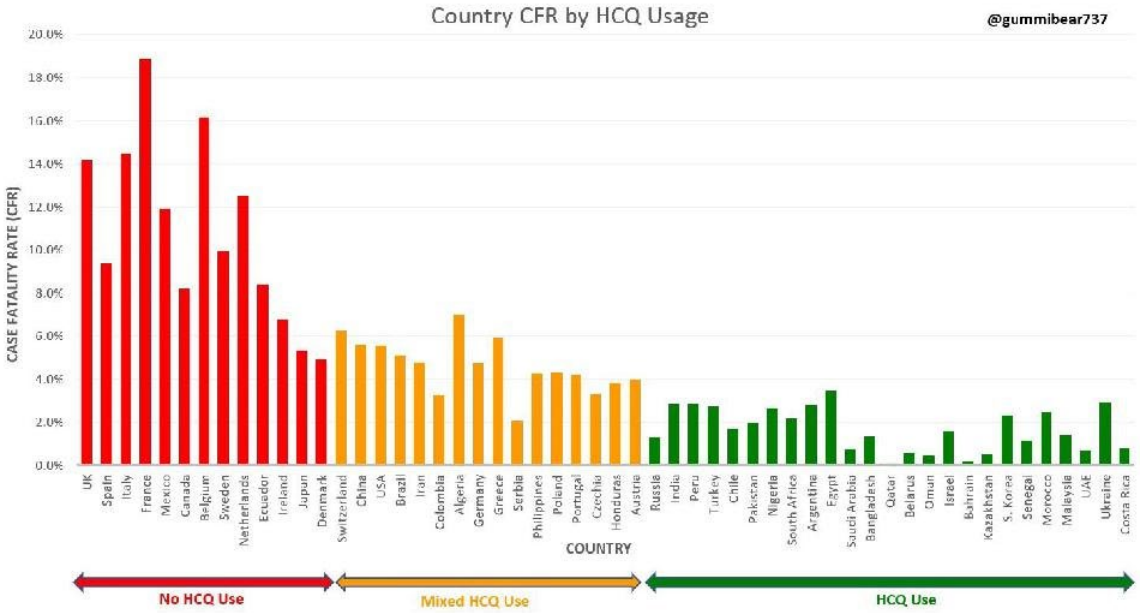
Go to:

Background

Severe acute respiratory syndrome (SARS) is caused by a newly discovered coronavirus (SARS-






Country CFR by HCQ Usage
@gummibear737
CASE FATALITY RATE (CFR)
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14.0%
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Ukraine
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Mixed HCQ Use
HCQ Use


The Journal of Steroid Biochemistry and Molecular Biology
Available online 29 August 2020, 105751
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"Effect of Calcifediol Treatment and best Available Therapy versus best Available Therapy on Intensive Care Unit Admission and Mortality Among Patients Hospitalized for COVID-19: A Pilot Randomized Clinical study"
Marta Entrenas Castillo, Luis Manuel Entrenas Costa, José Manuel Vaquero Barrios, Juan Francisco Alcalá Díaz, José López Miranda, Roger Bouillon, José Manuel Quesada Gomez
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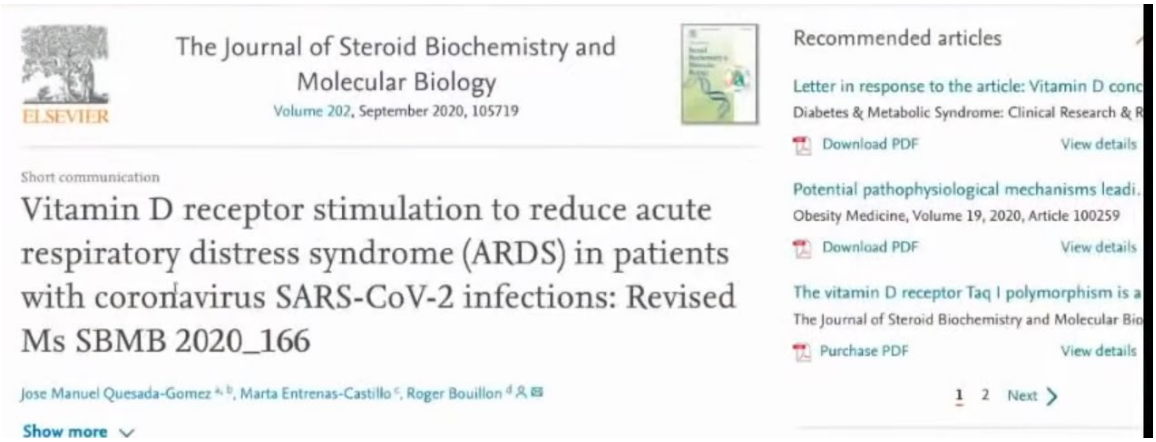
The Journal of Steroid Biochemistry and Molecular Biology
Volume 202, September 2020, 105719
Short communication
Vitamin D receptor stimulation to reduce acute respiratory distress syndrome (ARDS) in patients with coronavirus SARS-CoV-2 infections: Revised Ms SBMB 2020_166
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Articles

Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis

Mandeep R Mehra, Sapan S Desai, Frank Ruschitzka, Amit N Patel

RETRACTED

Summary

Background Hydroxychloroquine or chloroquine, often in combination with a second-generation ma[illegible]ide, are [illegible] widely used for treatment of COVID-19, despite no conclusive evidence of their benefit. Although [illegible]erall[illegible]e whe[illegible] used for approved indications such as autoimmune disease or malaria, the safety and ben[illegible] [illegible] treatment regimens are poorly evaluated in COVID-19.

Methods We did a multinational registry analysis of the use of hydroxychloroquine [illegible]oquine wit[illegible]thout a macrolide for treatment of COVID-19. The registry comprised data from 671 hosp[illegible] in [illegible]ntinents. We included patients hospitalised between Dec 20, 2019, and April 14, 2020, with a positive laboratory [illegible]e for SARS-CoV-2. Patients who received one of the treatments of interest within 48 h of diagn[illegible] included in [illegible]f four treatment groups (chloroquine alone, chloroquine with a macrolide, hydroxychlor[illegible]ne alone, or hydroxychloroquine with a macrolide), and patients who received none of these treatments formed [illegible] control gr[illegible]. Patients for whom one of the treatments of interest was initiated more than 48 h after diagnosis o[illegible]le they w[illegible]on mechanical ventilation, as well as patients who received remdesivir, were excluded. The main outc[illegible]e of int[illegible]t were in-hospital mortality and the occurrence of de-novo ventricular arrhythmias [illegible]tained o[illegible]d ventricular tachycardia or ventricular fibrillation).

Findings 96 032 patients (mean age 53·8 years, 46·[illegible]% women) [illegible]OVID-19 were hospitalised during the study period and met the inclusion criteria. Of the[illegible] patie[illegible]were in the treatment groups (1868 received chloroquine, 3783 received chloroquine with [illegible]macro[illegible], 3016 [illegible]ived hydroxychloroquine, and 6221 received hydroxychloroquine with a macrolide) and [illegible] pati[illegible]in the control group. 10 698 (11·1%) patients died in hospital. After controlling for multiple [illegible]iou[illegible]tion[illegible], sex, race or ethnicity, body-mass index, underlying cardiovascular disease and its risk fac[illegible]diabete[illegible]erlying lung disease, smoking, immunosuppressed condition, and baseline disease severity), w[illegible]mpared wi[illegible]ortality in the control group (9·3%), hydroxychloroquine (18·0%; hazard ratio 1·335, 95%[illegible]·2[illegible]457), hydro[illegible]chloroquine with a macrolide (23·8%; 1·447, 1·368–1·531), chloroquine (16·4%; 1·365, [illegible]18–1·531), [illegible]hloroquine with a macrolide (22·2%; 1·368, 1·273–1·469) were each independently associated [illegible] an increased r[illegible]f in-hospital mortality. Compared with the control group (0·3%), hydroxychloroquine ([illegible]·2·36[illegible]·935–2·909), hydroxychloroquine with a macrolide (8·1%; 5·106, 4·106–5·983), chloroquine (4·3%; [illegible]·935–4·5%), and chloroquine with a macrolide (6·5%; 4·011, 3·344–4·812) were independently associati[illegible] an inc[illegible]d risk of de-novo ventricular arrhythmia during hospitalisation.

Interpreta[illegible]we [illegible] unable[illegible]nfirm a benefit of hydroxychloroquine or chloroquine, when used alone or with a macr[illegible]on i[illegible]nital outc[illegible]mes for COVID-19. Each of these drug regimens was associated with decreased in-hospit[illegible]reased frequency of ventricular arrhythmias when used for treatment of COVID-19.

Funding William[illegible]ey Distinguished Chair in Advanced Cardiovascular Medicine at Brigham and Women's Hospital.

Introduction

The absence of an effective treatment against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection has led clinicians to redirect drugs that are known to be effective for other medical conditions to the treatment of COVID-19. Key among these repurposed therapeutic agents are the antimalarial drug chloroquine and its analogue hydroxychloroquine, which is used for drugs have been shown in laboratory conditions to have antiviral properties as well as immunomodulatory effects.[1,2] However, the use of this class of drugs for COVID-19 is based on a small number of anecdotal experiences that have shown variable responses in uncontrolled observational analyses, and small, open-label, randomised trials that have largely been inconclusive.[3] The combination of hydroxychloroquine

This online publication has been corrected. The corrected version first appeared at thelancet.com on May 29, 2020

See Online/Comment https://doi.org/10.1016/S0140-6736(20)31174-0

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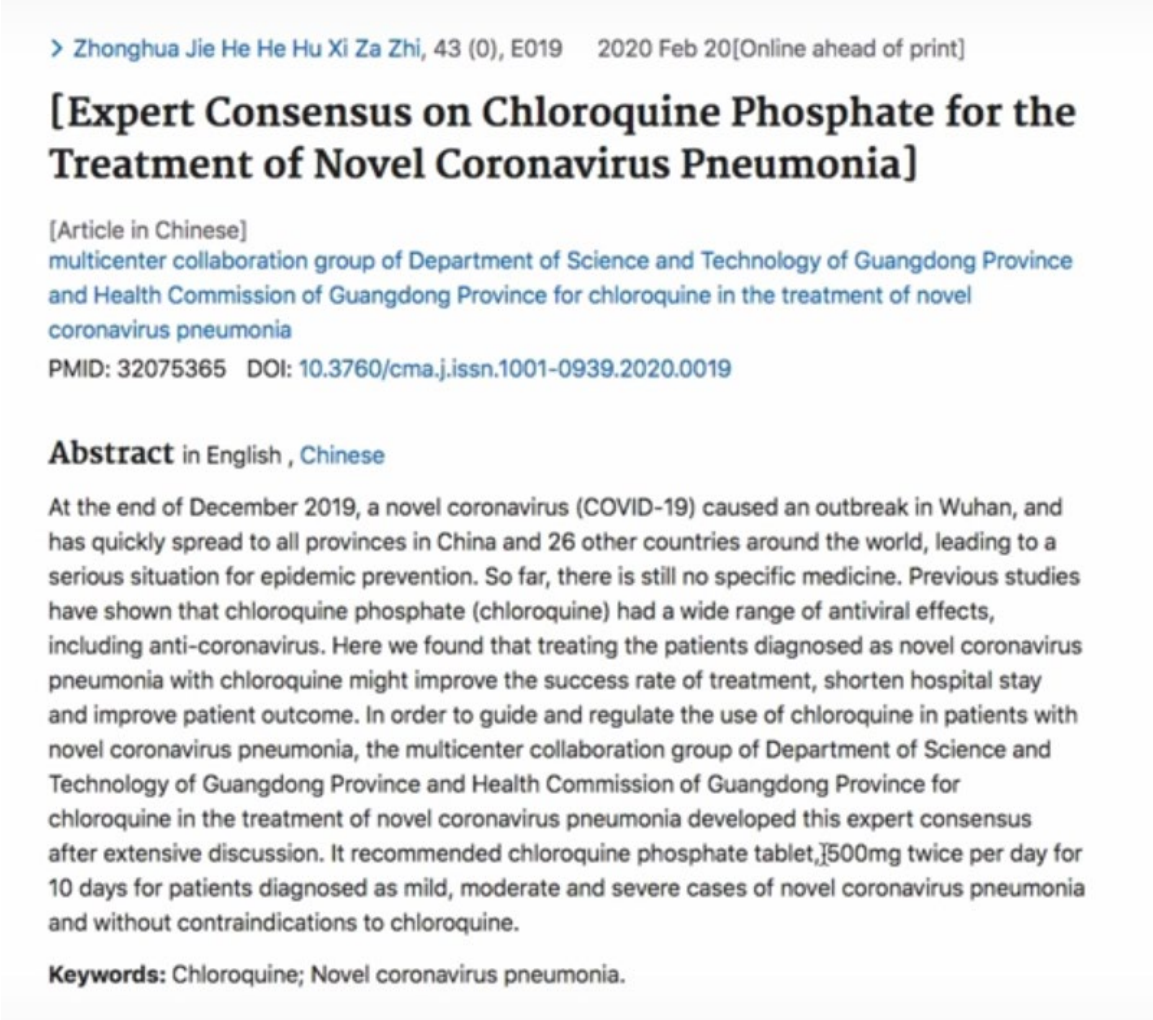
Correspondence to: Prof Mandeep R Mehra, Brigham and Women's Hospital Heart and Vascular Center and Harvard Medical School, Boston, MA 02115, USA mrmehra@bwh.harvard.edu

Figure 94. Chloroquine Phosphate or hydroxychloroquine, Plaquenil, Malaria medication used with Covid-19 virus. A mixture of Hydro Quinolone, Zpak Azithromycin antibiotic, Zinc Sulfate, Vitamin C, Vitamin D3 (Calcifediol, Cholecalciferol)), calcium and Vitamin K2 were used to reduce the viral load to negligible levels and address the secondary bacterial lung infection as bronchitis and pneumonia. Its most dreaded side effect: muscle weakness. The CIA warned its analysts, agents and staff that taking hydroxychloroquine is likely "dangerous", even potentially leading to "sudden death" from heart failure at high doses, according to a Washington Post report. Hydroxychloroquine must be taken with zinc. It works with zinc to stop virus replication. If zinc is not taken, it can deplete zinc in the body and can cause heart problems. Quercetin is also a zinc ionophore (it allows zinc to enter cells). Quercetin plus zinc picolinate and vitamin C is used. The zinc inside cells prevents the virus from using the cell to replicate. Quercetin is a more potent zinc ionophore than Chloroquine. Quercetin

is a completely natural and organic bio-flavonoid as a plant extract, e. g. from black elderberry.

People want to only take this stuff under doctor supervision because of their possible side effects. From Sanofi-Aventis, the makers of Plaquenil:

> "Plaquenil (hydroxychloroquine sulfate tablets) is indicated for the treatment of rheumatoid arthritis, and discoid and systemic lupus erythematosus, in patients who have not responded satisfactorily to drugs with less potential for serious side effects."
>
> "Cardiovascular: Cardiomyopathy: Cases of cardiomyopathy resulting in cardiac failure, in some cases with a fatal outcome, have been reported in patients treated with Plaquenil. Plaquenil should be discontinued if signs and symptoms of cardiomyopathy develop. Chronic toxicity should be considered when conduction disorders (bundle branch block/atrio-ventricular heart block) as well as biventricular hypertrophy is diagnosed."
>
> "Fertility: Animal studies showed an impairment of male fertility with chloroquine treatment.
>
> "Pregnancy: Hydroxychloroquine crosses the placenta. Data are limited regarding the use of Plaquenil during pregnancy. Plaquenil should be avoided in pregnancy. It should be noted that the 4- aminoquinolines in therapeutic doses have been associated with central nervous system damage, including ototoxicity (auditory and vestibular toxicity, congenital deafness), retinal hemorrhages and abnormal retinal pigmentation to the foetus."
>
> "Plaquenil can cause long QT interval or torsade de pointes. This is a dangerously fast heart rate. It can lead to cardiac arrest, sudden collapse and death." "Endocrine and Metabolism: Plaquenil has been shown to cause severe hypoglycemia including loss of consciousness that could be life threatening in patients treated with and without antidiabetic medications. Patients treated with Plaquenil should be warned about the risk of hypoglycemia and the associated clinical signs and symptoms."



> Zhonghua Jie He He Hu Xi Za Zhi, 43 (0), E019 2020 Feb 20[Online ahead of print]

[Expert Consensus on Chloroquine Phosphate for the Treatment of Novel Coronavirus Pneumonia]

[Article in Chinese]

multicenter collaboration group of Department of Science and Technology of Guangdong Province and Health Commission of Guangdong Province for chloroquine in the treatment of novel coronavirus pneumonia

PMID: 32075365 DOI: 10.3760/cma.j.issn.1001-0939.2020.0019

Abstract in English , Chinese

At the end of December 2019, a novel coronavirus (COVID-19) caused an outbreak in Wuhan, and has quickly spread to all provinces in China and 26 other countries around the world, leading to a serious situation for epidemic prevention. So far, there is still no specific medicine. Previous studies have shown that chloroquine phosphate (chloroquine) had a wide range of antiviral effects, including anti-coronavirus. Here we found that treating the patients diagnosed as novel coronavirus pneumonia with chloroquine might improve the success rate of treatment, shorten hospital stay and improve patient outcome. In order to guide and regulate the use of chloroquine in patients with novel coronavirus pneumonia, the multicenter collaboration group of Department of Science and Technology of Guangdong Province and Health Commission of Guangdong Province for chloroquine in the treatment of novel coronavirus pneumonia developed this expert consensus after extensive discussion. It recommended chloroquine phosphate tablet,500mg twice per day for 10 days for patients diagnosed as mild, moderate and severe cases of novel coronavirus pneumonia and without contraindications to chloroquine.

Keywords: Chloroquine; Novel coronavirus pneumonia.

Figure 95. Use of Chloroquine Phosphate in China as treatment for Covid-19.

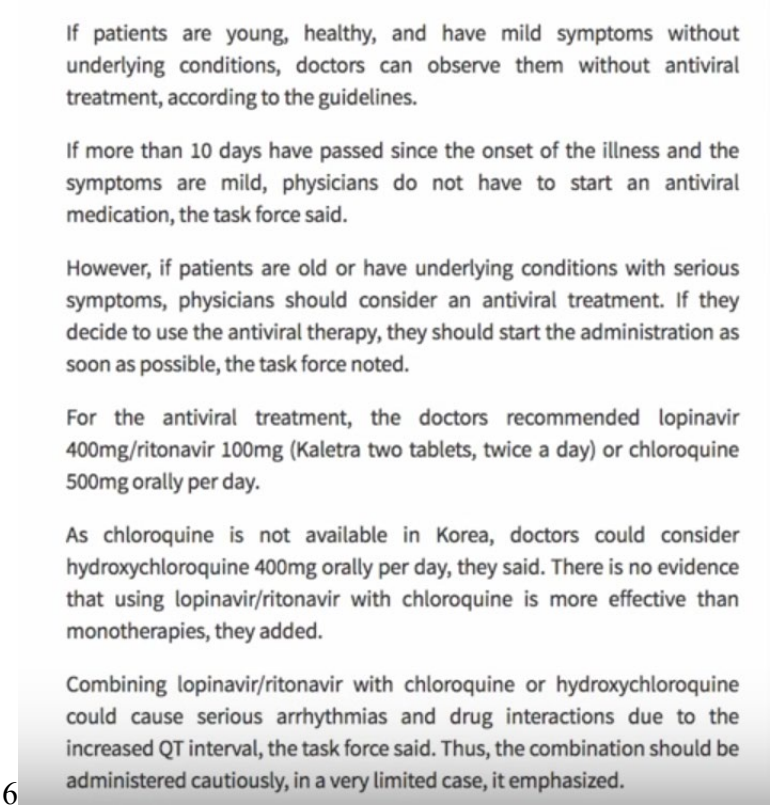


Figure 96. Recommended treatment in South Korea. In the absence of Chloroquine using Kaletra (lopinavir and ritonavir) is recommended.

It is also used to treat discoid or Systemic Lupus Erythematosus (SLE) and rheumatoid arthritis in patients whose symptoms have not improved with other treatments. Unusual and fraudulent prescribing activity occurred by doctors, who were writing prescriptions for chloroquine to themselves and their families.

In France researchers released their findings of a small study which showed all six patients treated with "hydroxychloroquine" and "azithromycin" tested negative for the virus after six days. Of the 20 treated with just hydroxychloroquine, 57.1 percent tested negative for the coronavirus after six days. Just 12.5 percent of the control group made up of 16 other patients tested negative.

"Despite its small sample size our survey shows that hydroxychloroquine treatment is significantly associated with viral load reduction/disappearance in COVID-19 patients and its effect is reinforced by azithromycin," the study said." Some of the reported effects could be attributed to a placebo effect.

It is still used to reduce a Cytokine storm immune system overreaction and reduce inflammation even in the cases of Lupus and Rheumatoid arthritis.

According to Martin et. al. [31]:

> "Severe acute respiratory syndrome (SARS) is caused by a newly discovered coronavirus (SARS-CoV). No effective prophylactic or post-exposure therapy is currently available."

"We report, however, that chloroquine has strong antiviral effects on SARS-CoV infection of primate cells. These inhibitory effects are observed when the cells are treated with the drug either before or after exposure to the virus, suggesting both prophylactic and therapeutic advantage. In addition to the well-known functions of chloroquine such as elevations of endosomal pH, the drug appears to interfere with terminal glycosylation of the cellular receptor, angiotensin-converting enzyme 2 (ACE-2). This may negatively influence the virus-receptor binding and abrogate the infection, with further ramifications by the elevation of vesicular pH, resulting in the inhibition of infection and spread of SARS CoV at clinically admissible concentrations."

"Chloroquine is effective in preventing the spread of SARS CoV in cell culture. Favorable inhibition of virus spread was observed when the cells were either treated with chloroquine prior to or after SARS CoV infection. In addition, the indirect immunofluorescence assay described herein represents a simple and rapid method for screening SARS-CoV antiviral compounds."

Severe acute respiratory syndrome (SARS) is an emerging disease that was first reported in Guangdong Province, China, in late 2002. The disease rapidly spread to at least 30 countries within months of its first appearance, and concerted worldwide efforts led to the identification of the etiological agent as SARS coronavirus (SARS-CoV), a novel member of the family Coronaviridae [1]. Complete genome sequencing of SARS-CoV [2, 3] confirmed that this pathogen is not closely related to any of the previously established coronavirus groups. Budding of the SARS-CoV occurs in the Golgi apparatus [4] and results in the incorporation of the envelope spike glycoprotein into the virion. The spike glycoprotein is a type I membrane protein that facilitates viral attachment to the cellular receptor and initiation of infection, and angiotensin-converting enzyme-2 (ACE2) has been identified as a functional cellular receptor of SARS-CoV [5]. We have recently shown that the processing of the spike protein was effected by furin-like convertases and that inhibition of this cleavage by a specific inhibitor abrogated cytopathicity and significantly reduced the virus titer of SARS-CoV [6].

"Due to the severity of SARS-CoV infection, the potential for rapid spread of the disease, and the absence of proven effective and safe in vivo inhibitors of the virus, it is important to identify drugs that can effectively be used to treat or prevent potential SARS-CoV infections. Many novel therapeutic approaches have been evaluated in laboratory studies of SARS-CoV: notable among these approaches are those using siRNA [7], passive antibody transfer [8], DNA vaccination [9], vaccinia or parainfluenza virus expressing the spike protein [10, 11], interferons [12, 13], and monoclonal antibody to the S1-subunit of the spike glycoprotein that blocks receptor binding [14]. In this report, we describe the identification of chloroquine as an effective pre- and post-infection antiviral agent for SARS-CoV. Chloroquine, a 9-aminoquinoline that was identified in 1934, is a weak base

> that increases the pH of acidic vesicles. When added extracellularly, the non-protonated portion of chloroquine enters the cell, where it becomes protonated and concentrated in acidic, low-pH organelles, such as endosomes, Golgi vesicles, and lysosomes. Chloroquine can affect virus infection in many ways, and the antiviral effect depends in part on the extent to which the virus utilizes endosomes for entry. Chloroquine has been widely used to treat human diseases, such as malaria, amoebiosis, HIV, and autoimmune diseases, without significant detrimental side effects [15]. Together with data presented here, showing virus inhibition in cell culture by chloroquine doses compatible with patient treatment, these features suggest that further evaluation of chloroquine in animal models of SARS-CoV infection would be warranted as we progress toward finding effective antivirals for prevention or treatment of the disease. "

A "201 simulation" carried out two months before the Wuhan virus exploded in China, sponsored by Bill Gates, Davos, Johns Hopkins, DoD, and Big Pharma estimated a death toll of 65 million.

Hanlon's razor is an aphorism expressed in various ways, including: Never attribute to malice that which can be adequately explained by stupidity. Probably named after a Robert J. Hanlon, it is a philosophical razor which suggests a way of eliminating unlikely explanations for human behavior.

There have been serious questions on whether the 2019-2020 Wuhan coronavirus outbreak was due to a leak or mishandling of laboratory animals used in coronavirus studies. It is more likely a bad luck natural mutation which happened in a country and area with unfortunate poor hygiene, air quality and many smokers.

VITAMIN C TREATMENT

Richard Cheng, an American-Chinese doctor based in Shanghai reports about a meeting:

> "Dr. Mao stated that his group treated ~50 cases of moderate to severe cases of Covid-19 infection with high dose IVC. The IVC dosing was in the range of 10,000 mg – 20,000 mg a day for 7-10 days, with 10,000 mg for moderate cases and 20,000 for more severe cases, determined by pulmonary status (mostly the oxygenation index) and coagulation status. All patients who received IVC improved and there was no mortality. Compared to the average of a 30-day hospital stay for all Covid-19 patients, those patients who received high dose IVC had a hospital stay about 3-5 days shorter than the overall patients. Dr. Mao discussed one severe case in particular who was deteriorating rapidly. He gave a bolus of 50,000 mg IVC over a period of 4 hours. The patient's pulmonary (oxygenation index) status stabilized and improved as the critical care team watched in real time. There were no side effects reported from any of the cases treated with high dose IVC."

Coronavirus patients displayed a high rate of hyper-coagulability; an abnormally increased tendency toward blood clotting, which is best treated with heparin.

INVECTIN AS POSSIBLE TREATMENT

Antiviral Research
Available online 3 April 2020, 104787
In Press, Journal Pre-proof

The FDA-approved Drug Ivermectin inhibits the replication of SARS-CoV-2 *in vitro*

Leon Caly [1], Julian D. Druce [1], Mike G. Catton [1], David A. Jans [2], Kylie M. Wagstaff [2]

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The FDA-approved Drug Ivermectin inhibits the replication of SARS-CoV-2 *in vitro*.

Leon Caly[1], Julian D. Druce[1], Mike G. Catton[1], David A. Jans[2] and Kylie M. Wagstaff[2*]

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Summary

Although several clinical trials are now underway to test possible therapies, the worldwide response to the COVID-19 outbreak has been largely limited to monitoring/containment. We report here that Ivermectin, an FDA-approved anti-parasitic previously shown to have broad-spectrum anti-viral activity *in vitro*, is an inhibitor of the causative virus (SARS-CoV-2), with a single addition to Vero-hSLAM cells 2 hours post infection with SARS-CoV-2 able to effect ~5000-fold reduction in viral RNA at 48 h. Ivermectin therefore warrants further investigation for possible benefits in humans.

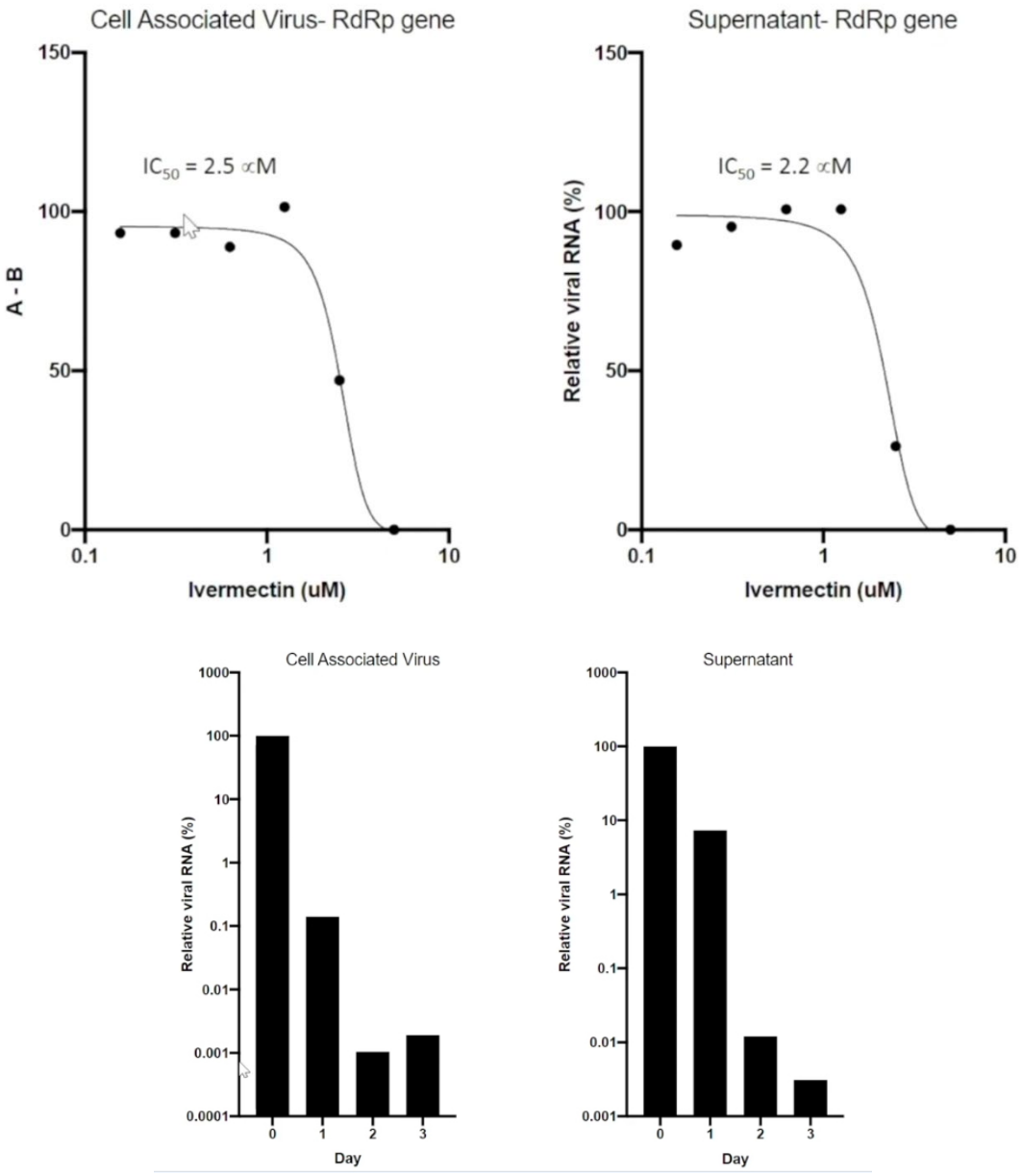

Figure 97. Invectin, an anti-parasitic, may be used as treatment for Covid-19. Reduces viral load by five orders of magnitude within a 48 hours period. Supernatant refers to outside the cell.

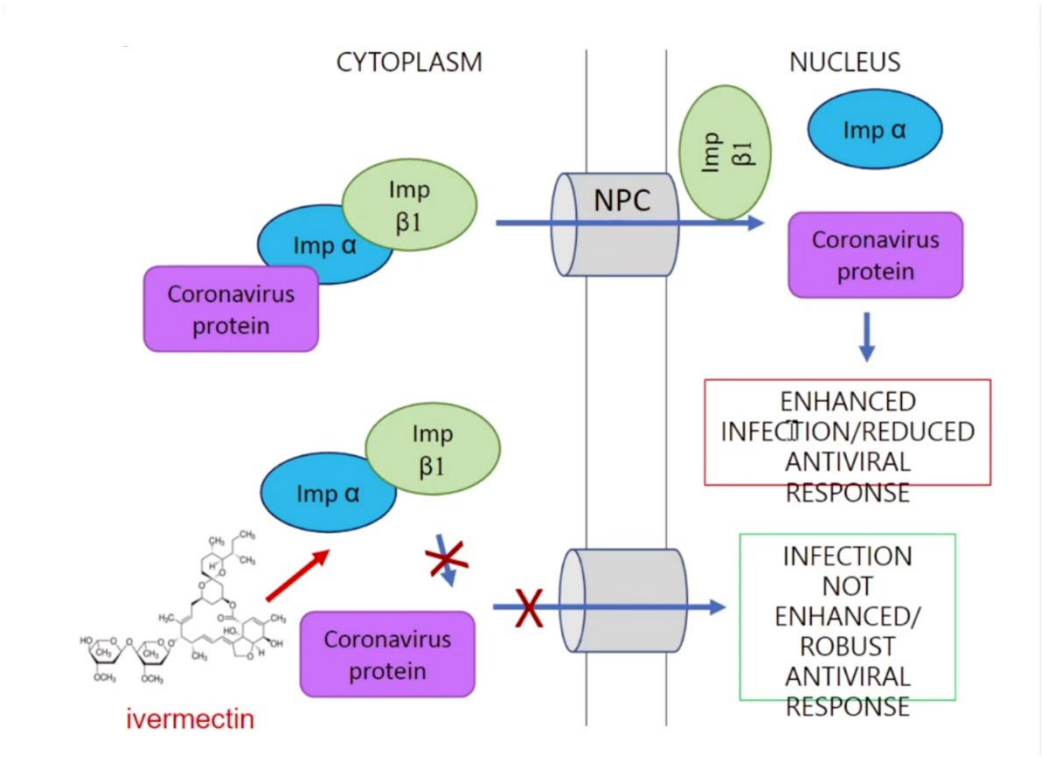

Figure 98. Role of Invectin in reducing the viral load by enhancing the immunity of a cell against invasion by Covid-19.

Invectin is an anti-parasitic previously used for the treatment of West Nile virus, Influenza and in animal husbandry. It acts on the proteins Impartin-α or Imp-α and Impartin-β1 or Imp-β.

ANTI-INFLAMATORY STEROID, DEXAMETHAZONE

Dexamethasone cuts the risk of death for patients on a ventilator by a third, and for those on oxygen by a fifth. A small team at Oxford University reported the use of dexamethasone as part of a study called Recovery – Randomized Evaluation of Covid-19 Therapy. The Recovery trial was set up in nine days and has recruited 11,500 Covid-19. The study was led by Prof. Peter Horby, who had spent recent years looking at how best to prepare for and respond to disease X, an unknown pathogen that could cause a pandemic.

This suggests that similar anti-inflammatory drugs such as Prednisone and even Aspirin could be used in mild cases. A course of antibiotics would follow because viral pneumonia is frequently associated with an opportunistic bacterial infection.

One of those drugs under evaluation in the randomized trial was low-dose dexamethasone, the anti-inflammatory steroid which has been in use since the early 1960s. This was considered risky. At the start of the pandemic, most international guidelines strongly discouraged the use of steroids for Covid-19. Steroids had been tried during outbreaks of two other deadly coronaviruses, Sars and Mers, with mixed results.

Dexamethasone is an immunosuppressive drug and there were fears it could make the illness worse, prolonging the infection, and increasing the likelihood of patients needing a ventilator.

There are two distinct phases in coronavirus infection. Most people only undergo the first, where the virus invades the body and the immune system mounts an effective response. For a minority, the disease alters about a week after infection. The immune system begins to overreact and cause inflammation. At this point it is not the virus, but the body's own response to infection which causes damage in the lungs and beyond. The trial found that dexamethasone helped only those hospital patients who needed oxygen or were on a ventilator. It appears to dampen the immune response, giving the lungs a better chance to recover. On the Covid trial, 40 out of every 100 ventilated patients died. These were intensive care patients who were sedated and put on invasive ventilation, a machine that takes over your breathing for you. Dexamethasone reduced that number to 28, saving one life for every eight patients treated. For those on oxygen 25 out of every 100 patients died, but the drug cut that to about 20 in a 100. The drug is extremely cheap and used across the world for a range of conditions.

The only other drug proven to be effective against Covid-19 is the antiviral Remdesivir. It has been shown to cut the duration of symptoms by about four days. In a trial of about 1,000 patients, those who received it had a slightly lower risk of dying, but it was not statistically significant. Remdesivir (Veklury, molecule GS-5734 and metabolite GS-441524), which was developed by the USA pharmaceutical company Gilead Sciences, patent expiring in October 2035, has been in short supply. The current mode of administration of this molecule is intravenous.

According to data provided by Gilead to the FDA, Veklury (Remdesivir) poses no risk of toxicity to the body, except for rats given doses higher than 3 mg / kg / day. It would thus only be a question of contraindication or of an administration adapted for certain patients suffering from renal or hepatic disorders.

In the Canadian drug database, it is advisable to refer to a drug with structural analogies, Aciclovir which it is specified that it has significant side effects which can go as far as acute encephalopathy, or vidarabine. The common element of these two molecules is an analogous group of nucleosides (flat conjugated group, nitrogenous base) which can potentially produce chromosomal damage in human cell cultures or be degraded into potentially toxic substances.

ILLUSORY TRUTH EFFECT OF CHLORINE DIOXIDE, AMMONIUM CHLORIDE AND CHLOROQUINE PROPHYLACTIC AND THERAPEUTIC USE

The illusory truth effect is one of the top mechanisms that make people believe in false information. The brain tends to mistake familiarity for fluency. The faster we process something, the more familiar we are with it and the more likely you are to believe it. The more misinformation is repeated, the more likely we are to think that it is true.

In the history of medicine, in Renaissance Italy, town squares were packed with charlatans who sold all kinds of snake-oil concoctions by exaggerating their therapeutic claims. In a time long before the development of sanctioned, effective medicines for most

illnesses, street peddlers could offer a way out of medical complexity. The first description in any European language of puppets on a string show is a description of a charlatan troupe.

Fake cures were used as political instruments. President Donald Trump and Brazilian president Jair Bolsonaro have promoted chloroquine as a cheap and widely available prophylactic against the virus. Their supporters on social media started to claim its efficacy.

In 2006, Jim Humble, a former scientologist published a book touting Chlorine Dioxide as a Miracle Mineral Solution, or MMS, and claiming it helped curing malaria cases in Africa. Since then, it has been promoted as a cure for multiple diseases, from acne to autism to HIV. As MMS gained popularity on fringe health circles worldwide, it attracted the attention of health authorities. The USA's Food and Drug Administration, FDA published its first warning about it in 2010.

Chlorine dioxide is not only ineffective against Covid-19, but it can cause life-threatening dehydration and acute liver failure. It is considered hazardous for human consumption by health authorities all over the world. The Federal Drug Administration (FDA) in the USA says it "is the same as drinking bleach".

Chlorine dioxide was not the only fake cure to gain popularity as the world scrambled for ways to combat the Covid-19 pandemic. Other substances, like hydroxychloroquine, interferon, ivermectin, or azithromycin were also touted as possible ways to prevent getting the virus or suffering its worst effects. None of them showed any conclusive results against Covid-19.

In food science, the addition of a mixture of vitamin C and Ammonium chloride gives dough good elasticity, extensibility and machinability, giving bread a good volume, color, sweet smell, good shape and elasticity. Using this additive is safer than using potassium bromate.

HCQ was banned from OTC sales in France around December 2019/January 2020. Toronto, Canada police released autopsy details from their investigation into the sudden death of Apotex, a big producer of hydro chloroquine, founder Barry Sherman and his wife, Honey Sherman. The billionaire philanthropists were found dead at their home in the St. Andrew-Windfields area near Bayview Avenue and Highway 401. Post-mortem examinations determined the cause of death for both deceased was ligature neck compression. Ligature neck compression refers to strangulation that occurs as the result of a rope or some other sort of ligature being wrapped around the neck.

Of 65,000 people prescribed hydroxychloroquine for sicknesses like Lupus and Arthritis in Italy, 20 tested positive for Covid-19 and none of those were placed in an ICU. This puts the medication as 99.97% effective when used as prophylaxis prior to catching the virus, which is higher than any vaccine could ever hope to be. An objection to its use is that the drugs is designed to kills multi-cell parasites. These are bigger than single cells such as amoeba, that can cause diarrhea. That drug cannot be used to cure a virus which is a million times smaller than a single cell. The implication is that parasites may be playing a role as vectors in facilitating viral infections, and that combating them discourages and suppresses the viral initial invasions of the body organs.

In medicine, Ammonium chloride is used as an expectorant in cough medicine. Its expectorant action is caused by irritative action on the bronchial mucosa. This causes the production of excess respiratory tract fluid which presumably is easier to cough up. Ammonium salts are an irritant to the gastric mucosa and may induce nausea and vomiting.

Ammonium chloride is used as a systemic acidifying agent in treatment of severe metabolic alkalosis, in oral acid loading test to diagnose distal renal tubular acidosis, to maintain the urine at an acid pH level in the treatment of some urinary-tract disorders.

Because eating too much sodium chloride is obviously harmful to the body, a series of studies have shown that long-term excessive salt can not only cause and aggravate high blood pressure, but also cause kidney disease, aggravate diabetes, exacerbate asthma, prone to osteoporosis and even fractures. It may cause also many chronic diseases such as the stomach digestive system. In the developed western society, a mixture of ammonium chloride, potassium chloride and partially hydrolyzed protein and plant polypeptide is gradually used to replace salt, making it a nutritious functional seasoning widely used in bread and biscuits. In many countries and places, ammonium chloride and licorice are used as a flavoring agent in black crystal shape for various foods.

It is used as it is or in compound fertilizer. Although it is better known as a rice fertilizer, it has been tested and used on other crops like wheat, barley, sugarcane, maize, fiber crops, etc. Of particular note is its use on palm trees; increasing the yield of Copra per tree.

Other uses include a feed supplement for cattle, in hair shampoo, in textile printing, in the glue that bonds plywood, as an ingredient in nutritive media for yeast, in cleaning products, and as cough medicine. Its expectorant action is caused by irritating action on the bronchial mucosa.

According to Wikipedia:

> "Ammonium chloride is an inorganic compound with the formula NH_4Cl and a white crystalline salt that is highly soluble in water. Solutions of ammonium chloride are mildly acidic. Sal ammoniac is a name of the natural, mineralogical form of ammonium chloride. The mineral is commonly formed on burning coal dumps from condensation of coal-derived gases. It is also found around some types of volcanic vents. It is mainly used as fertilizer and a flavoring agent in some types of licorice. It is the product from the reaction of hydrochloric acid and ammonia."
>
> "Ammonium chloride is used as an expectorant in cough medicine. Its expectorant action is caused by irritative action on the bronchial mucosa, which causes the production of excess respiratory tract fluid, which presumably is easier to cough up. Ammonium salts are an irritant to the gastric mucosa and may induce nausea and vomiting."
>
> "Ammonium chloride is used as a systemic acidifying agent in treatment of severe metabolic alkalosis, in oral acid loading test to diagnose distal renal tubular acidosis, to maintain the urine at an acid pH in the treatment of some urinary-tract disorders."
>
> "Ammonium chloride, under the name sal ammoniac or salmiak is used as food additive under the E number E510, working as a yeast nutrient in breadmaking and as an acidifier.[17] It is a feed supplement for cattle and an ingredient in nutritive media for yeasts and many microorganisms."
>
> "Ammonium chloride is used to spice up dark sweets called salmiak (popular in Nordic and other nearby countries),[18] in baking to give cookies a very crisp texture, and in the liquor Salmiakki Koskenkorva for

flavouring. In Iran, Tajikistan, India, Pakistan and Arab countries it is called "Noshader" and is used to improve the crispness of snacks such as samosas and jalebi."

"Ammonium chloride has been used historically to produce low temperatures in cooling baths.[19] Ammonium chloride solutions with ammonia are used as buffer solutions including ACK (Ammonium-Chloride-Potassium) lysis buffer.[20]"

According to Martin et. al. ammonium chloride exhibits similarities to chloroquine [31] in prophylactic and therapeutic use:

"Since chloroquine inhibited SARS-CoV infection when added before or after infection, we hypothesized that another common lysosomotropic agent, NH_4Cl, might also function in a similar manner. Ammonium chloride has been widely used in studies addressing endosome-mediated virus entry. Coincidently, NH_4Cl was recently shown to reduce the transduction of pseudotype viruses decorated with SARS-CoV spike protein [17, 18]. In an attempt to examine if NH_4Cl functions similarly to chloroquine, we performed infection analyses in Vero E6 cells (an African green monkey kidney cell line) before (Fig. 4A) and after (Fig. 4B) they were treated with various concentrations of NH_4Cl. In both cases, we observed a 93–99% inhibition with NH_4Cl at ≥ 5 mM. These data indicated that NH_4Cl (≥ 5 mM) and chloroquine (≥ 10 μM) are very effective in reducing SARS-CoV infection. These results suggest that effects of chloroquine and NH_4Cl in controlling SARS CoV infection and spread might be mediated by similar mechanism(s)."

HYDROGEN PEROXIDE AS DISINFECTANT

From Consumer Reports:

"According to the CDC, household (3 percent) hydrogen peroxide is effective in deactivating rhinovirus, the virus that causes the common cold, within 6 to 8 minutes of exposure. Rhinovirus is more difficult to destroy than coronaviruses, so hydrogen peroxide should be able to break down the coronavirus in less time. Pour it undiluted into a spray bottle and spray it on the surface to be cleaned, but let it sit on the surface for at least 1 minute.

Hydrogen peroxide is not corrosive, so it is okay to use it on metal surfaces. But similar to bleach, it can discolor fabrics if you accidentally get it on your clothes. "It is great for getting into hard-to-reach crevices. You can pour it on the area, and you don't have to wipe it off because it essentially decomposes into oxygen and water."

Hydrogen peroxide in a concentration over about 10% burns you, is invisible, is aerosolized as quickly as water and is a ferocious oxidizer. It is used in rocket fuel so it can burn in space.

MASS HYSTERIA AND OVER-REACTION

People were afraid that 1 million infections with the new Covid-19 virus will lead to 30 deaths per day over the next 100 days. But they did not realize that 20, 30, 40 or 100 patients positive for normal seasonal coronaviruses are already dying every day. The problem of SARS-COV-2 is probably overestimated, as 2.6 million people die of respiratory infections each year compared with less than 4,000 deaths for SARS-COV-2 at the time of writing.

At Hubei, in the province of Hubei, where there has been the most cases and deaths by far, the actual number of cases reported is 1 per 1000 people and the actual rate of deaths reported is 1 per 20,000. So maybe that would help to put things into perspective.

The single situation where an entire, closed population was tested was the Diamond Princess cruise ship and its quarantine passengers in Japan. The case fatality rate there was 1.0 percent, but this was a largely elderly population, in which the death rate from Covid-19 is much higher.

Some so-called mild or common-cold-type coronaviruses that have been known for decades can have case fatality rates as high as 8 percent when they infect elderly people in nursing homes.

In China around 85 percent of all infections have occurred without anyone noticing the infection. Fully 90 percent of the deceased patients are verifiably over 70 years old, 50 percent over 80 years.

The new pathogen is less dangerous than SARS-1. The special thing is that SARS-COV-2 replicates in the upper throat area and is therefore much more infectious because the virus jumps from throat to throat, meaning that it has a higher R_0. But that is also an advantage: Because SARS-1 replicates in the deep lungs, it is not so infectious, but it definitely gets into the lungs, which makes it more hazardous.

The swine flu in 2009 reached the world from Mexico and until today there is no vaccination. If we close the schools, we will prevent the children from quickly becoming immune. We should better integrate the scientific facts into the political decisions. The social, economic and public health consequences of the near-total meltdown of normal life with schools and businesses closed, and gatherings banned, will be long-lasting and calamitous, possibly graver than the direct toll of the virus itself. The unemployment, impoverishment and despair likely to result will be public health scourges of the first order. Whoever thinks that governments end viruses is wrong.

As the coronavirus COVID-19 pandemic took hold, decisions were made without reliable data. The best alternative would probably entail letting those at low risk for serious disease continue to work, keep business and manufacturing operating, and run society, while at the same time advising higher-risk individuals to protect themselves through physical distancing and ramping up our health-care capacity as aggressively as possible. With such a battle plan, we could gradually build up immunity without destroying the financial structure on which our lives are based.

A joke about tigers goes as: “Why do you blow the horn?” “To keep the tigers away.” “But there are no tigers here.” “There you see!”. Crying wolf when there is no threatening wolf around would divert attention about real wolves as they appear on the stage: nuclear war, astral impacts, climatic change or other pandemics.

ANTIBODY DEPENDENT ENHANCEMENT, ADE RISK

In many patients the first sign of infection by Covid-19 virus seems to be a loss of the smell and taste senses without any other symptoms This could possibly be due to artificially Antibody Dependent Enhancement, ADE immediately gaining entry into those nerve cells and frying them. Dr. Cameron Kyle-Sidell suggested that the closest thing to these symptoms he was witnessing in his emergency room were those of altitude sickness.

This condition occurs when the organs that sense the level of oxygen concentration in the air that is breathed notice that level decreasing, and begin a cascade of physiological changes that, as the Covid-19 patients horrifically showcase, can quickly turn deadly when they throw the body’s balance out of wack. Since these organs are found in the neck right next to the carotid arteries, it is well within the realm of possibility that after frying the nerve cells that control smell and taste, that if the viral load is large enough, that the infection may eventually move into these organs and fry them too – tricking the nervous system into miscommunicating the concentration of oxygen in the environment, and scrambling the same system that is used when the body is subjected to the lowered oxygen levels that occur at high altitude to possibly trick the body into producing fewer red blood cells.

Additionally, an unnaturally juiced-up ability to use ADE would also explain what other front-line medical workers are observing in their patients: “I’m seeing people who look relatively healthy with a minimal health history, and they are completely wiped out, like they’ve been hit by a truck. This is knocking out what should be perfectly fit, healthy people. Patients will be on minimal support, on a little bit of oxygen, and then all of a sudden, they go into complete respiratory arrest, shut down and can’t breathe at all… That seems to be what happens to a lot of these patients: They suddenly become unresponsive or go into respiratory failure.” This sort of sudden precipitous decline is exactly what would be expected if Covid-19’s ability to use ADE had been accentuated in the lab, and would also explain the clinical observations that “this severity of [acute respiratory distress] is usually more typical of someone who has a near drowning experience — they have a bunch of dirty water in their lungs — or people who inhale caustic gas. Especially for it to have such an acute onset like that. I have never seen a micro-organism or an infectious process cause such acute damage to the lungs so rapidly. That was what really shocked me.”

Even more indicative of an unnatural origin is the fact that the process of a virus transferring from one species to another, called a zoonotic jump, follows a well-established pattern in the literature. For a virus to fully jump into a new species, several months if not years are required for the process to complete. First a variant of the virus infects one new host, an infection that will fizzle out the first time it happens since there’s no way for a virus to be immediately adapted to a novel host species. But with continued exposure, more individual infections occur, some of which produce slightly mutated variants more adapted to the biology of the new host species, until eventually a variant wins the selective virulent

lottery and is able to spread easily among its new host population, killing and reproducing as it goes.

Research published in 2018 found that only 2.7 percent of villagers living about a kilometer from local bat-caves carried any evidence of past bat coronavirus infections. That study happened to examine people living in Wuhan as well, and found absolutely zero evidence of previous bat coronavirus infection at all there, making it all-but-impossible that zoonotic jumping occurred since earlier less-lethal variants of the virus would have left a wide signature in its new host population. Instead, Covid-19 emerged out of nowhere, or more likely just out of a local lab, and was immediately extraordinarily well-adapted to humans – spreading through the air with ease, killing as it went. There is also the fact that all the initial victims were infected with the same variant, if a natural zoonotic jump had occurred, multiple different variants would inevitably have been found at the start of an outbreak.

Although it is certainly possible to train a monkey to warm up a frozen burrito in a microwave, it is unlikely that a wild monkey that had never been in contact with humans before could be presented with a frozen burrito and a microwave and figure out to heat up a snack. In the same way, everything about the way Covid-19 interacts with its human hosts and spreads among them indicates that it has been artificially trained to be familiar with human biology – bizarrely blocking our senses of smell and taste before doing anything else, spreading readily among presymptomatic patients and then infecting and killing us with far more efficiency than any natural emergent virus at the start of its outbreak, and first emerging without taking any of the steps necessary to naturally perform a zoonotic jump into humans.

The push to get the economy back on track leads only to human carnage, rushing back into the virus's paws can not possibly lead anywhere good. Slowing down to get the full picture of what is going on is apparently off the table, as is any sort of reasoned discussion about how to save the most lives while still being able to keep the economy in stasis until the pandemic is under control. And so America will be forever changed by this pandemic, as our once-trusted institutions lead us directly to slaughter.

Beyond that is the fact that its affinity for the ACE2 receptor is somewhere between 10 and 20 times higher than SARS, and it also creates viral loads thousands of times higher than SARS. These two characteristics point towards Covid-19 using antibody-dependent enhancement, or ADE, to enter human cells. This is when the virus is able to hijack white blood cells to more easily enter into the rest of our body's cells, allowing it to seep deep into its hosts' nervous systems, creating permanent neurological damage in the hosts it doesn't kill outright. ADE could also explain why between 5% and 10% of once "recovered" patients in Wuhan have been showing up with fresh infections, since that phenomenon allows a virus to hijack the antibodies created by a previous infection to re-attack an old host.

Curiously Zhengli Shi, of University of North Carolina, UNC at Chapel Hill with a BLS-3 biosecurity level lab and Wuhan BLS-4 biosecurity level lab fame, co-authored a 2019 paper which used inert viral shells to figure out exactly how SARS, with its affinity to the ACE2 receptor just like Covid-19, was able to harness ADE to hijack white blood cells for enhanced cell entry. A gain-of-function extension of this research would be exactly the kind of experiment that could have given birth to Covid-19, especially

considering that 2019 paper managed to fine-tune the exact concentration of antibodies that would best facilitate ADE.

Both HIV and Dengue Fever use antibody-dependent enhancement to boost their virulence, however its generally a phenomenon that takes a long time to occur when it happens in nature. However Covid-19 looks like it may have had its ADE jacked into hyper-drive as it was passed between a series of animal hosts, since it has the aforementioned much stronger ability to bind to host cells and creates viral loads orders of magnitude higher, and also appears to immediately to be able to enter its hosts nervous systems, killing many of its victims by attacking the region of the brain that controls breathing, drastically lowering white blood cell counts early-on in infections, and apparently re-infecting individuals who had already appeared to clear their infection.

VACCINES ADVERSE EVENT REPORTING SYSTEM, VAERS

From the 4/8/2021 release of VAERS data:

Found 68,347 cases where Vaccine is COVID19

Table

Event Outcome	Count	Percent
Death	2,602	3.81%
Permanent Disability	950	1.39%
Office Visit	10,692	15.64%
Emergency Room	32	0.05%
Emergency Doctor/Room	10,046	14.7%
Hospitalized	5,064	7.41%
Hospitalized, Prolonged	10	0.01%
Recovered	26,727	39.1%
Birth Defect	57	0.08%
Life Threatening	1,506	2.2%
Not Serious	25,205	36.88%
TOTAL	† 82,891	† 121.28%

† Because some cases have multiple vaccinations and symptoms, a single case can account for multiple entries in this table. This is the reason why the Total Count is greater than 68347 (the number of cases found), and the Total Percentage is greater than 100.

Figure 99. Side effects of covid-19 vaccines injections.

Data released today by the Centers for Disease Control and Prevention (CDC) on the number of injuries and deaths reported to the Vaccine Adverse Event Reporting System (VAERS) following COVID vaccines revealed reports of blood clots and other related blood disorders associated with all three vaccines approved for Emergency Use Authorization in the USA — Pfizer, Moderna and Johnson & Johnson (J&J).

VAERS is the primary mechanism for reporting adverse vaccine reactions in the U.S. Reports submitted to VAERS require further investigation before a causal relationship can be confirmed.

Between Dec. 14, 2020 and April 8, a total of 68,347 total adverse events were reported to VAERS, including 2,602 deaths — an increase of 260 over the previous week — and 8,285 serious injuries, up 314 since the previous week. Of the 2,602 deaths reported

as of April 8, 27% occurred within 48 hours of vaccination, 19% occurred within 24 hours and 41% occurred in people who became ill within 48 hours of being vaccinated.

In the USA, 174.9 million COVID vaccine doses had been administered as of April 8. This includes 79.6 million doses of Moderna's vaccine, 90.3 million doses of Pfizer and 4.9 million doses of the J&J COVID vaccine.

The considered VAERS data show:

19% of deaths were related to cardiac disorders.
55% of those who died were male, 43% were female and the remaining death reports did not include gender of the deceased.
The average age of those who died was 77 and the youngest death was an 18-year-old. There are a few reported deaths in children under 18, but these reports contained errors.
As of April 8, 2021, 408 pregnant women had reported adverse events related to COVID vaccines, including 114 reports of miscarriage or premature birth.
Of the 678 cases of Bell's Palsy reported, 59% of cases were reported after Pfizer-BioNTech vaccinations, 38% following vaccination with the Moderna vaccine and 24 cases (4%) of Bell's Palsy were reported with J&J.
There were 77 reports of Guillain-Barré Syndrome with 55% of cases attributed to Pfizer, 40% to Moderna and 10% to J&J.
There were 20,021 reports of anaphylaxis with 47% of cases attributed to Pfizer's vaccine, 46% to Moderna and 7% to Johson & Johnson.

FAKE NEWS AND DISINFORMATION

Virologists have been skeptical of the theory that Covid-19 was engineered or deliberately constructed in a laboratory; the director of the National Institutes of Health has written that recent genomic research "debunks such claims by providing scientific evidence that this novel coronavirus arose naturally." And none of the above is definitive proof that Covid-19 originated from a bat at either the Wuhan Center for Disease Control and Prevention or the Wuhan Institute of Virology. Definitive proof would require much broader access to information about what happened in those facilities at the time period before the epidemic in the city.

Mobile phone microwave towers have been torched and engineers abused over "baseless" theories linking coronavirus to 5G, or Fifth Generation microwave communications.

Conspiracy theories linking 5G signals to the Covid-19 coronavirus pandemic spread despite there being no evidence the mobile phone signals pose a health risk.

Two flawed theories prevailed. One suggests 5G suppresses the immune system, the other claims the virus is somehow using the network's radio waves to communicate and pick victims, accelerating its spread.

While 5G uses different radio frequencies than its predecessors, it is important to recognize that the wave length involved is still "non-ionizing", meaning it lacks enough energy to break apart the DNA in our cells to cause damage. The second theory appears to be based on the work of a Nobel Prize-winning biologist who suggested bacteria could generate radio waves.

There is another major flaw with both these theories. Coronavirus spread in cities where 5G had yet to be deployed, and in countries like Japan and Iran that had not yet adopted the technology.

PRION TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHY TSE DISEASES, CREUTZFELDT-JAKOB CASES LINKED TO THE COVID VACCINE ALUMINUM RISK

Prion diseases are a group of neurodegenerative diseases caused by prions, which are "proteinaceous infectious particles." Grass plants can bind, uptake and transport infectious prions. Prions are the protein-based infectious agents responsible for a group of diseases called transmissible spongiform encephalopathy.

Recent studies have shown the proteolytic enzyme keratinase dissolves prions.

PubMed documentation reveals persimmon tannins are effective against many diseases as well as snake venom.

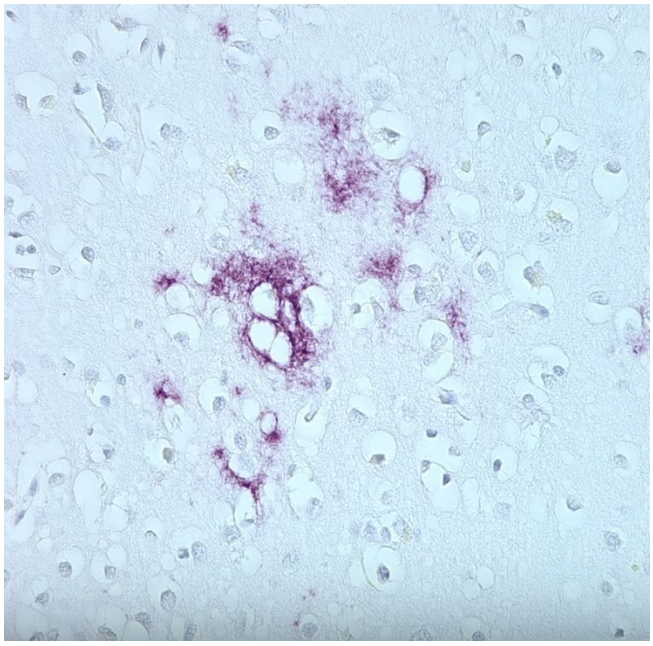

Figure 100. Brain aggregations can cause Alzheimer or Parkinson diseases.

A prion is a nearly indestructible protein. Autoclaves do not kill it. The only way to determine that a family member died of a prion disease is with an autopsy. And those are not being done. Prion diseases or transmissible spongiform encephalopathies (TSEs) are a family of rare progressive neurodegenerative disorders that affect both humans and animals. They are distinguished by long incubation periods, characteristic spongiform changes associated with neuronal loss, and a failure to induce inflammatory response.

The causative agents of TSEs are believed to be prions. The term "prions" refers to abnormal, pathogenic agents that are transmissible and are able to induce abnormal folding of specific normal cellular proteins called prion proteins that are found most abundantly in

the brain. The functions of these normal prion proteins are still not completely understood. The abnormal folding of the prion proteins leads to brain damage and the characteristic signs and symptoms of the disease. Prion diseases are usually rapidly progressive and always fatal.

Luc Montagnier, the 2008 Nobel Prize for Medicine explained that the Covid-19 virus was the result of laboratory manipulation. He warned that the Covid-19 vaccines would have serious prion side effects.

A prion disease is a protein that changes its conformation. The pathology occurs when the protein takes an abnormal shape. It is a kind of flattening of the structure, what we call Beta sheets. At that point, this structure becomes insoluble in the cells and no longer works, ”explains Luc Montagnier. To put it more simply, prion diseases are characterized by degeneration of the central nervous system. “They are fatal and not curable.”

The best known of these is that of Creutzfeldt-Jakob, which is linked to a health scandal that occurred in France in the early 1980s. “120 children died from this disease. Why ? Because they had received an injection of pituitaries taken from elderly people in a retirement home. “

The former head of the AIDS and retrovirus department at the Institut Pasteur explains: “Thanks to a study in Spain, we have shown that the aluminum present in vaccines can, by itself, induce prion diseases. However, it is very likely that there is aluminum in Covid vaccines. As in influenza vaccines. “I wonder if the prion diseases developed by some elderly people are linked to repeated flu injections, because we get vaccinated against the flu every year. Thus, accumulating aluminum in the brain.

Luc Montagnier claims to have formally detected five cases of prion disease in young and healthy people, a few weeks after receiving Pfizer injections. And according to him, there could be “dozens and dozens”. “There are people who describe the same phenomenon as I do, but they say, ‘This can’t be the vaccine.’ It’s madness. It’s the vaccine. It must be stopped. The earliest would be best. We will save lives. Especially at a time when we are talking about vaccinating children. “

Luc Montagnier is far from being an “anti-vax”. To fight against Covid-19, he recommends using the BCG vaccine against tuberculosis, which has not been mandatory in France since 2007 – because it stimulates cellular immunity. “In Mayotte, where BCG is still mandatory, there were very few cases of Covid-19 until the French authorities decreed that mRNA vaccines should be used. From that point on, there was a spike in the number of cases. The island of Mayotte is an overseas department/region and single territorial collectivity of France officially named the Department of Mayotte. It is located in the northern Mozambique Channel in the Indian Ocean off the coast of Southeast Africa, between northwestern Madagascar and northeastern Mozambique.

“GAIN-OF-FUNCTION, GOF” OR “DUAL USE RESEARCH OF CONCERN, DURC” RESEARCH RISK

The USA is a signatory of the 1970s Biological Weapons Treaty, which bans large-scale production and deployment of lethal bio-agents, while allowing the loophole of toxic samples for testing defensive countermeasures. However, the USA is funding and outsourcing gain-of-function research in several foreign locations. The USA Senate unanimously approved an amendment introduced by Senator Rand Paul banning USA’s

funding of Chinese Gain-Of-Function Research in May 2021. Funding for this type of research should be banned entirely globally.

It is often suggested that the USA, when developing a bioweapon of any kind (virus, toxin, etc.) will not release it unless it has already developed an antidote. This is in contrast to the Soviets, who would develop a weapon not being worried about the constraints of having a cure before using any bioweapon their researchers developed.

There was no 'natural reservoir animal' because China created genetically modified 'humanized' mice to train the viruses in how to infect people. At least two distinct virus strains were generated and cultured: one based on a bat derived virus and one based on a pangolin derived virus. The tell-tale cleaved site and the HIV structures were indeed inserted. It is likely there are no 'new' vaccines for the nine or more 'strains' or ‘variants’ supposedly at large.

Two gain-of-function labs are located at Erasmus University in the Netherlands and the University of Wisconsin in the USA. India setup a Bio Safety Level BSL-4 lab in 2007 and have several BSL-3 labs. Gain of function research was done at Chapel Hill, North Carolina in 2014, in a BSL-3.

People thought that WW III would be fought between major world powers using nuclear devices in a nuclear holocaust. Who would have thought it would be fought instead by government agencies conducting risky insidious dual use “Gain of Function,” GOF or Dual Use Research of Concern, DURC chimeric biological agents research? It has proven to be plain illogical and immoral to bioengineer something which could kill millions just to study it and to gain fame and wealth. The Covid-19 virus has AIDS homology and is an outcome of such research.

nCoronaviruses are rDNA retroviruses which are manmade only; as retroviruses do not exist naturally. The favored best bioweapons are nCoronaviruses because they are the most easily transmissible and can confer the largest payload of pathogenicity to provide lethality for biowarfare purposes.

In September 2011 anthrax attacks on American lawmakers like Tom Daschle occurred to incite for a war against Iraq. People died and the attacks were pinpointed to Fort Detrick, Maryland. Dietrich. Dr. Stephen Hatfill then Dr. Ivins were accused for the crime, but no charges were filed. Ivins allegedly later committed suicide.

In 2014, the USA government placed a federal moratorium on gain-of-function (GOF) research due to the high-containment labs, biosafety & lab accidents at the USA CDC labs. A CDC internal report described how scientists failed to follow proper procedures to ensure samples were inactivated before they left the lab, and also found “multiple other problems” with operating procedures in the anthrax lab. The Wuhan lab came at the center of scrutiny for possibly releasing the SARS-CoV-2 coronavirus and causing the global Covid-19 pandemic. Could some strains of the coronavirus have originated in USA labs, given the fact the USA government lifted the ban in December 2017 on GOF research without resolving lab-safety issues?

The Lugar Center, a $161 million Pentagon-funded biolaboratory in Georgia’s capital Tbilisi, discovered coronaviruses in bats with presumably pandemic potential as early as 2014. In 2017 the Pentagon launched a $6.5 million program in cooperation with the Lugar Center involving genetic studies on coronaviruses in 5,000 bats collected in Georgia, Armenia, Azerbaijan, Turkey and Jordan. The same Pentagon contractor tasked with the USA DoD bat-research program – Eco Health Alliance, USA, also collected bats

and isolated coronaviruses along with Chinese scientists at the Wuhan Institute of Virology.

Peter Daszak's Eco Health Alliance received a $3.7 million grant from the USA National Institutes of Health (NIH) to collect and study coronaviruses in bats in China from 2014 to 2019. A funding trick was used: Do not give it directly, funnel the money through a third party such as a private company which is the one that gives the money to China. Which is perfectly legal.

Pentagon funding for the EcoHealth Alliance (EHA) from 2013 to 2020, including contracts, grants and subcontracts, was just under $39 million. Most, $34.6 million, was from the Defense Threat Reduction Agency (DTRA), which is a branch of the DOD which states it is tasked to "counter and deter weapons of mass destruction and improvised threat networks."

Most of the remaining money to EHA was from USAID (State Dept.), comprising at least $64,700,000 (1). These two sources thus total over $103 million.

SUMMARY

FEDERAL GRANTS & CONTRACTS

AGENCY	TOTAL
DoD	$38,949,941.00
HHS	$13,023,168.00
NSF	$2,590,418.00
USAID	$2,499,147.00
DHS	$2,272,813.00
DoC	$1,241,933.00
USDA	$646,701.00
DoI	$267,062.00
GRAND TOTAL	$61,491,183.00

Figure 101. Summary of EHA Grants and Contracts. Note this figure does not count subcontracts so it undercounts USAID's contribution (Credit: James Baratta and Mariamne Everett)

Another $20 million came from Health and Human Services ($13 million, which includes National Institutes of Health and Centers for Disease Control), National Science Foundation ($2.6 million), Department of Homeland Security ($2.3 million), Department of Commerce ($1.2 million), Department of Agriculture ($0.6 million), and Department of Interior ($0.3 million). So, total U.S. government funding for EHA to-date stands at $123 million, approximately one third of which comes from the Pentagon directly.

Anthony S. Fauci wrote in a predictive 2012 paper:

mBio. 2012 Sep-Oct; 3(5): e00359-12.
Published online 2012 Oct 9. doi: 10.1128/mBio.00359-12
PMCID: PMC3484390
PMID: 23047751

Research on Highly Pathogenic H5N1 Influenza Virus: The Way Forward

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ABSTRACT

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The voluntary moratorium on gain-of-function research related to the transmissibility of highly pathogenic H5N1 influenza virus should continue, pending the resolution of critical policy questions concerning the rationale for performing such experiments and how best to report their results. The potential benefits and risks of these experiments must be discussed and understood by multiple stakeholders, including the general public, and all decisions regarding such research must be made in a transparent manner.

‘The influenza virus research community is to be commended for implementing a voluntary moratorium on “gain-of-function” experiments related to the transmissibility of highly pathogenic H5N1 influenza virus (1). As a key funder of influenza virus research, the National Institute of Allergy and Infectious Diseases, a component of the U.S. National Institutes of Health, strongly supports the continuation of this moratorium pending the resolution of critical policy issues related to the rationale for performing and reporting such experiments. We need to be certain that the fundamental purposes of this work, together with its risks and benefits, are understood by multiple stakeholders, including the general public, and that decisions are made in a transparent manner.

It is clear that the scientists who conducted the experiments that triggered this debate (2, 3), and who are among those who voluntarily signed onto the moratorium, have conducted their research properly and under the safest and most secure conditions. However, the issue that has been intensely debated is whether knowledge obtained from these experiments could inadvertently affect public health in an adverse way, even in nations multiple time zones away. ***Putting aside the specter of bioterrorism for the moment, consider this hypothetical scenario: an important gain-of-function experiment involving a virus with serious pandemic potential is performed in a well-regulated, world-class laboratory by experienced investigators, but the information from the experiment is then used by another scientist who does not have the same training and facilities and is not subject to the same regulations. In an unlikely but conceivable turn of events, what if that scientist becomes infected with the virus, which leads to an outbreak and ultimately triggers a pandemic? Many ask reasonable questions: given the possibility of such a scenario—however remote—should the initial experiments have been***

performed and/or published in the first place, and what were the processes involved in this decision?

Scientists working in this field might say—as indeed I have said—that the benefits of such experiments and the resulting knowledge outweigh the risks. It is more likely that a pandemic would occur in nature, and the need to stay ahead of such a threat is a primary reason for performing an experiment that might appear to be risky. However, we must respect that there are genuine and legitimate concerns about this type of research, both domestically and globally. We cannot expect those who have these concerns to simply take us, the scientific community, at our word that the benefits of this work outweigh the risks, nor can we ignore their calls for greater transparency, their concerns about conflicts of interest, and their efforts to engage in a dialog about whether these experiments should have been performed in the first place. Those of us in the scientific community who believe in the merits of this work have the responsibility to address these concerns thoughtfully and respectfully.

Granted, the time it takes to engage in such a dialog could potentially delay or even immobilize the conduct of certain important experiments and the publication of valuable information that could move the field forward for the good of public health. Within the research community, many have expressed concern that important research progress could come to a halt just because of the fear that someone, somewhere, might attempt to replicate these experiments sloppily. This is a valid concern. However, although influenza virus scientists are the best-informed individuals about influenza virus science, and possibly even about the true level of risk to public health, the influenza virus research community can no longer be the only player in the discussion of whether certain experiments should be done. Public opinion (domestic and global) and the judgments of independent biosafety and biosecurity experts are also critical. If we want to continue this important work, we collectively need to do a better job of articulating the scientific rationale for such experiments well before they are performed and provide discussion about the potential risk to public health, however remote. We must also not rule out the possibility that in the course of these discussions, a broad consensus might be reached that certain experiments actually should not be conducted or reported.

In this regard, as part of an interagency process, the U.S. Government is planning to augment current policy guidance related to life sciences dual-use research of concern (DURC) (4) by developing a framework for strengthening regular institutional review and oversight of certain life sciences research with high-consequence pathogens and toxins in order to identify potential DURC and mitigate risks where appropriate. This policy implementation proposal will go well beyond H5N1 influenza virus to include 15 pathogens and likely will be modified to include additional examples of DURC. It will delineate the procedures for the oversight of DURC and the responsibilities of investigators, research institutions, and the U.S. Government. Ultimately, there will also be a

companion guide to help institutions identify, assess, manage, and responsibly communicate to the public about DURC.

With regard to the specific question of whether certain gain-of-function experiments related to the transmissibility of highly pathogenic H5N1 influenza virus should be conducted at all, which addresses directly the issue of the moratorium, the U.S. Government is planning to host an international workshop before the end of 2012 with important input from the National Science Advisory Board for Biosecurity and with global representation, including those with biosafety and biosecurity expertise, influenza virus and non-influenza virus scientists, and representatives of the domestic and global public. The meeting participants will consider general principles concerning the rationale for and risks and benefits of such experiments and what lines might be drawn in their conduct and/or reporting.

The game has changed for influenza virus scientists and the agencies that support them. As researchers, we must realize that we are critical players in the process of policy and decision making related to DURC, but we are not the only players. Before embarking on certain types of research, we must ask ourselves critical questions about whether there are alternative ways to answer the research questions at hand. When no reasonable alternatives exist, we must take the scientific approach to making the argument for conducting such experiments before they are performed. The voluntary moratorium on the controversial issue of gain-of-function research related to the transmissibility of highly pathogenic H5N1 influenza virus is providing us the time and space we all need to work together and get this right, and it should be continued until we do so (5)."

Chemical weapons also continue to be pursued and used. In the UK, in the "Skripal case", an alleged double agent and his daughter were poisoned by the lethal Novichok military grade chemical weapon. It was located just a couple of miles from the "UK Porton Down Chemical Weapons lab".

Countries have had bioweapon programs for decades. Whole manuals and playbooks have been written by the military around the world on how to apply these weapons, including how it will bring down a society. That was before genetically altered bioweapons were developed. Genetic bioweapons that target certain genomes are feared be the future of bioweapons. Bioweapons that target certain human genomes that make somebody distinctively White, Black or Asian for that matter would be crimes against humanity and should not be allowed to be developed. Think about all the way back to when blankets infected with smallpox was used for biological warfare on native Americans. Or even to when human bodies infected with the plague were hurled over the ramparts of besieged cities during Middle Age warfare.

The risk of research is as old as science itself. Like in the Greek Myth of Icarus, who fell to his death from the sky and perished in the sea, having gone too far close to the sun as the wings of feathers joined by wax designed by his father melted down.

This research is based on a flawed proven logic:

> "Known as "gain-of-function" studies, this type of research is ostensibly about trying to stay one step ahead of nature. By making super-viruses that are more pathogenic and easily transmissible, scientists are able to study the way these viruses may evolve and how genetic changes affect the way a virus interacts with its host. Using this information, the scientists can try to pre-empt the natural emergence of these traits by developing antiviral medications that are capable of staving off a pandemic."

It should be emphasized that current USA biological research programs are for gain of necessary and proper defense knowledge and for peaceful civilian medical and scientific purposes even though Biotechnology, particularly Nano-biotechnology, is making possible a new generation of biological weapons. It is like gas warfare in WW I, there is too much of a chance it will blow back on your own army.

Following the tragic events of September 11, 2001 a lesser appreciated terrorist act occurred over several weeks beginning on September 18, 2001 killing five and infective 17 in the form of envelopes laced with bio-weaponized anthrax.

This anthrax attack led quickly into the 2004 Bioshield Act with a $5 billion budget and mandate to "pre-empt and defend further bioweapon attacks". This new chapter of the revolution in military affairs was to be coordinated from leading bioweapons facility at the Medical Research Institute of Infectious Diseases at Fort Detrick. Since 2002, over $50 billion has been spent on Bioweapons research and defense to date.

The Project for a New American Century manifesto was published in October 2000 includes a section entitled Rebuilding America's Defenses' (RAD). Under the Chairmanship of William Kristol and co-authored by John Bolton, Richard Perle, Dick Cheney, Paul Wolfowitz, Elliot Abrams, and Donald Rumsfeld, RAD stated that to "further the process of transformation, even if it brings revolutionary change, is likely to be a long one-absent some catastrophic and catalyzing event- like a new Pearl Harbor". Going further to describe its Hobbesian agenda, the cabal stated that "the Cold War was a bipolar world; the 21st century world is- for the moment at least- decidedly unipolar with America as the world's sole superpower". The earlier October 2000 RAD document emphasized the importance which the neocon cabal placed on bioweapons (and other next generation war tech) stating:

> "Combat will likely take place in new dimensions: In space, cyber-space and perhaps the world of microbes… advanced forms of biological warfare that can "target" specific genotypes may transform biological warfare from the realm of terror to a politically useful tool".

Lawyer and bioweapons expert Prof. Francis Boyle from the University of Illinois at Urbana-Champaign stated in 2007 that Fort Detrick's mandate includes "acquiring, growing, modifying, storing, packing, and dispersing classical, emerging and genetically engineered pathogens for offensive weapon programs." These new post-9/11 practices fully trashed the 1975 UN Convention Against Biological Weapons ratified by the USA by establishing a vast international network of bioweapons labs coordinated from Fort Detrick which would be assigned the role of doing much of the dirty work that the U.S. was "officially" prevented from doing on its own soil.

Several articles from 2012 to 2017 were published in scientific journals that detail the deliberate mixing of SARS, bat coronavirus, gene-editing plasmid containing ACE2 genes from both bats and humans, into HeLa immortal cancer cells that were first infected with HIV. With a reported "abnormal coagulation function". A suspicion is created that the Covid-2019 strain may have a hemorrhagic splice in it such as Marburg, Yellow Fever, rift valley fever, or Ebola. According to Wikipedia: "HeLa is an immortal cell line used in scientific research. It is the oldest and most commonly used human cell line. The line was derived from cervical cancer cells taken on February 8, 1951 from Henrietta Lacks, a patient who died of cancer on October 4, 1951." A biolaboratory in Beijing had 2 escapes of SARS virus. Both started brush-fire outbreaks but effective quarantines stamped them out. Ebola and MERS, as well as an earlier coronavirus, got away from that lab too. This may have reoccurred from the laboratory in Wuhan in 2019.

The USA outlawed bioweapons and destroyed their stocks in 1972. Russia has not outlawed bioweapons. Russia signed an agreement with the USA and UK promising to end bio-weapons programs and convert BW facilities to benevolent purposes, but compliance with the agreement and the fate of the former Soviet Union bio-agents and facilities is still undocumented. China has not outlawed bioweapons, and its program is still active.

Article 8 of The Rome Statute of The International Criminal Court (ICC) defines biological experiments as war crimes. The USA, however, is not a state party to the international treaty. A USA policy think tank as early as 2000 in a publication titled: "Rebuilding America's Defense" states:

> "Although it may take several decades for the process of transformation to unfold, in time, the art of warfare on air, land, and sea will be vastly different than it is today, and "combat" likely will take place in new dimensions: in space, "cyber-space," and perhaps the world of microbes.
>
> Advanced forms of biological warfare that can "target" specific genotypes may transform biological warfare from the realm of terror to a politically useful tool."

In early April of 1979, a mysterious plague wafted through the Soviet city of Sverdlovsk, now known as Ekaterinburg. At least 66 people and an unknown number of animals were struck with a vague illness and then swiftly died. Soviet officials blamed tainted meat sold on the black market. But a 1992 investigation by a Harvard researcher finally aired the real killer: a plume of anthrax spores accidentally released from a clandestine bioweapons plant in town, known as Compound 19. It was one of the largest inhalation anthrax outbreaks in history—and one of the few traces of the Soviet's secret dabbling in bioweapons research—all thanks to botched air filter maintenance. The slow-moving death cloud that seeped from the compromised ventilation system left a trail of carnage 30 miles downwind of Compound 19. If the breeze had blown directly toward the center of town, which sits about 230 miles north of Russia's border with Kazakhstan, thousands could have been killed.

Anthrax infections, caused by the bacteria Bacillus anthracis, have long been tempting candidates for biowarfare and bioterrorism. Usually, infections are extremely rare and are typically spread from infected animals through undercooked meat, hides, or wool.

But the bacteria have the useful ability to form nefarious spores. These nearly indestructible pods can lie dormant in soil—or perhaps warheads—for decades. But once inhaled, ingested, or introduced to an open wound, the spores come alive, producing deadly toxins and infection. Antibiotics can squash an anthrax infection. There's a vaccine as well. In fact, it was the Soviet's tinkering with a vaccine strain of B. anthracis that provided the first hints of biowarfare research. In the 1960s, researchers purposefully made a vaccine strain resistant to multiple antibiotics. The stated goal was to make a vaccine that could survive the antibiotics used to treat an active anthrax infection, which would not be resistant to drugs. But the researchers went further. They genetically tweaked the drug-resistant bacteria to evade the immune responses trained by a vaccine. The explanation was that researchers wanted to study how B. anthracis alters the immune system. However, the final product was infectious bacteria that could evade immune responses as well as multiple drugs.

> "And B. anthracis wasn't the only germ the Soviets were rumored to have tweaked like this. In their extensively researched 2012 book The Soviet Biological Weapons Program: A History, scientists and security experts Milton Leitenberg and Raymond Zilinskas uncovered reports of plague bacteria (Yersinia pestis) that could go undetected by standard diagnostic tests. The Soviets also genetically engineered the bacteria Francisella tularensis, which causes tularemia, to be resistant to multiple drugs. And it's likely they weaponized Legionella bacteria, which causes Legionnaire's disease, to evade immune responses while pumping out deadly toxins. The result was a killer germ that produced little in the way of symptoms—the biological equivalent of a gun with a silencer."

In a report to the USA Congress, the Department of Defense (DOD) revealed that its program of creating artificial biological agents included modifying non-fatal viruses to make them lethal, and genetic engineering to alter the immunology of biological agents to make treatment and vaccinations impossible. It admitted that at the time it operated about 130 bio-weapons research facilities, dozens at USA universities and others at many international sites outside the purview of the USA Congress and the jurisdiction of the courts.

In a 1948 report by the Pentagon's Committee on Biological Warfare, the main selling point was that:

> "A gun or a bomb leaves no doubt that a deliberate attack has occurred. But if an epidemic slashes across a crowded city, there is no way of knowing whether anyone attacked, much less who", adding hopefully that "A significant portion of the human population within selected target areas may be killed or incapacitated" with only very small amounts of a pathogen.

A USA Army operating manual from 1956 stated explicitly that biological and chemical warfare were an integral operating portion of USA military strategy, were not restricted in any way, and that Congress had given the military "First Strike" authority on their use. In 1959, an attempt by Congress to remove this first-strike authority was defeated

by the White House and bio-chemical weapons expenditures increased from $75 million to almost $350 million.

Defense Secretary Robert McNamara executed 150 top-secret bio-weapons programs in the 1960s, performing bio-weapons experiments and field tests on an unwitting public, sometimes in foreign countries but most often against American citizens. McNamara ordered the Joint Chiefs of Staff: "to consider all possible applications" of these agents against enemy nations in a coherent plan for a total "biological and chemical deterrent capability", the plan to include cost estimates and an "appraisal of international political consequences".

In the year 2000, the neocons' "Project for the New American Century" produced a report titled, "Rebuilding America's Defenses", which contained a radical policy ambition for America. Their report called itself a "blueprint for maintaining global USA preeminence and shaping the international security order in line with American principles and interests." The report stated:

> "Advanced forms of biological warfare that can 'target' specific genotypes may transform biological warfare to a politically useful tool."

The USA Army's Medical Research Institute of Infectious Diseases at Fort Detrick, Maryland is the military's main facility for research on biological warfare. It comprises 80,000 m². By the mid-1980s, this bio-weapons section of Fort Detrick was receiving nearly $100 million per year, and this was only one of many sections.

When Japan invaded China, one of Dr. Ishii's unit 731 grand successes was to develop methods of mass-producing fleas and ticks infected with the plague and other lethal pathogens for distribution among civilian populations. The USA effort to breed and disseminate ticks infested with Lyme Disease, named after Lyme, Connecticut where it originated, may have escaped from the secret Plum Island Germ Laboratory in New York State.

This was also the source of the USA programs of breeding and disseminating mosquitoes and fleas infected with cholera and Yellow Fever in China and North Korea. Based on Ishii's human research, the USA military developed an entomological warfare facility, and initially prepared plans to attack Russia and the Soviet States with entomological bio-weapons. The facility was designed to produce 100 million yellow fever-infected mosquitoes per month, its output allegedly tested on unwitting American civilians by dropping infected mosquitoes and other insects over large portions of the USA. These projects beginning in the 1950s and 1960s were given juvenile names like "Project Big Buzz" and "Project Big Itch" and "Operation Mayday", but were tests of the feasibility of producing billions of insects, infecting them with lethal pathogens, then loading them into munitions and dispersing them over Russia from aircraft or missiles.

In an Army report from March of 1981, one writer noted that "you can marvel at how much or how little it would have cost to launch a yellow fever-infected mosquito attack on a city with a handy "Cost per Death" chart included!." The Dugway Sheep unexplained deaths incident is worth mentioning.

"Operation Drop Kick" was designed to test various ways of dispersing infected insects over large geographical areas, the tests carried out over various parts of the continental USA, including most of the East Coast. There was "Project SHAD (Shipboard

Hazard and Defense). Then, as late as 2000, there was "Project Bacchus" designed to determine the feasibility of constructing an anthrax production facility in a foreign country while remaining undetected.

In addition to Fort Detrick, the USA military has a bio-weapons ordnance plant at Vigo, Indiana, which was a massive production facility that specialized in biological pathogens, and capable of producing 275,000 bombs containing Botulinum or one million anthrax bombs per month. The fermenter tanks at Vigo contained 250,000 gallons, or about one million liters, making it the largest bacterial mass-production facility in the world. Vigo was fully operational during the Second World War, essentially a bio-anthrax factory, one of its first orders being from Winston Churchill in 1944 for 500,000 anthrax bombs, and which Churchill stated should be considered only the "first installment". Vigo was eventually turned over to the Pfizer pharmaceutical Company for "antibiotics manufacture" and was replaced in the mid-1950s by a new state of the art facility at the Pine Bluff Arsenal.

There were other sites and facilities besides Fort Detrick that were constructed by the USA military solely for the development of bio-weapons, including the Horn Island Testing Station in Mississippi which was meant to be the primary bio-weapons testing site, and the Plum Island Germ Laboratory in New York State from which the military may have unintentionally spread Lyme Disease among half the area population. One portion of the Plum Island facility was designed exclusively to develop and test lethal animal pathogens that could destroy an enemy nation's food supply as the USA attempted to do in North Korea. Deadly strains of foot-and-mouth found their way to Porton Down in the UK. An additional portion was the development, testing and production of bombs containing what was called a "vegetable killer acid", and which could destroy cereals, grains, and most cultivated vegetable crops.

The textbook titled, Medical Aspects of Biological Warfare (2007), published by the USA military's Surgeon-General, admits to the establishment of "a large-scale production facility in Pine Bluff, Arkansas", with the new plant featuring "advanced laboratory measures enabling large-scale fermentation, concentration, storage, and weaponization of microorganisms". It does also admit that by 1951, the USA had produced its first biological weapons, anti-crop bombs, and "antipersonnel" munitions, having "weaponized and stockpiled" all these. It adds that the CIA had independently "developed weapons using toxins including cobra venom and saxitoxin for covert operations", but that unfortunately "all records regarding their development and deployment were destroyed in 1972" when the information became public.

The USA military has tried to weaponize venereal diseases, leading to travesties like the Guatemala Syphilis project. Several occasions where devastating crop and plant disease agents had been released, in experiments to test methods of destroying the entire food plant life of an enemy nation. In 2012, Japanese media revealed that the USA government had tested specific, DNA-engineered crop-killing bioweapons in Okinawa and Taiwan during the 1960s and early 1970s, and that the USA military tested some of these within the continental USA as well. They were also applied in Vietnam. The purpose of Agent Orange was never as a defoliant as claimed but developed instead to destroy Vietnam's entire rice crops and to sufficiently contaminate the soil to prevent re-growth.

It is apparent that the launching of bio-warfare, as with conventional warfare, is considerably eased by locating military bases, offensive weapons and delivery systems as

physically close as possible to one's potential enemies. This may be one reason the USA has established its nearly 1,000 foreign military bases to ensure the capability of putting an enemy under attack within 30 minutes anywhere in the world. Clearly, the same strategy applies to biological warfare, the USA military having created scores of these laboratories defined as "health-security infrastructure" in foreign countries. The Ebola outbreaks occurred near several of these well-known bio-weapons labs in Africa.

Great fears arose when American scientists recreated the Spanish flu virus that killed around 50 million people in 1918. They spent nine years on this effort before succeeding, and now large quantities of this virus are stored in a high-security government laboratory in Atlanta, Georgia. Scientists have created a mutated super-strain of the deadly H5N1 bird flu virus that is directly transmissible among humans and would have at least a 50 percent kill rate, spawning fears in 2005 of a global pandemic that might kill hundreds of millions.

In late 2013, more than 50 of the world's most eminent scientists severely criticized the research of Ron Fouchier and colleagues at the Erasmus Medical Centre in Rotterdam, who have been developing mutant varieties of the H5N1 bird-flu virus that are far more dangerous to humans. The scientists wrote that the research was designed to make the virus fully transmissible between humans, and clearly had a dual civil-military function. This engineered flu could kill half the world's population, and not by accident. The USA military funded this research with more than $400 million.

During and after the Korean War, China produced evidence that the USA military was employing biological pathogens against both the Chinese and the North Koreans. The soldiers who told these stories were treated with a drug called Metrazol. Metrazol or Pentylenetetrazol was invented in 1934. By the 1940s, the use of Metrazol was discontinued as it was known that electro-shock treatment worked better as a depression therapy. Metrol was used in Italian cough medicine until the 1980s.

On September 10, 2012, the Los Angeles Times ran an article discussing the topic of doctors "still trying to diagnose mysteries of the Hantavirus" more than 20 years after this deadly pathogen was first identified in the USA in 1993. In this case, the virus appeared to attack only native Indians. The infections concentrated in a four-state area who developed sudden respiratory problems and were often dead within hours. Most victims reported "not feeling well" one day, and were dead the next, from what appeared as a very mysterious pathogen with an undeterminable source. But then, "a lucky clue" arose from a television viewer, a physician who stated this illness seemed very similar to that caused by a virus he had observed the USA military using in Korea in the 1950s. The virus attracted attention because some American troops were accidentally exposed to it in Korea, most of whom died very suddenly. Two facts that were eliminated from the public reports of the time: (1) the virus attacked North Koreans and Chinese in greater numbers, and (2) this Hantavirus was one item in the treasure trove of biological weapons the Americans inherited from Dr. Ishii and his Unit 731.

One of the alleged biological warfare programs conducted by the USA is the decades-long offensive attack on Cuba. The USA military and CIA conducted so many of these biological assaults that there is a museum in Havana that provides evidence of the many years of biological warfare. Jeffrey St. Clair noted in an article a few of these events, as follows:

> "In 1971 the first documented cases of swine fever in the western hemisphere showed up in Cuba, resulting in the deaths of more than 500,000 hogs. Cuba accused the USA of importing that virus into the country, and a CIA agent later admitted that he delivered the virus to Cuban exiles in Panama, who carried the virus into Cuba. The news was public, but the USA media ignored it. In 1981, Fidel Castro blamed an outbreak of dengue fever in Cuba on the CIA. The fever killed 188 people, including 88 children. In 1988, a Cuban exile leader named Eduardo Arocena admitted bringing some germs into Cuba in 1980. Another occasion involved an outbreak of thrips palmi, an insect that kills potato crops, palm trees and other vegetation. Thrips first showed up in Cuba on December 12, 1996, following low-level flights over the island by US government spray planes. The US was able to quash a United Nations investigation of the incident."

In 1979, the Washington Post published reports on a long-standing American bio-warfare program against Cuban agriculture that had existed at least since 1962, by the CIA's biological warfare section. And in 1980, the USA believed it had discovered a biological agent that would target ethnic Russians, and sent a ship from Florida to Cuba on a mission to "carry some germs to Cuba to be used against the Soviets". And as recently as 1996 and 1997, the Cuban government was again accusing the USA of engaging in biological warfare by spraying Cuban crops with biological pathogens during illegal "reconnaissance flights". It was also definitively reported that during the Cuban missile crisis, large numbers of chemical and biological weapons were loaded on American military aircraft in preparation for use on Cuba.

Bio-warfare efforts have been launched on at least several other nations in Central and South America, involving a number of viral pathogens, cancers and chemicals. In his article, St. Clair referred to an epidemic of dengue fever that erupted in Managua, Nicaragua, where about 50,000 people became seriously ill and many died. The attack occurred during the CIA's war against the Sandinista government, where the outbreak immediately followed a series of low-level "reconnaissance flights" conducted by the Americans over Managua.

When Japanese troops invaded North-East China in 1932, Dr. Shiro Ishii began his notorious biological warfare experimentation program in a sector near Harbin disguised as a water-purification unit, then known as Unit 731. He began with various poisonous gases including mustard gas, then used aircraft to distribute cotton and rice husks contaminated with the bubonic plague, in various parts of Central China. His unit collected Chinese resisting the Japanese occupation, using them for unlimited medical atrocities including live vivisection. The New York Times reported one instance of a Japanese physician describing his experience:

> "I cut him open from the chest to the stomach and he screamed terribly and his face was all twisted in agony. He made this unimaginable sound, he was screaming so horribly. But then finally he stopped. This was all in a day's work for the surgeons, but it really left an impression on me because it was my first time."

Ishii would first have his teams infect the victims with anthrax, cholera, typhoid, tetanus, dysentery, syphilis, the bubonic plague and other pathogens, then dissect them while still alive to examine the results, followed by cremation of the evidence. The USA military's Surgeon-General's Department estimated that 580,000 Chinese were killed in this manner, with atrocities committed by some of Japan's most distinguished physicians.

At the end of the war when it became clear Japan was losing and would have to evacuate China, Ishii ordered all the remaining Chinese in custody to be killed and their bodies burned, then destroyed with explosives the entire Unit 731 compound to hide all traces of his experiments. General Douglas MacArthur, then Commander of the Allied Powers in Japan, made a secret deal with Ishii and the entire staff of Unit 731 to transfer to the US military all records of the biowarfare and vivisections for USA military study, in exchange for a complete cover-up of all evidence of the existence of these activities, and a promise of immunity from war-crimes prosecution. Ishii turned over to the US military on one occasion alone more than 10,000 pages of his "research findings", after which the Americans re-wrote Japan's history books.

On 6 May 1947, MacArthur wrote to Washington that "additional data, possibly some statements from Ishii probably can be obtained by informing Japanese involved that information will be retained in intelligence channels and will not be employed as 'War Crimes' evidence." Some Japanese were arrested by Soviet forces for their biological crimes against Russians, and tried at the Khabarovsk War Crime Trials in 1949 but, to cover their own tracks, the Americans dismissed all surviving victim testimony and Russia's war-crimes trials of Japanese as "communist propaganda". Ishii was for years a frequent guest lecturer at the USA military's bio-warfare school at Fort Detrick, and given a lucrative post as full professor and supervisor of biological research at the University of Maryland until he died decades later.

"The attraction is that bio-weapons are not only very efficient mass killers but are quite cost-effective compared to shooting wars. As well, genetic weapons can be dispersed in a multitude of ways, using virus-infected insects or bacteria, or spliced into GM seeds. These weapons are difficult to detect and identify, and often a treatment or vaccine could be years in the making."

Dr. Leonard Horowitz, a pharmaceutical industry whistleblower, quoted one expert as saying he would plan a bio-attack:

> "With subtle finesse, to make it look like a natural outbreak. That would delay the response and lock up the decision-making process. Even if you suspect biological terrorism, it's hard to prove. It's equally hard to disprove . . . You can trace an arms shipment, but it's almost impossible to trace the origins of a virus that comes from a bug."

An author noted that a properly executed release of an infectious agent would make diagnosis and treatment difficult, adding that this kind of bio-warfare cannot be traced to its source and might be considered an "act of God". Many recent disease outbreaks would seem to properly qualify as potential bio-warfare agents: AIDS, SARS, MERS, Bird Flu, Swine Flu, Hantavirus, Lyme Disease, West Nile Virus, Ebola, Polio in Syria, Foot and Mouth Disease, the Gulf War Syndrome and ZIKA.

Accusations were made that some Chinese scientists are allegedly working on a virus designed to kill anyone not ethnically Han Chinese. Other countries, that we know of, to produce a bioweapon that specifically targets a specific ethnic group were Israel and apartheid South Africa. It is rumored to have designed an "Arabs-only" bioweapon by the mid-1990s as reported by the London Times:

> "Israel is reportedly developing a biological weapon that would harm Arabs while leaving Jews unaffected, according to a report in London's Sunday Times. The report, citing Israeli military and western intelligence sources, says that scientists are trying to identify distinctive genes carried by Arabs to create a genetically modified bacterium or virus.
>
> The "ethno-bomb" is reportedly Israel's response to the threat that Iraq may be just weeks away from completing its own biological weapons.
>
> The "ethno-bomb" program is based at Israel's Nes Tziyona research facility. Scientists are trying to use viruses and bacteria to alter DNA inside living cells and attack only those cells bearing Arabic genes.
>
> The task is very complex because both Arabs and Jews are Semitic peoples. But according to the report, the Israelis have succeeded in isolating particular characteristics of certain Arabs, "particularly the Iraqi people."
>
> Dedi Zucker, a member of the Israeli parliament, denounced the research in the Sunday Times. "Morally, based on our history, and our tradition and our experience, such a weapon is monstrous and should be denied." "

From 1985 to 1994, Israel secretly financed the research of Dr. Wouter Basson's laboratory in Roodeplaat, South Africa. Its ally, the apartheid regime, sought to develop substances, both chemical and especially biological, that would kill individuals according to their "racial characteristics".
https://www.voltairenet.org/article180314.html

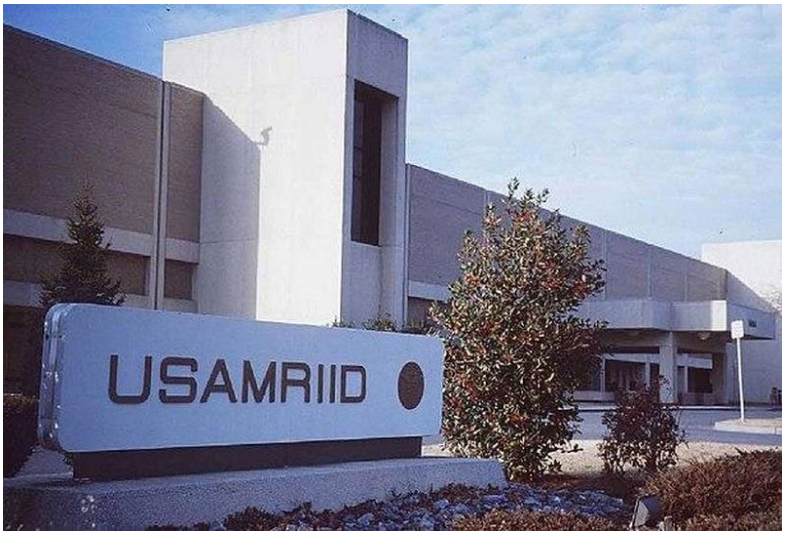
Bioweapons research was allegedly conducted at the Los Alamos National Laboratory (LANL) in the 1950's around 1958-1959 on testing animals as part of the cold war. Rumor is that a Q Fever or a Corona virus escaped as a result of the Cerro Grande fire and wiped out an entire village in New Mexico from the map. Thirty-nine people allegedly died under mysterious circumstances regarding the bioweapons program, including the lead scientist. The declassified Tunnel Vault, an underground facility 300 feet underground was built 230 feet deep into a cliff is described as:

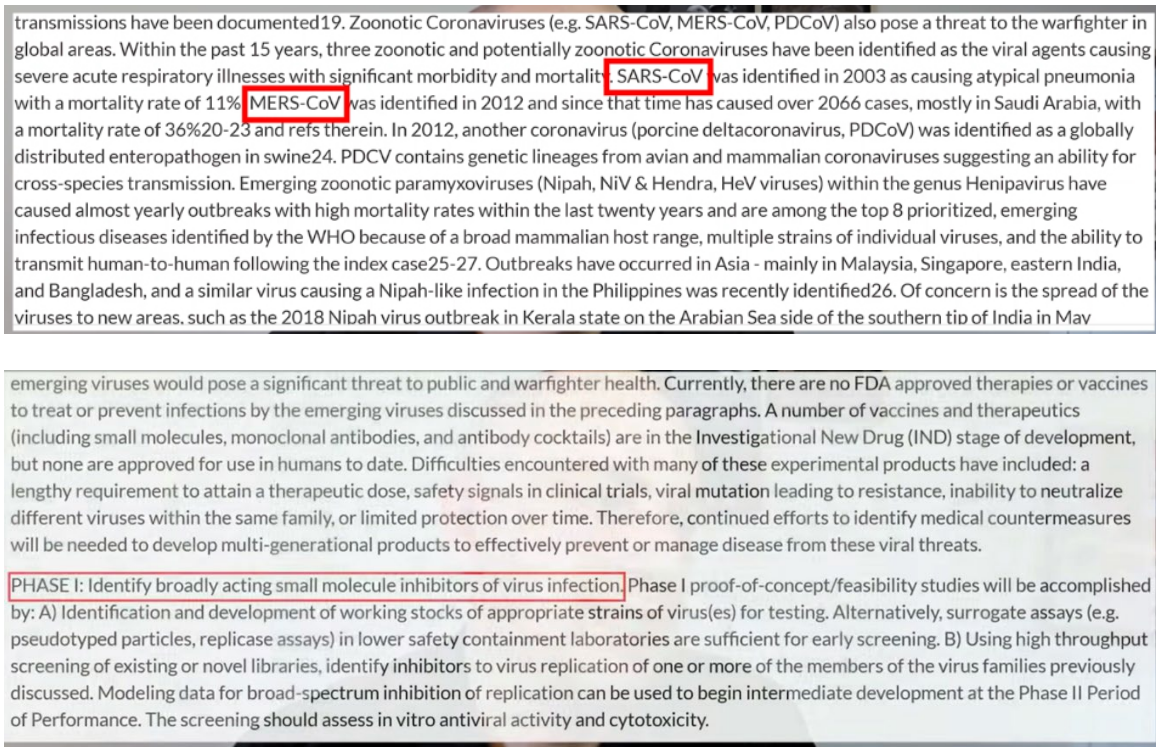
> "Down in a remote canyon near Los Alamos National Laboratory lies a facility known as the "Tunnel Vault," once one of the most secret and secure locations in the United States, it's the original post-WWII nuclear stockpile storage area. Located in Los Alamos canyon at Technical Area 41, the Tunnel Vault was built between 1948 and 1949. The facility has a formidable security perimeter, a hardened guard tower — complete with gun ports and bulletproof glass — and a series of gates and doors that lead to a 230-foot long concrete tunnel that goes straight into the canyon wall.

At the end of the tunnel is a large alcove room with a single bank vault door. Through that door is a vault built inside a vault with five storage areas, all protected with identical bank vault doors. Over the years the Tunnel Vault was also used as a nuclear materials and nuclear fuel storage area, a weapons research and development laboratory, weapons components storage, and nuclear material assembly for tests both in the Pacific and in Nevada. About halfway down the tunnel is a side room that was used for early development of unclassified research that led to the discovery of the solar neutrino — work that later won a Nobel Prize in physics — a lab space ideal for the work (Reines and Cole) because it's buried 300-feet deep underground."

Figure 102. USA biolaboratories worldwide. The USA outsourced its laboratories to third party countries bypassing the 1972 Biological Warfare, BW Convention. It allegedly collected the DNA of foreign ethnic groups such as Russia, Ukraine and China, presumably as part of an attempt to test the differential effects of biological agents on these populations.

Figure 103. President Barack Obama administration suppression of funding joint American and Chinese Gain of Function GOF research. The National Institute of Health, NIH banned this "gain-of-function" research from 2014 until 2017, when it was lifted. The reasoning behind lifting the ban was: "To allow for research on flu viruses, as well as SARS and MERS – coronaviruses." Funding poured into research on these viruses, with "oversight" meant to reduce "the potential to create, transfer, or use an enhanced potential pandemic pathogen." The NIH, which funded the research, tried to make sure that it would only be published after enough details were taken out to make replication of the experiment tough to perform.





transmissions have been documented19. Zoonotic Coronaviruses (e.g. SARS-CoV, MERS-CoV, PDCoV) also pose a threat to the warfighter in global areas. Within the past 15 years, three zoonotic and potentially zoonotic Coronaviruses have been identified as the viral agents causing severe acute respiratory illnesses with significant morbidity and mortality. SARS-CoV was identified in 2003 as causing atypical pneumonia with a mortality rate of 11%. MERS-CoV was identified in 2012 and since that time has caused over 2066 cases, mostly in Saudi Arabia, with a mortality rate of 36%20-23 and refs therein. In 2012, another coronavirus (porcine deltacoronavirus, PDCoV) was identified as a globally distributed enteropathogen in swine24. PDCV contains genetic lineages from avian and mammalian coronaviruses suggesting an ability for cross-species transmission. Emerging zoonotic paramyxoviruses (Nipah, NiV & Hendra, HeV viruses) within the genus Henipavirus have caused almost yearly outbreaks with high mortality rates within the last twenty years and are among the top 8 prioritized, emerging infectious diseases identified by the WHO because of a broad mammalian host range, multiple strains of individual viruses, and the ability to transmit human-to-human following the index case25-27. Outbreaks have occurred in Asia - mainly in Malaysia, Singapore, eastern India, and Bangladesh, and a similar virus causing a Nipah-like infection in the Philippines was recently identified26. Of concern is the spread of the viruses to new areas, such as the 2018 Nipah virus outbreak in Kerala state on the Arabian Sea side of the southern tip of India in May

emerging viruses would pose a significant threat to public and warfighter health. Currently, there are no FDA approved therapies or vaccines to treat or prevent infections by the emerging viruses discussed in the preceding paragraphs. A number of vaccines and therapeutics (including small molecules, monoclonal antibodies, and antibody cocktails) are in the Investigational New Drug (IND) stage of development, but none are approved for use in humans to date. Difficulties encountered with many of these experimental products have included: a lengthy requirement to attain a therapeutic dose, safety signals in clinical trials, viral mutation leading to resistance, inability to neutralize different viruses within the same family, or limited protection over time. Therefore, continued efforts to identify medical countermeasures will be needed to develop multi-generational products to effectively prevent or manage disease from these viral threats.

PHASE I: Identify broadly acting small molecule inhibitors of virus infection. Phase I proof-of-concept/feasibility studies will be accomplished by: A) Identification and development of working stocks of appropriate strains of virus(es) for testing. Alternatively, surrogate assays (e.g. pseudotyped particles, replicase assays) in lower safety containment laboratories are sufficient for early screening. B) Using high throughput screening of existing or novel libraries, identify inhibitors to virus replication of one or more of the members of the virus families previously discussed. Modeling data for broad-spectrum inhibition of replication can be used to begin intermediate development at the Phase II Period of Performance. The screening should assess in vitro antiviral activity and cytotoxicity.

Figure 104. USA Medical Research Institute of Infectious Disease, USAMRIID, Fort Detrick, Maryland. It comprises 80,000 m² area of space. In the mid-1980s, the bio-weapons section of Fort Detrick received nearly $100 million per year in funding to USAMRIID to study gain-of-function pathogens in order to find counter measures to them.

Bioweapons programs exist at Ft. Dietrick, Maryland, and at the Dugway Proving Grounds in Utah. They have been manufacturing and stockpiling Antharax, Botulism, Dengue Fever, Q-Fever, Bubonic plague, Tuleremia, Brucellosis, Venezuelan equine encephalitis, Swine Fever virus, Smallpox, and Staphyococcal Enterotoxin B, for some time, not to mention a number of other agents designed to kill crops and livestock. After the 9/11 attack, anthrax laced envelopes started to show up in the mail. They were traced back to Ft. Dietrick to Bruce Ivins who worked there. John Meachem also was privy to some information about the anthrax attacks he never explained.

"Project Clear Vision", was conducted between 1997 and 2000, during the Clinton Administration. The project's stated goal was to assess the efficacy of bio-agent dissemination from bomblets. The program received criticism due to suspicions that its findings could possibly be used in a covert USA bioweapons program.

There are 50 BSL-4 labs in the world. These labs are specifically designed to develop bioweapons and defenses against them. Of the 50 BSL-4 labs globally, 15 are located within the continental USA, another 15 are direct partnerships between the USA and Western countries, and another 10 receive significant financing from the USA including the Wuhan lab in China. The odds are wildly stacked in favor of Covid-19 being at a minimum, partially developed by USA labs and at a maximum, completely developed

by USA labs. The author of the legislation for the development of the USA bio-weapons development act which was passed unanimously by Congress in 1984 states that the evidence clearly shows the origin of the virus being originally developed at a BSL-3 lab in North Carolina before further development at various BSL-4 labs in the USA and co-sponsored European countries. The Wuhan scientists were working directly with the joint USA/Canadian scientists in the Winnipeg BSL-4 lab; working on corona viruses and allowed to travel freely back and forth from there to China.

China did not have a BSL (P-4) lab in the country until 2015. They now have two modern state of-the-art labs, even exceeding some of the P-4 labs in the USA. Eleven years earlier in 2003-2004 was when they had the original SARS outbreak. It was evident to everyone back then that they needed a better lab locally to study the transmission of these corona viruses, particularly SARS. The previous lab that the Chinese had set up was only rated as a BSL (P-3 lab), and that is what French Intelligence was previously talking about as having inadequate security. P-3 labs naturally have a lower security rating than the P-4 labs. That lab was built shortly after the Wuhan Institute of Virology was established in 1956. Neither that previous lab nor the current lab was ever designed to engineer Bioweapons, simply because of its proximity to a heavily populated center.

At Ft. Detrick not only do you need to worry about security; unauthorized people getting in, and viruses getting out, but you must be rather secretive too, and you can not do that unless you are out of sight and away from a population center. It is why Ft. Detrick maintains its labs out at the Dugway Proving Grounds out in Utah, isolated away from a population center, with plenty of military security around it.

The British biological warfare lab did too, with the use of Gruinard Island, and lucky for them, they were able to keep their experiments on sheep of antharax contained on that island from spreading and contaminating the rest of the British isles.

The Soviets practiced this remoteness too and had a bio-weapons lab at Sverdlovsk before they had their antharax-836 accident in 1979 that killed 100 people. It is a probable thing the Chinese would have been aware of the need for being isolated too. Neither the French or British intelligence made any claim to the Wuhan lab as being a bio-weapons lab.

Heather Mongilio on November 24, 2019 wrote in The Frederick News-Post, Maryland:

> "The Army's premier biological laboratory on Fort Detrick reported two breaches of containment earlier this year, leading to the Centers for Disease and Control halting its high-level research.
>
> The two breaches reported by USAMRIID to the CDC demonstrated a failure of the Army laboratory to "implement and maintain containment procedures sufficient to contain select agents or toxins" that were made by operations in biosafety level 3 and 4 laboratories, according to the report. Biosafety level 3 and 4 are the highest levels of containment, requiring special protective equipment, air flow and standard operating procedures.
>
> Due to redactions to protect against notification of the release of an agent under the Federal Select Agent Program, it is unclear the result of the two breaches."

According to the New York Times, a rumor circulated that some programs at Fort Detrick were closed in August 2019 after an inspection by the CDC sent a cease and desist letter to the lab suggesting that the facility was not following proper containment protocols, temporarily shutting down some operations on the 18th of July 2019:

> "Problems with disposal of dangerous materials led the government to suspend research at the military's leading biodefense center. The suspended research involves certain toxins, along with germs called select agents, which the government has determined have "the potential to pose a severe threat to public, animal or plant health or to animal or plant products." There are 67 select agents and toxins; examples include the organisms that cause Ebola, smallpox, anthrax and plague, and the poison ricin."

No leaks were reported. Several clusters of pneumonia infection in Northern Virginia, Maryland, Wisconsin, Illinois and by Washington D. C., being identified out as Vaping Illness by the CDC.

Dr. Reiner Fuellmich's info about the origins of covid has probably been the inspiration for the Chinese claims. the mysterious shutdown of Ft. Detrick in July of 2019 has never been fully explained and there have been spotty reports of a covid like illness as early as September of 2019 in the USA. Some claimed the mysterious vaping ailment which occurred during the summer of 2019 might have been covid.

On July 11, 2019, ABC News reported that two people have died and 18 others have been hospitalized after a "respiratory outbreak" at a Springfield, Virginia retirement community. The Fairfax County Department of Health said that 54 individuals had become ill with "respiratory symptoms ranging from upper respiratory symptoms (cough) to pneumonia" in the last 11 days at Greenspring Retirement Community in Springfield, Virginia. symptoms as "fever, cough, body aches, wheezing, hoarseness and general weakness." The outbreak had been reported in the assisted-living and skilled-nursing sections. The outbreak began with the first case on June 30, 2019. The assisted living and skilled nursing facility is home to 263 residents. The two patients who died in the outbreak had been hospitalized with pneumonia but were "older individuals with complex medical problems."

Information for Physicians and Hospitals

The clinical presentation of VAPI can initially mimic common pulmonary diagnoses like pneumonia, but patients typically do not respond to antibiotic therapy. High clinical suspicion is necessary to make the diagnosis of VAPI. In some cases, patients sought care at outpatient clinics in the days prior to hospital presentation and received antibiotics for presumed pneumonia or bronchitis, which did not improve their symptoms.

Figure 105. Vaping Illness, VAPI associated with E-cigarettes occurrences coincided with a possible leak in June 2019 that led to the closure of some operations at Fort Detrick on July 18, 2019. No cases reported outside of the USA, yet the E-Cigarettes are also used around the world.


Wuhan Institute of Virology,CAS
中国科学院武汉病毒研究所
Lab of Diagnostic Microbiology
诊断微生物学学科组
首页
研究方向
科研团队
科研成果
技术合作
合作研究机构
组内交流
English
领域监测
信息服务
技术支持 中国科学院武汉文献情报中心信息系统部（zsfw.whlib.ac.cn） build20150920


Huanan Seafood market
20 miles
Wuhan Institute of Virology

Xiaobo Tao, a scholar from South China University of Technology, recently published a report that researchers at Wuhan Virus Laboratory were splashed with bat blood and urine, and then quarantined for 14 days. The report also questioned that the South China seafood market in Wuhan was the source of the virus. Huang Yanling, a female researcher at Wuhan Virus Laboratory, was also called the "patient No. 0", that is, the first patient with coronavirus pneumonia to start spreading the virus.

Figure 106. Wuhan National Biosecurity Laboratory, South China. The facility, known as the Wuhan National Biosafety Laboratory, is part of the Chinese Academy of Sciences (CAS) and was specifically designed to help Chinese scientists "prepare for and respond to future infectious disease outbreaks." A distance of 20 miles separates the Wuhan Institute of Virology from a possible point emission source from the Huanan Seafood Market. Another version suggests 280 meters distance between the laboratory and the "wet market." One of the early individual patients is possibly to have been Huang Yan Ling, a graduate student at the Wuhan Lab according to Xiaobo Tao, a scholar from the South China University of Technology.

Figure 107. Allegation of the dual purpose GOF research at the Wuhan Institute of Virology.

Figure 108. Military Chinese doctrine of "Transfinite War and Anti-Transfinite War," involving cyber, guerilla, infrastructure as well as biological total warfare.

Radio France Internationale reported on February 17, 2020 that "Xiaobo Tao, a scholar from South China University of Technology, published a report that researchers at Wuhan Virus Laboratory were splashed with bat blood and urine, and then quarantined for 14 days." HK01, another Hong Kong-based news site, reported the same claim. The U.S. Centers for Disease Control and Prevention and the World Health Organization could not confirm if bats were present at the market. Botao Xiao's paper theorizes that the coronavirus originated from bats being used for research at either one of two research laboratories in Wuhan:

> "We screened the area around the seafood market and identified two laboratories conducting research on bat coronavirus. Within ~ 280 meters from the market, there was the Wuhan Center for Disease Control & Prevention. WHCDC hosted animals in laboratories for research purpose, one of which was specialized in pathogens collection and identification. In one of their studies, 155 bats including *Rhinolophus affinis* were captured in Hubei province, and other 450 bats were captured in Zhejiang province. The expert in Collection was noted in the Author Contributions (JHT). Moreover, he was broadcasted for collecting viruses on nation-wide newspapers and websites in 2017 and 2019. He described that he was once by attacked by bats and the blood of a bat shot on his skin. He knew the extreme danger of the infection so he quarantined himself for 14 days. In another accident, he quarantined himself again because bats peed on him.

> Surgery was performed on the caged animals and the tissue samples were collected for DNA and RNA extraction and sequencing. The tissue samples and contaminated trashes were source of pathogens. They were only ~280 meters from the seafood market. The WHCDC was also adjacent to the Union Hospital (Figure 1, bottom) where the first group of doctors were infected during this epidemic. It is plausible that the virus leaked around and some of them contaminated the initial patients in this epidemic, though solid proofs are needed in future study.
>
> The second laboratory was ~12 kilometers from the seafood market and belonged to Wuhan Institute of Virology, Chinese Academy of Sciences . . .
>
> In summary, somebody was entangled with the evolution of 2019-nCoV coronavirus. In addition to origins of natural recombination and intermediate host, the killer coronavirus probably originated from a laboratory in Wuhan. Safety level may need to be reinforced in high risk biohazardous laboratories. Regulations may be taken to relocate these laboratories far away from city center and other densely populated places."

Xiao told the Wall Street Journal that he has withdrawn his paper. "The speculation about the possible origins in the post was based on published papers and media, and was not supported by direct proofs," he said in a brief email on February 26, 2020.

Class	Species	Name
Bacteria	*B. anthracis*	*Bacillus anthracis*
Bacteria	*B. melitensis*	*Brucella melitensis*
Bacteria	*C. burnetii*	*Coxiella burnetii*
Bacteria	*F. tularensis*	*Francisella tularensis*
Bacteria	*R. prowazekii*	*Rickettsia prowazekii*
Bacteria	*Y. pestis*	*Yersinia pestis*
Toxin		Abrin
Toxin		Botulinum toxins
Toxin		Ricin
Toxin		T-2 mycotoxin

Class	Symbol	Name
Virus	EEE	Eastern equine encephalitis
Virus	MoxV	Monkeypox
Virus	VEE	Venezuelan equine encephalitis
ALO	BaS	*Bacillus anthracis* Sterne
ALO	YpK	*Yersinia pestis* KIM
Simulant	BG	*Bacillus atrophaeus*
Simulant	Bt	*Bacillus thuringiensis*
Simulant	EH	*Erwinia herbicola*
Simulant	MS2	Male-specific bacteriophage type 2
Simulant	OV	Ovalbumin

1. Abrin[5]
2. *Bacillus cereus* Biovar *anthracis**
3. Botulinum neurotoxins*,[5]
4. Botulinum neurotoxin producing species of *Clostridium**
5. Conotoxins (Short, paralytic alpha conotoxins containing the following amino acid sequence $X_1CCX_2PACGX_3X_4X_5X_6CX_7$)[1,5]
6. *Coxiella burnetii*
7. Crimean-Congo haemorrhagic fever virus
8. Diacetoxyscirpenol[5]
9. Eastern Equine Encephalitis virus[3,4]
10. Ebola virus*
11. *Francisella tularensis**
12. Lassa fever virus
13. Lujo virus
14. Marburg virus*
15. Monkeypox virus[3]
16. Reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding regions of all eight gene segments (Reconstructed 1918 Influenza virus)
36. *Bacillus anthracis**
37. *Bacillus anthracis* Pasteur strain
38. *Brucella abortus*
39. *Brucella melitensis*
40. *Brucella suis*
41. *Burkholderia mallei**
42. *Burkholderia pseudomallei**
43. Hendra virus
44. Nipah virus
45. Rift Valley fever virus
46. Venezuelan equine encephalitis virus[3,4]

USDA SELECT AGENTS AND TOXINS

47. African horse sickness virus
48. African swine fever virus
49. Avian influenza virus[3]
50. Classical swine fever virus[4]
51. Foot-and-mouth disease virus*,[4]
52. Goat pox virus
53. Lumpy skin disease virus
54. *Mycoplasma capricolum*[3]

Figure 109. An incomplete list of USA biological agents, toxins and simulants.

Figure 110. A 1,500 liters bio-fermenter.

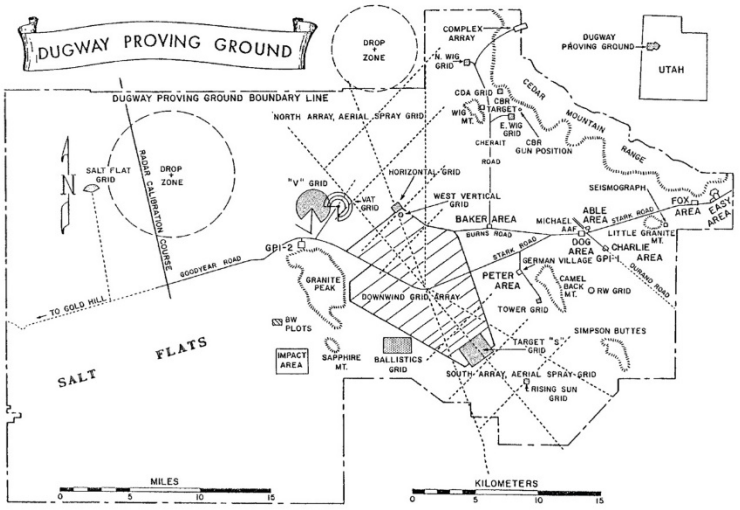


Illustration 2: Dugway Proving Ground Installation Map (Source: Facilities Engineer, Dugway Proving Ground).

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Figure 111. Dugway Proving Ground, Utah laboratory glove box equipment.

Figure 112. Biological and chemical munitions.

Figure 113. Biological agents' aerosols dispersal and dissemination testing.

The following quote of work undergone at the Wuhan Laboratory suggests an escape of an unintentionally created biological weapon through inadvertent chimeric genetic manipulations:

> "To their surprise, the chimeric virus (SHC014-MA15) can use SHC014 spike to bind to human ACE2 receptor and enter human cells. SHC014-MA15 can also cause disease in mice and cause death as well. Existing vaccines to SARS cannot protect animals from SHC014-MA15 infection. Therefore, these chimeric virus studies can lead to the generation of more pathogenic, more deadly CoV strains in mammalian models.
>
> Due to the U.S. government-mandated pause on the gain-of-function (GOF) studies, this international research did not proceed further at that time. However, there is no evidence that Shi's group in China stopped any further study on the track of introducing GOF mutations on the CoV. And it is clear that Shi's group already mastered the reverse-engineering technology that is sufficient to introduce mutation in current SARS-CoV or SARS-Like CoV to create mutant infectious coronavirus."

In 2004, the Guardian in an article titled, "Could you make a genetically targeted weapon, warned:

> "The prospect that rogue scientists could develop bioweapons designed to target certain ethnic groups based on their genetic differences was raised this week in a report by the British Medical Association (BMA).
>
> The report, Biotechnology, Weapons and Humanity II, warns that construction of genetic weapons "is now approaching reality". Such "genetic bombs" could contain anthrax or bubonic plague tailored to

activate only when genes indicated the infected person was from a particular group."

The Apartheid regime in South Africa attempted to produce biological weapons to induce infertility among the nation's black population. Public Broadcasting System, PBS Frontline's article, "What happened in South Africa" reports:

> "In 1998 South Africa's Truth and Reconciliation Commission held hearings investigating activities of the apartheid-era government. Toward the end of the hearings, the Commission looked into the apartheid regime's Chemical and Biological Warfare (CBW) program and allegations that it developed a sterility vaccine to use on black South Africans, employed toxic and chemical poison weapons for political assassination, and in the late 1970s provided anthrax and cholera to Rhodesian troops for use against guerrilla rebels in their war to overthrow Rhodesia's white minority rule.
>
> [The South African Government] developed lethal chemical and biological weapons that targeted ANC [African National Congress political leaders and their supporters as well as populations living in the black townships. These weapons included an infertility toxin to secretly sterilize the black population; skin-absorbing poisons that could be applied to the clothing of targets; and poison concealed in products such as chocolates and cigarettes."

Vaccination programs are pushed globally involve the risk that such weapons could be used against entire regions of the planet.

The USA Air Force in a 2010 assessment titled, "Biotechnology Genetically Engineered Pathogens," would enumerate several ways such weapons could be wielded:

> "The JASON group, composed of academic scientists, served as technical advisers to the U. S. government. Their study generated six broad classes of genetically engineered pathogens that could pose serious threats to society. These include but are not limited to binary biological weapons, designer genes, gene therapy as a weapon, stealth viruses, host-swapping diseases, and designer diseases.
>
> Gene therapy might just be the silver bullet for the treatment of human genetic diseases. This process involves replacing a bad gene with a good gene to normalize the condition of the recipient. Transfer of the "healthy" gene requires a vector to reach its target. Vectors commonly used are "viruses that have been genetically altered to carry normal human DNA" such as "retroviruses, adenoviruses, adeno-associated viruses, and herpes simplex viruses.
>
> Another significant gene therapy outcome was the mousepox virus experiment in Australia. Researchers inadvertently developed a lethal mousepox virus while attempting to prevent the plague, within the mice population. This genetically altered virus attacked the immune systems of the experimental mice; it killed all of them. Researchers also found that

> sixty percent of those mice previously vaccinated died within days of exposure. Although this was unintentionally created, if the same modified virus was added to smallpox, it could present the same lethality for humans.
>
> The basic concept of this potential bioweapon is to "produce a tightly regulated, cryptic viral infection that can enter and spread in human cells using vectors" (similar to the gene therapy) and then stay dormant for a period of time until triggered by an internal or external signal. The signal then could stimulate the virus to cause severe damage to the system. Stealth viruses could also be tailored to secretly infect a targeted population for an extended period using the threat of activation to blackmail the target.
>
> Nations who are equipped to handle biotechnology are likely to consider gene therapy a viable bioweapon. Groups or individuals without the resources or funding will find it difficult to produce this bioweapon."

Gene therapy has already been used during clinical trials to successfully treat blood cancers, hemophilia and rare genetic immunodeficiency conditions. It is under investigation to treat everything from blindness and deafness to diabetes and heart failure. The most worrying aspect of these next-generation biological weapons is how they might be delivered to a targeted population.

Besides targeting a foreign nation's population in the context of foreign wars and conquest, such weapons could also be used domestically to induce enhanced obedience and subservience.

Defending against biological weapons using gene therapy either directly or as stealth viruses requires national healthcare and defense infrastructure to be able to quickly read, write and edit genetic information. Suspected victims of genotype-specific bioweapons would require having their genes examined through modern genetic sequencing, and countermeasures synthesized in the same manner gene therapy-based biological weapons are. If DNA can be edited maliciously, it can be re-edited to correct malicious code.

The development of a nation's biotechnology infrastructure is not merely a means of taking advantage of possible scientific, human health and economic opportunities, it is also a matter of national defense.

USA KAZAKHSTAN BIOLOGICAL LABORATORY

> "On July 30, 2021 Channel One Eurasia, a local Kazakh television station, reported an unexpected mass death of livestock from an unknown disease in two regions of Kazakhstan. In particular, livestock deaths were registered in the North-Kazakhstan region. Veterinarians speculate that this disease is blackleg, or emphysematous carbuncle, which has not been seen in this land for a very long time. The infection primarily affects young, immature animals that cannot yet be vaccinated due to their age. Mass mortality of livestock also occurs in the neighboring Akmola Region: in the villages of Azat and Karabulak, more than 500 heads of livestock fell ill.
>
> Experts note that in recent years, epidemics of either unknown diseases or old, almost forgotten diseases considered to have been

eradicated have periodically broken out in various regions of Kazakhstan. As a result, cattle are dying en masse. The public associates this with the American military biolab, located in Alma-Ata and whose activities remain out of the scope of formal oversight not only of Kazakhstan, but international scientific circles as well.

Recall that in connection with the COVID-19 pandemic, Russia and China have highlighted the need to check similar facilities worldwide. However, the USA ignored it. In mid-July 2021, the Socialist Movement of Kazakhstan, the Unified Communist Party of Georgia, the Socialist Party of Latvia, and the Communist Party of Pakistan launched a joint initiative to sign a petition against the production and distribution of biological weapons and for the closure of US military biological laboratories.

This initiative was motivated to a large extent that over a dozen similar facilities operate in post-Soviet countries. The Central Reference Laboratory Inc was built several years ago in Alma-Ata with American money and is used by the Pentagon. Earlier, some Kazakhstani media tried to draw attention to this topic. In 2920, at a time of a raging coronavirus pandemic, high mortality, and strict quarantine in Kazakhstan, a popular local newspaper reminded readers that, according to Washington's official statement, one of the purposes of the very American Central Reference Laboratory located in Alma-Ata is to combat the spread of dangerous infections. In this regard, Kazakhstan justifiably wondered: where is this fight?

The fact that the US has never stopped producing biological weapons, contrary to all international conventions, is no secret. And this is confirmed: there is the Defense Advanced Research Projects Agency, or DARPA in the Pentagon, which is engaged in developing and implementing the most advanced technologies in the military sphere. And it has a biotechnology department that does just that. The US Defense Department admits that their technology is dual-use. However, under US law, certain types of experiments are prohibited in the United States due to the threat they pose to the local population. This means that they are held abroad, including in the former Soviet Union area.

In October 2018, the American Journal of Science released an article titled "Agricultural Research or a New Biological Weapons System?" In this article, German and French microbiologists, concerned about the growing number of such laboratories near the borders of Russia and China, expressed the view that the US was preparing for a bacteriological war, thousands of kilometers away from their own borders. This article talked about a Pentagon program called Insect Allies, which involves major biological experiments and experiments whose results could be used for military purposes.

One of the first to speak out against foreign laboratories in Kazakhstan was Amirbek Togusov, former Kazakh Deputy Defense Minister who handed over to Russia materials about the US military's experiments with deadly viruses in the summer of 2020.

“We are like test monkeys here, and our territory is the Pentagon’s natural proving ground for testing new viruses… The laboratories are taken out of national control and work in secrecy,” General Amirbek Togusov said at the time. Shortly after that, General Togusov “died suddenly and unexpectedly.”

But this topic was picked up by many representatives of the Kazakhstani public, who stated that the source of the Covid-19 epidemic in the republic was the same American biolab in Alma-Ata. These statements received wide public response, although the Kazakh authorities did their best to prevent their replication and even opened more than 100 criminal cases against the initiators of such comments.

The position of the Kazak authorities on the “laboratory issue” has been constantly changing over the past year. It was even stated that there were no “foreign researchers” working there. However, the fact that US military personnel is employed at the Center for Highly Hazardous Infections has been openly acknowledged even by the administration of the research center itself, which announced in April 2021 that it continues to work with CH2M Hill Constructors, Inc, a firm representing the US Department of Defense, a part of the Jacobs Engineering military corporation. CH2M worked in Kazakhstan under a contract with the Defense Threat Prevention Agency (DTRA) to manage and support facilities established under the Pentagon’s Cooperative Biological Engagement Program (CBEP). DTRA invested 400 million dollars to establish biological laboratories in Kazakhstan. The extent of the Pentagon’s involvement in CH2M’s operations is revealed by the fact a US Army Corps of Engineers officer, Eric Graham, who took part in the construction of the American military biolab in Georgia, listed as a head of one of its branches.

According to publicly available US sources, DTRA has been conducting research in Kazakhstan since at least 2005. There are now six biological facilities there, created with Pentagon money as part of the CBEP project, which CH2M and Jacobs are responsible for managing. Many Kazakhstanis suspect that several epidemics in the country were triggered by researchers at these closed facilities. However, nobody so far has managed to provide a confirmation of those fears, and Washington is doing its best to keep activities a secret.

In May 2020, Sergei Lavrov, Minister of Foreign Affairs of the Russian Federation criticized the USA for refusing to be transparent about bio laboratories. He pointed out that the American refusal to support creating a verification mechanism in the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons makes one wonder about Washington’s actual goals.”

CHINESE GENETIC INFRASTRUCTURE

Nations like China are already investing heavily in genetics and possesses infrastructure that could easily lead to a robust biological and genotype-specific weapon defense program. Other nations would be wise to follow suit.

On June 13, 2012 a 60-year-old Saudi Arabian man was admitted to a private hospital in Jeddah, Saudi Arabia, with a 7-day history of fever, cough, expectoration, and shortness of breath. He had no history of cardiopulmonary or renal disease, was receiving no long-term medications, and did not smoke.

On May 4, 2013, a sample of this Saudi Arabian Severe Acute Respiratory SARS virus from the first infected Saudi patient arrived in Canada's National Microbiology Laboratory NML in Winnipeg via Ron Fouchier of Erasmus Medical Center in Rotterdam, Netherlands who sequenced the virus sample.

In March 2019, in a mysterious event, a shipment of exceptionally virulent viruses from Canada's NML ended up in China. The event caused a major scandal with Bio-warfare experts questioning why Canada was sending lethal viruses to China.

Four months later in July 2019, a group of Chinese virologists were forcibly dispatched from the Canadian lab – the only level-4 facility equipped to handle the world's deadliest diseases where Coronavirus sample from the first Saudi patient was being examined.

The scientist who was escorted out of the Canadian lab along with members of her research team is believed to be a Chinese Bio-Warfare agent Xiangguo Qiu. Dr. Xiangguo Qiu is married to another Chinese scientist Dr. Keding Cheng – the couple is responsible for staffing Canada's NML with many Chinese students from a range of Chinese scientific facilities.Dr. Xiangguo Qiu made at least five trips to the Wuhan National Biosafety Laboratory located only 20 miles away from the Huanan Seafood Market which is the epicenter of the 2019 outbreak. Previous shipments to China of other viruses or other essential preparations, took place from 2006 to 2018. COVID-19 could be a mutated form of the original SARS virus but now it is more contagious and more deadly than the original strain.

The scientist Frank Plummer who received the Saudi Arabian SARS Coronavirus sample and was working on Coronavirus (HIV) vaccine in the Winnipeg based Canadian laboratory died in Nigeria.

The Thousand Talents Plan or Thousand Talents Program was established in 2008 by the central government of China to recognize and recruit leading international experts in scientific research, innovation, and entrepreneurship.

China's national strategy of military-civil fusion has highlighted biology as a priority, and the People's Liberation Army could be at the forefront of expanding and exploiting this knowledge. Chinese military's interest in biology as an emerging domain of warfare is guided by strategists who talk about potential "genetic weapons" and the possibility of a "bloodless victory."

Chinese generals argued bioweapons were the weapon of choice because nuclear bombs would contaminate North America and an EMP would cause meltdowns of all the nuclear plants resulting in the same problem. They wanted a race specific virus and wanted to explicitly make it look like a spontaneous virus for plausible deniability to avoid hot war. With collaboration of Western elites they seem to have devised a clever way to deliver a biological agents to target groups. Military scientists note how a sudden surge of patients

requiring hospitalization during a bioweapon attack could cause the enemy's medical system to collapse.

GAIN OF FUNCTION (GOF) RESEARCH, ACCELERATED VIRAL EVOLUTION IN THE USA

The Biological Weapons Convention was ratified by the USA in 1972. The gain of function risky research was banned under President Obama Administration but was lifted under President Trump Administration, Three years after imposing a moratorium on USA funding for certain studies with dangerous viruses, the National Institutes of Health (NIH) in Bethesda, Maryland, lifted this so-called "pause" and announced a new plan for reviewing such research in 2017.

Concerns over so-called "gain-of-function" (GOF) studies that make pathogens more potent or likely to spread in people erupted in 2011, when Kawaoka's team and Ron Fouchier's lab at Erasmus Medical Center in Rotterdam, the Netherlands, announced that they had modified the H5N1 bird flu virus to enable it to spread between ferrets. Such studies could help experts prepare for pandemics but pose risks if the souped-up pathogen escapes the lab. After a long discussion, the National Science Advisory Board for Biosecurity (NSABB) decided the two studies should be published and federal officials issued new oversight rules for certain H5N1 studies.

Officials in the USA grew uneasy after the publication of new GOF papers and several accidents in USA biocontainment labs. In October 2014, they announced an unprecedented "pause" on funding for 21 GOF studies of influenza, MERS, and severe acute respiratory syndrome viruses. At the time, NIH said there were 18 paused studies. NIH eventually exempted some studies found to pose relatively little risk. But eight influenza studies and three MERS projects remained on hold.

Along with NIH lifting the pause, HHS (Health and Human Services) released its review framework. Any proposal that passes scientific peer review and fits the PPP definition will be reviewed by an HHS group with wide-ranging expertise, from biosafety and security to ethics and law. The panel will weigh the benefits and risks and may recommend that the proposed study be rejected, allowed to move forward, or permitted with modifications.

Virologist Yoshihiro Kawaoka of the University of Wisconsin at Madison and Tokyo University pioneered HIV-enabled Gain of Function in flu-related viruses, until a backlash of ethical scientists demanded a ban on GOF. Once the ban was prematurely lifted in less than 3 years, Anthony Fauci from the National Institute of Allergy and Infectious Diseases have pressured the entire corps of microbiology researchers to deny the splicing of HIV and m.TB in Covid-19 as a product of biological engineering. He awarded Kawaoka with $600,000 NIAID grant to restore the biowarfare research with: "Yoshi went through the appropriate vetting exercise. It went through multiple layers of review and examination. It was not as if we all changed our minds and said, 'Oops, never mind, go ahead and do it.' They got very appropriately vetted with all the appropriate caveats."

Researchers in the USA went along with China for the fame and fortune, and because only China has real access to this pool of bat viruses which gives them a strategic edge. Researchers from the USA and other places played along with China in order to get their hands on all the corona viruses potentially out there. Everybody played everybody.

China needed the technology and know how to build their BSL-4 lab with French help and inadequate safety protocols, and the West needed to get copies of these corona viruses. All cooperated under the banner of ' the common good' but they were looking out for their own interests. That is possibly a reason nobody goes after the GOF risky researchers.

They spliced an HIV protein onto a coronavirus to make it transmissible to humans, is why gain of function Anthony Fauci, the highest paid government employee ever in the USA making $450k / year plus numerous patents royalties, became the face of the medical profession, and was involved with funding this weaponized chimera research/engineering.

According to the Journal of Virology, February 2000, https://jvi.asm.org/content/jvi/82/4/1899.full.pdf:

> "In this study, we investigated the receptor usage of the SL-CoV S by combining a **human immunodeficiency virus-based pseudovirus system** with cell lines expressing the ACE2 molecules of human, civet, or horseshoe bat. In addition to full-length S of SL-CoV and SARS-CoV, a series of S chimeras was constructed by inserting different sequences of the SARS-CoV S into the SL-CoV S backbone. Several important observations were made from this study. First, the SL-CoV S was unable to use any of the three ACE2 molecules as its receptor. Second, the SARS-CoV S failed to enter cells expressing the bat ACE2. Third, the chimeric S covering the previously defined receptor-binding domain gained its ability to enter cells via human ACE2, albeit with different efficiencies for different constructs. Fourth, a minimal insert region (amino acids 310 to 518) was **found to be sufficient to convert the SL-CoV S from non-ACE2 binding to human ACE2 binding**, indicating that the SL-CoV S is largely compatible with SARS-CoV S protein both in structure and in function."

A suggestion was made that Covid-19 was a USA biowarfare attack against China. Two of President Donald Trump's biggest mistakes were the appointments of John Bolton (that he fired) and Mike Pompeo (that he retained): "we're in a live exercise", both surely involved in the decision. Anthony Fauci (the selected fall guy): "surprise outbreak" and Bill Gates: "Event 201", had to have known about it. Remember the Wuhan Military games and the Fort Detrick closure / Greenspring "incident". There was also the mysterious, never explained "Vaping" outbreak in Milwaukee, Wisconsin.

Physicist Ron Unz and Whitney Webb presents it as an attack by President Donald Trump's administration on China; in detail:

https://www.unz.com/runz/american-pravda-our-coronavirus-catastrophe-as-biowarfare-blowback/
https://www.unz.com/article/was-coronavirus-a-biowarfare-attack-against-china/
https://www.unz.com/wwebb/bats-gene-editing-and-bioweapons-recent-darpa-experiments-raise-concerns-amid-coronavirus-outbreak/
https://www.unz.com/runz/american-pravda-the-truth-and-the-whole-truth-on-the-origins-of-covid-19/

Lagniappe: Copy of Metallicman's paper by Ron Unz:

https://www.unz.com/article/was-the-2020-wuhan-coronavirus-an-engineered-biological-attack-on-china-by-america-for-geopolitical-advantage/

An interesting perspective is provided by Lew Rockwell as:

> "An October 2000 policy document co-authored by William Kristol, John Bolton, Richard Perle, Dick Cheney, Paul Wolfowitz, Elliot Abrams, and Donald Rumsfeld titled Rebuilding America's Defenses (RAD) explicitly stated that in the new American Century, "combat will likely take place in new dimensions: In space, cyber-space and perhaps the world of microbes… advanced forms of biological warfare that can "target" specific genotypes may transform biological warfare from the realm of terror to a politically useful tool"."

https://www.lewrockwell.com/2021/05/no_author/beijing-the-five-eyes-or-something-else-whos-to-blame-for-the-covid-pandemic-2/

To bypass the banning of GOF research in the USA, Anthony Fauci funded EcoHealth Alliance, a New York-based nonprofit headed by Peter Daszak, that was engaged in risky Gain-of-function GOF research at Wuhan, China to make chimeric SARS-based coronaviruses, which they confirmed could infect human cells.

According to the Washington Post's Josh Rogin:

> "One of the grants, titled "Understanding the Risk of Bat Coronavirus Emergence," outlines an ambitious effort led by EcoHealth Alliance president Peter Daszak to screen thousands of bat samples for novel coronaviruses. The research also involved screening people who work with live animals. The documents contain several critical details about the research in Wuhan, including the fact that key experimental work with humanized mice was conducted at a biosafety level 3 lab at Wuhan University Center for Animal Experiment — and not at the Wuhan Institute of Virology, as was previously assumed. The documents raise additional questions about the theory that the pandemic may have begun in a lab accident, an idea that Daszak has called "heinous."
>
> The grant was initially awarded for a five-year period — from 2014 to 2019. Funding was renewed in 2019 but suspended by the Trump administration in April 2020."

Rutgers University Board of Governors Chemistry Professor Richard H. Ebright notes, "The documents make it clear that assertions by the NIH Director, Francis Collins, and the NIAID Director, Anthony Fauci, that the NIH did not support gain-of-function research or potential pandemic pathogen enhancement at WIV are untruthful."

p. 5 *1 occurrence*

. +++++++ This award does not include funds to support research subject to the Department of Health and Human Services Framework for Guiding Funding Decisions about Proposed Research Involving Enhanced Potential Pandemic Pathogens (DHHS P3CO Framework) Therefore: o For Aim 1: Identify, characterize and rank spillover risk of high zoonotic potential viruses from wildlife, the building of **chimeric** SARS-like bat coronaviruses will be based on the SHC014 or the pangolin coronavirus molecular clones and the building of **chimeric** MERS-CoV will be based on the HKU5 strain.

p. 293 *1 occurrence*

Using our reverse genetics system we constructed **chimeric** viruses and rederived full length recombinant SARSr-CoV from in silco sequence. All 3 SARSr-CoV full length isolates and the two **chimeric** viruses replicated efficiently in Vero E6 cells and in Hela cells expressing hACE2, civet and bat ACE2, but not in those without ACE2 (24, 61, 98). We used the SARS-CoV reverse genetics system (72) to generate a **chimeric** virus with a mouse-adapted SARS-CoV backbone expressing SHC014 S protein with 10% sequence divergence from SARS-CoV S.

p. 298 *5 occurrences*

Viral strain prioritization: Of the expected 100-200 novel SARSr-CoV strains, and approximately 600 total CoV strains, we will down-select to prioritize for further characterization based on S genes that are: i) different from SHC014, WIV1, SARS-CoV with diversity ranges of 10-25%; ii) have virus S RBD that could use human/bat receptors; iii) have **recombinant chimeric spikes** indicative of gene flow between clade I and II strains; iv) have bat ACE2 or DPP4 receptors that might select for spike RBDs that can use human receptors for entry (15/18 conserved residues in human/bat ACE2 molecules that bind SARSs-CoV S RBD domains are likely more efficient receptors than 3/18 conserved sites).

A Chimera is an artificial entity pieced together from parts. In this case parts of other viruses. Something essentially unheard of in nature, as the random assembly of such a creature would be beyond the realm of plausible chance.

Anthony Fauci and EcoHealth Alliance's, a New York-based nonprofit head Peter Daszak.

TARGETING MILITARY PERSONNEL, COVID-19, HIV AND TB

Yoichi Shimatsu in Rense deals with an embarrassingly undisclosed issue claiming that Covid-19 is a coronavirus that was augmented with HIV proteins and a DNA sequence of M-tuberculosis for upgrade as a lethal biological weapon targeting servicemen of military age and the officer corps of the world:

> "COVID-19 is a coronavirus that was augmented with HIV proteins and a DNA sequence of M-tuberculosis for upgrade as a lethal biological weapon targeting servicemen of military age and the officer corps of the world's strongest military forces. Here, Part 9 of a series on the Wuhan outbreak explains:
>
> Troubling findings that HIV proteins can exponentially increase their replication rate inside host cells, with new information on its lethal targeting of mature men through infection of testicles but, in contrast, inflicting a much lower casualty rate on women due to natural immunity from mucus in the cervix and vagina, this sex selectivity making it an ideal weapons against the military forces of the USA, China, Russia and France, four of the 5-member Security Council; and
>
> New information (now censored) on the presence of a M. tuberculosis sequence, which boosts COVID-19 defenses against the human immune system's counterattack with white corpuscles and protein encapsulation of pathogens. M-TB interference prevents coordination between the lysosome (producer of white corpuscles) and its partner phagosome, which releases protein capsules to capture pathogens. This coordination isolates vast numbers of viruses for destruction followed by disposal.
>
> Neutralization of the tandem phagosome and lysosome enables the attacking COVID-19 to generate swarms of new virions undisturbed, attach components to complete virus production, and dispatch the swarm to seek out other organs for infection that weaken the host patients, who after their

cells are depleted go into final-phase toxic as massive flows of viruses escape through the lungs and feces to launch a hunt for more human prey.

There are many choices of weaponry; most will fail. For instance, since the HIV function of COVID-19 targets the blood capillaries around the sperm tubes in the testicles, why not try ion channel blockers? There are interferon-type restriction factors against retrovirals including the HIV-proteins inside this COV. Tetherin dimers capture virions emerging from the invaded host cell, that is if administered in time. There's tried and not-so true protease blockers to gum up the attackers. Then unconventional approaches, for example, injecting flagellate coatings to lure the viruses back into their original host, enabling capture by white blood corpuscles; or pulsed IV drips to alternate PH in the bloodstream as a type of psy-op to cause panicked viral retreat from replication, catching them with their pants down.

A China-sourced medical paper based on autopsy reports (which the censors pulled offline) indicate damage to the testes and kidneys (in mature men) without mention of ovarian or vaginal infection in women. The discrepancy between sexes indicates that in more serious cases, the viral infection did not proceed from the lungs into the bloodstream to the kidneys and out the urinary tract. Otherwise women would be dying in equal numbers."

FERRETS, TREE SHREWS, CIVET CATS AND PANGOLINS GAIN OF FUNCTION JOINT RESEARCH IN THE USA AND CHINA

Scientists at Stony Brook University, NY, the first place to build a DNA-virus from scratch, used the H5N1 Avian Flu and tweaked its genome in two places, and then passed it through a series of ferret hosts in the laboratory until it became airborne. This type of research, a minor alteration and then passage through ferrets, achieved two purposes:

1. It disguised the virus to look natural and would not appear to have been directly genetically altered,
2. It created a virus that was way out on its own branch of the viral family tree since those sequential passages added generations far faster than they would naturally occur in the wild.

In 2015, Chinese laboratories were reported to have been involved in gain-of-function research, swapping around viral genomes in the laboratory to try to create the most virulent strains possible. Studies examining Covid-19's infectivity in ferrets found that it spreads readily among them, and appears airborne in that animal model, lending support to the idea that ferrets were used for serial passage.

Support for the possibility that serial passage through lab animals played a role in the creation of Covid-19 comes from an April 2020 paper, which found that it binds with ferrets cells more tightly than any other species except the tree shrew, which only scored about 2 percent higher. Tree shrews have also been used for serial viral passage and were promoted in a 2018 paper out of China as a preferable host for laboratory serial passage since they are cheaper, smaller, easier to handle, and closer to humans evolutionarily and physiologically than ferrets.

Pangolins formed a much weaker bond than ferrets and tree shrews, and were clustered way down on the list along with a handful of other much more unlikely intermediate animal hosts.

Ralph S. Baric at the University of North Carolina, UNC spliced a new protein-spike on an existing coronavirus, creating a virus so vicious that a virologist with the Louis Pasteur Institute of Paris, France warned: *"*If the [new] virus escaped, nobody could predict the trajectory.*"* He orchestrated research that involved isolating a coronavirus from civets and then passing it through mammalian ACE2 receptor cells that were grown in the lab from kidney and brain samples. This is serial passage through host cell lines instead of entire hosts, which imparted a strong affinity for ACE2, and created an airborne strain of coronavirus. If cells derived from kidneys and brains were used for the serial passage development of Covid-19, that might may explain its affinity for attacking the kidneys and brains of its human hosts. When asked if the public should be worried about Covid-19 he said that people should be more worried about the seasonal flu.

Chinese scientists Zhengli Shi and Xing-Yi Ge worked in his lab on that project in 2015, both of whom returned to Wuhan where they continued their work. Xing-Yi Ge in 2013 became the very first scientist to isolate a bat coronavirus from nature that uses the ACE2 receptor, which is found in human, tree shrew, and ferret lungs and allows coronaviruses to become airborne.

GAIN OF FUNCTION RESERCH IN RUSSIA

In 1977 a disease swept across Russia. It was unique strain of the H1N1 Swine Flu virus. It seemed to be the product of "sequential passage in an animal reservoir" which was determined by its vast genetic distance from any other present strain of flu.

At this time, the Soviet Union was employing tens of thousands of scientists designing every possible flavor of biological weapon, a rabidly immoral weapons program with a spotty safety record. Pathogens were known to leak out of Soviet labs almost regularly. Soviet scientists were reported to bring dead research animals home for dinner.

Increased research into the H1N1 Swine Flu back in the 1970's eventually increased the odds that a mistake would happen enough that one did, and a leak occurred.

GAIN OF FUNCTION RESEARCH IN CHINA, "UNRESTRICTED WARFARE."

In 1999, two Chinese colonels wrote a book called "Unrestricted Warfare, China's Master Plan to Destroy America," about warfare in the age of globalization. Their main argument: Warfare in the modern world will no longer be primarily a struggle defined by military means — or even involve the military at all. Colonels Qiao Liang and Wang Xiangsui argued that war was no longer about "using armed forces to compel the enemy to submit to one's will" in the classic Clausewitzian sense. Rather, they asserted that war had evolved to "using all means, including armed force or non-armed force, military and non-military, and lethal and non-lethal means to compel the enemy to accept one's interests."

Chinese General Qiao Liang argues, 'If we have to dance with the wolves, we should not dance to the rhythm of the United States.' Unrestricted Warfare was essentially the People Liberation Army PLA's manual for asymmetric warfare: an updating of Sun

Tzu's Art of War. At the time of original publication, with China still a long way from its current geopolitical and geo-economic clout, the book was conceived as laying out a defensive approach, far from the sensationalist "destroy America" added to the title for USA republication in 2004.

The bulk of his argument concentrates on the shortcomings of USA manufacturing: "How can the US today want to wage war against the biggest manufacturing power in the world while its own industry is hollowed out?"

In 2015 Italian state-owned media Company, Rai (Radiotelevisione Italiana), exposed dark efforts by China on viruses. The video, which was broadcast in November, 2015, showed how Chinese scientists were doing biological experiments on a SARS connected virus believed to be Coronavirus, derived from bats and mice, asking whether it was worth the risk in order to be able to modify the virus for compatibility with human organisms:

> "Chinese scientists have created a pulmonary super-virus from bats and mice only for study reasons but there are many questionable aspects to this. Is it worth the risk? It's an experiment, of course, but it is worrisome. It worries many scientists: It is a group of Chinese researchers attaching a protein taken from bats to the SARS virus, Acute Pneumonia, derived from mice. The output is a super coronavirus that could affect man. It remains closed in laboratories and it is only for study purposes, but is it worth the risk – creating such a great threat only for examination purposes?
>
> Here is an experiment in China, in which a group of scientists has managed to develop a chimera – an organism modified by attaching the surface protein of a coronavirus found in bats of the common species called the Great Horseshoe Bat, to a virus that causes SARS in mice, although in a non-fatal form. It was suspected that the protein could make the chimeric hybrid organism suitable for affecting humans, and the experiment confirmed it.
>
> It is precisely this molecule, called SHCO14, that allows the coronavirus to attach itself to our respiratory cells and to trigger the syndrome. According to researchers, the two organisms, the original and even more so the engineered one, can infect humans directly from bats, without going through an intermediate species like the mouse, and it is this eventuality that raises many controversies.
>
> Just one year ago (this broadcast is of 2015), the U.S. government suspended research funding, which aimed to make viruses more contagious. The moratorium did not stop the work of the Chinese on SARS, which was already in advanced stages and looked relatively harmless.
>
> According to a section of the scientific community, it is in fact not dangerous. The probability that the virus may pass to our species was insignificant compared to the benefits of the virus – an argument that many other experts rejected. First, because the relationship between risk and benefit is difficult to evaluate and second, because especially in these times, it is more prudent to not put into circulation an organism that can escape or be removed from the control of laboratories."

As soon that this broadcast went viral on the Italian social media, journalists and experts began explaining it away saying, that the virus in the video was not COVID-19. Even the British journal Nature, which wrote the very publication this Italian show was based on, clarified that the virus the broadcast talked about was not related to the "Natural" COVID-19. The Pilgrims Society and the Pirbright Institute produced SARS-2-CoV (Covid 19) in their lab in Woking, England.

Nature itself had done a piece in February 2017, on the BSL-4 laboratory in Wuhan, the Wuhan Institute of Virology, raising valid concerns and theories, and wondering out loud whether experimentation with deadly viruses was a good idea.:

> "BSL-4 is the highest level of bio-containment: its criteria include filtering air and treating water and waste before they leave the laboratory, and stipulating that researchers change clothes and shower before and after using lab facilities. Such labs are often controversial.
>
> Future plans include studying the pathogen that causes SARS, which also doesn't require a BSL-4 lab, before moving on to Ebola and the West African Lassa virus, which do… Worries surround the Chinese lab… The SARS virus has escaped from high-level containment facilities in Beijing multiple times… The plan to expand into a network heightens such concerns. One BSL-4 lab in Harbin is already awaiting accreditation; the next two are expected to be in Beijing and Kunming."

In 2004, the World Health Organization determined that an outbreak of the SARS virus had been caused by two separate leaks at the Chinese Institute of Virology in Beijing. The Chinese government said that the leaks were a result of "negligence" and the responsible officials had been punished.

In January, 2020, Nature added an editor's note to the top of the article, saying that there is in fact "no evidence" of this lab playing a role in the outbreak of coronavirus Covid-19 and that scientists believe that the source is likely "an animal market."

DERMATOLOGICAL MANIFESTATIONS

The British Journal of Dermatology reported on Spain details of 375 Covid-19 patients they had seen who had developed five kinds of rashes. Were:

Asymmetrical, chilblain-like lesions around the hands and feet, which could be itchy or painful. Generally found in younger patients, lasted on average 12 days, appeared later on in the course of the disease, and were associated with mild infections. Accounted for 19% of cases.

Outbreaks of small blisters, often itchy, found on the trunk and limbs. These were found in middle-aged patients, lasted around 10 days, and appeared before other symptoms. (9%)

Pink or white raised areas of skin that looked liked nettle rash, and often itchy. Mostly on the body but sometimes on the palms of the hands. (19%)

Maculopapules – small, flat and raised red bumps. These accounted for 47% of cases. They lasted around seven days and appeared at the same time as other symptoms but tended to be seen in patients with more severe infections.
Livedo (also known as necrosis) was present in 6% of cases. The skin looked blotchy red or blue, with a net-like pattern. It's a sign of poor blood circulation. This appeared in older patients with severe illness.

The researchers stressed that rashes can have many causes, and it can be difficult to differentiate between them without medical expertise.

LEGAL AND INSURANCE ACTION, GAME OF BLAME HYSTERIA RISK

Housed in a nondescript building in a Washington, D.C. suburb, the Countermeasures Injury Compensation Program has just four employees and few hallmarks of an ordinary court. Decisions are made in secret by government officials, claimants cannot appeal to a judge and payments in most death cases are capped at $370,376. https://www.insurancejournal.com/news/national/2020/12/29/595414.htm

"It would need to be ramped up for sure," said Dr. Vito Caserta, who oversaw the countermeasures program from its creation until his retirement in 2014. "They may get overwhelmed very, very quickly."

Unlike the more established federal vaccine court, which decides cases of injury from most childhood vaccines and other common inoculations, the Countermeasures Injury Compensation Program was created by a 2005 law specifically to deal with vaccines developed under emergency authorization.

The vast majority of the claims under the program have stemmed from the H1N1 swine flu vaccine a decade ago. And the low number of people awarded money — 29 out of 499— reflects its design.

Most claims have to be filed within a year of getting a vaccine, regardless of when side effects show up, and the program does not pay fees for lawyers or expert witnesses. It provides little opportunity for those filing claims to participate. And the awards do not pay for suffering or damages.

"It's illusory," said Sarasota, Florida-based vaccine lawyer Anne Carrion Toale. "No one is going to actually get compensation in that program."

By contrast, vaccine court allows for claims within three years, pays for lawyers and witnesses, grants awards for pain and suffering, and permits appeals all the way to the Supreme Court.

The difference is reflected not only in the number of awards but their size. The countermeasures program has paid out $6 million, for an average award of about $200,000 a claim. The vaccine court has not only paid out in 7 of 10 cases in recent years, but its average per claim — $570,000 — is more than two and half times larger, totaling $4.4 billion in its three-decade history.

Law professor Meyers, who obtained the data on the compensation court though a Freedom of Information Act request, described the 29 awards so far as "shockingly low" and called for the program to be overhauled.

The rhetoric between the economically interdependent USA and China has regrettably been growing increasingly hostile as each blames the other for starting the

pandemic and covering it up, with China even going so far as to threaten to cut off the supply of antibiotics and other life-saving medical goods to the USA. The Chinese tried to blame the USA for infecting China during the Wuhan games in October 2019. Incidentally, the spread of the Covid-19 virus was correlated to the possible meteorite explosion on October 11, 2018 just north of Wuhan, China.

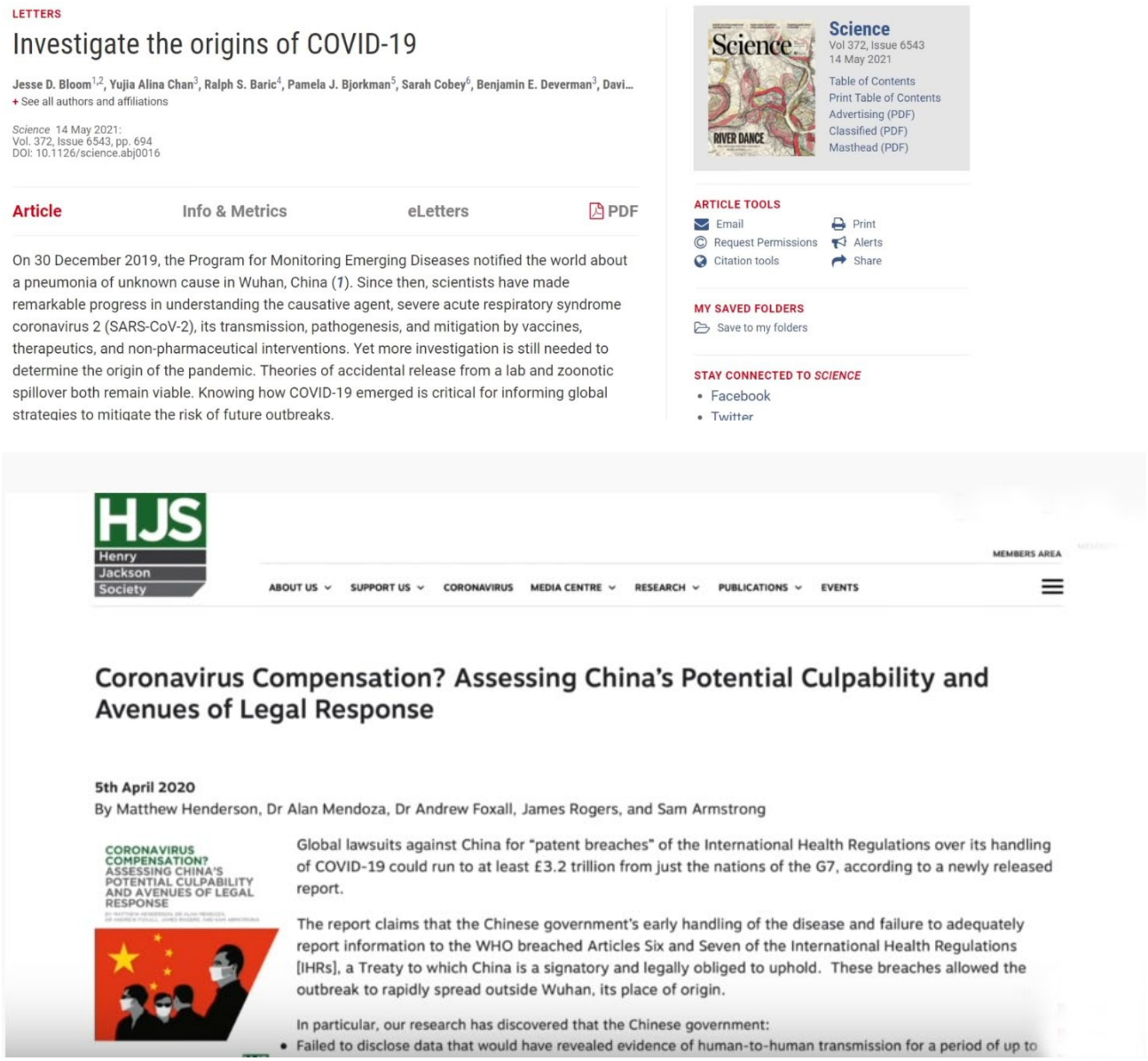


Figure 114. Accusation by the UK's Henry Jackson Society (HJS) of breach of Articles six and seven of the International Health Regulations (IHRs) Treaty.

China manufactures 90 percent of the active pharmaceutical ingredients for all USA antibiotics. The USA gets 100 percent of its blood pressure medicine from China. There are 700,000 people in the USA who take blood pressure medicine every single day with a limited 13-day supply. The USA lost 20 million jobs which is 16 percent unemployment.

When a $23 trillion economy like the USA is turned-off for between 60-90 days, this translates into about $6 trillion loss of productivity.

India is the biggest supplier of generic drugs to the USA but the active pharmaceutical ingredients used to make these drugs come from China. In fact 68 percent of these Active Primary Ingredients APIs that India imports to make generic drugs come from China. All China have to do is to pass a regulation like what the USA commerce department is doing: "No API can be bought from China if it is used to make generic drugs for sale in America". Without medicine, there will be more American death than those from Covid-19.

Amidst worldwide criticism, some $20 trillion lawsuit is reported to have been filed against the Chinese government for waging an alleged biological war using Covid-19. On March 24, 2020, Texas lawyer Larry Klayman filed a complaint in the Texas federal court seeking at least 20 trillion dollars from the Chinese Government.

In an article titled "What China Owes Us", Julian Reichelt, the prominent editor-in-chief of the Bild, Germany's largest paper, demanded €149 billion to Germany in damages. Bild said the compensation amounts to €1,784 per person if Germany's GDP drops by 4.2 percent.

A suspicious leaked dossier compiled by Western intelligence agencies alleged that China suppressed or destroyed evidence during the crucial early days of the Covid-19 outbreak, and notes that Chinese researchers have been experimenting with and creating deadly bat coronaviruses. The obviously biased 15-page report compiled by Western governments is designated as the 'Five Eyes,' according to Australia's Daily Telegraph.

A key theme of the dossier is that China's negligence and lies resulted in the "endangerment of other countries," as the China Communist Party, CCP silenced or 'disappeared' doctors who spoke out. Doctors who bravely spoke out about the new virus were detained and condemned. Their detentions were splashed across the Chinese-state media with a call from Wuhan Police for "all citizens to not fabricate rumors, not spread rumors, not believe rumors."

The leaked dossier does not reach a conclusion whether Covid-19 is of natural origin or engineered, it includes a February 6, 2020 study from the South China University of Technology which suggested that "the killer coronavirus probably originated from a laboratory in Wuhan. The paper was withdrawn due to what its lead author said was a lack of direct evidence. However the dossier notes that scholar Yanzhong Huang said on March 5, 2020: "No scientists have confirmed or refuted the paper's findings."

The UK's Telegraph notes that the official USA position is that the virus was not engineered, but that it escaped from either the Wuhan Institute of Virology or the Chinese Center for Disease Control. CDC, which is located roughly 900 feet from the Wuhan wet market from which a cluster of early cases emerged.

A Senior Intelligence Source asserted there is agreement among most of the 17 Intelligence agencies that COVID-19 originated in the Wuhan lab. The source stressed that the release is believed to be a mistake and was not intentional.

While the international scientific consensus is that COVID-19 was not man-made, the Western intelligence dossier highlights research by scientists Shi Zheng Li and her protégé Peng Zhou, who were modifying bat coronaviruses to test their transmissibility to other species.

Shi Zheng Li, director of the Centre for Emerging Infectious Diseases at the Chinese Academy of Sciences' Wuhan Institute of Virology, was working in Australia in 2006. The dossier notes that a 2013 study conducted by a team of researchers, including Shi Zheng Li, who collected a sample of horseshoe bat feces from a cave in Yunan province, China, which was later found to contain a virus 96.2 per cent identical to SARS-CoV-2, the virus that caused Covid-19. The research dossier references work done by the team to synthesize SARS-like coronaviruses, to analyze whether they could be transmissible from bats to mammals. This means they were altering parts of the virus to test whether it was transmissible to different species.

A November 2015 study from Shi Zheng Li and her team in conjunction with the University of North Carolina at Chapel Hill concluded that the SARS-like coronavirus could jump directly from bats to humans, and there is currently no cure or treatment for it:

> "To examine the emergence potential (that is, the potential to infect humans) of circulating bat CoVs, we built a chimeric virus encoding a novel, zoonotic CoV spike protein — from the RsSHCO14-CoV sequence that was isolated from Chinese horseshoe bats — in the context of the SARS-CoV mouse-adapted backbone."

According to North Carolina University Professor Ralph Baric, a co-author of the 2015 paper:

> "This virus is highly pathogenic, and treatments developed against the original SARS virus in 2002 and the ZMapp drugs used to fight Ebola fail to neutralize and control this particular virus".

A few years later, in March 2019, Shi Zheng Li and her team, including Peng Zhou, who worked in Australia for five years, published a review titled "Bat Coronaviruses in China" in the medical journal Viruses, where they wrote that they "aim to predict virus hot spots and their cross-species transmission potential", describing it as a matter of "urgency to study bat corona-viruses in China to understand their potential of causing another outbreak. Their review stated: "It is highly likely that future SARS or MERS-like coronavirus outbreaks will originate from bats, and there is an increased probability that this will occur in China."

The report notes that Shi Zheng Li's research continued, telling Scientific American "Bat-borne coronaviruses will cause more outbreaks ... We must find them before they find us."

Both Shi Zheng Li and Peng Zhou spent three years at Australia's Animal Health Laboratory - operated by the country's national science agency CSIRO. Between 2011 and 2014, Peng Zhou arranged for wild bats to be caught and transported alive from Queensland to the laboratory in Victoria, where they were euthanized, dissected and studied for deadly viruses.

Key claimed dates in the outbreak are:

November 9, 2015: Wuhan Institute of Virology publishes a study revealing they created a new virus in the laboratory from SARS-CoV.

December 6, 2019: Five days after a man linked to Wuhan's seafood market presented pneumonia-like symptoms, his wife contracts it, suggesting human to human transmission. This may not be factual since the first Chinese reported case was a lady: Wei Guixian (57 years).

December 27: China's health authorities told a novel disease, then affecting some 180 patients, was caused by a new coronavirus.

December 26-30: Evidence of new virus emerges from Wuhan patient data.

December 31: Chinese internet authorities begin censoring terms from social media such as Wuhan Unknown Pneumonia.

January 1, 2020: Eight Wuhan doctors who warned about new virus are detained and condemned.

January 3: China's top health authority issues a gag order.

January 5: Wuhan Municipal Health Commission stops releasing daily updates on new cases. Continues until January 18, 2020.

January 10: PRC official Wang Guangfa says outbreak is "under control" and mostly a "mild condition".

January 12: Professor Zhang Yongzhen's lab in Shanghai is closed by authorities for "rectification", one day after it shares genomic sequence data with the world for the first time.

January 14: PRC National Health Commission chief Ma Xiaowei privately warns colleagues that the virus is likely to develop into a major public health event.

January 24: Officials in Beijing prevent the Wuhan Institute of Virology from sharing sample isolates with the University of Texas.

February 6: China's internet watchdog tightens controls on social media platforms. Same is happening in the USA in censoring opinions contradicting the WHO narrative in the Twitter social platform.

February 9: Citizen-journalist and local businessman Fang Bin disappears.

April 17: Wuhan belatedly raises its official fatalities by 1290

UNTRACEABILITY ASPECTS OF BIOWEAPONS

Bioweapons are usually developed concurrently with a vaccine and with multiple variations of virulence, mortality, and susceptibility to the vaccine. It is not hard to imagine a biolab losing a weak version internally, then a strong one overseas. In addition, viruses undergo mutations which makes them practically untraceable.

Scientists are tracked a multitude of strains of Covid-19 as the virus has undergone over as hundred tiny mutations which act like genetic fingerprints, allowing researchers to see how the virus is migrating and splitting into similar but new subtypes.

Sequencing machines, most about the size of a desktop printer, were used into sequencing the genomes of virus samples taken from people sick with Covid-19. Frequent sequencing of the virus allowed researchers to draw several conclusions; for example, social distancing and shelter-in-place orders appear to be working in some areas, and that the virus does not appear to be growing more lethal as it evolves.

The virus mutates so slowly that the virus strains are fundamentally very similar to each other. It is unlikely that the difference in strains is responsible for the virus hitting people differently, with most some feeling only slightly under the weather for a day or two,

15 percent needing hospitalization, and a mortality rate that varies by country and by testing rates.

SARS-CoV-2, the virus that causes the Covid-19 illness, began circulating in China around mid-October to mid-December 2019. Its genome is made up of approximately 30,000 base pairs - while a human genome has over 3 billion. According to the report, the virus's most divergent or strains contain only 11 base pair changes.

Most cases on the USA West Coast were linked to a strain first identified in Washington state. It may have come from a man who had been in Wuhan, China, the virus' epicenter, and returned home on January 15, 2020. It is only three mutations away from the original Wuhan strain.

On the USA East Coast there are several strains, including the one from Washington State and others that appear to have made their way from China to Europe and then to New York and beyond. Covid-19 does not mutate very fast and was 8-10 times slower than the influenza virus, and closer to other coronaviruses such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). It was not expected to spontaneously evolve into a more deadly form, as it is under no pressure to evolve due to its hyper-virulent nature.

One can conjecture a law of nature that:

> "A virulent virus that destroys its host ends dying with it. On the other hand, a virus that does not, has a chance to continue surviving, multiplying and mutating into consecutive generations."

ENTOMOLOGICAL WARFARE RISKS

Military Experiments on biting insects has been undertaken. Entomological warfare is a type of biological warfare that uses insects to transmit diseases. The Pentagon has allegedly performed such entomological tests in Georgia and Russia.

Ticks and Lyme disease have been around for thousands of years. In fact, a recent autopsy on a 5,300-year-old mummy indicated the presence of the bacteria which causes Lyme disease. A German physician, Alfred Buchwald, first described the chronic skin rash, or erythema migrans, of what is now known to be Lyme disease more than 130 years ago. However, Lyme disease was only recognized in the USA in the 1960s and 1970s. And the bacteria that causes it, Borrelia burgdorferi. was not officially classified until 1981. The Lyme disease as we know it, may have been amplified up in virulence and accidentally released from the USA Research Facility at Plum Island.

Tbilisi, Georgia has been infested with biting flies since 2015. These biting insects live indoors, in bathrooms, all year long, which was not the typical behavior of these species in Georgia previously (normally the Phlebotomine fly season in Georgia is exceptionally short – from June to September). Local people complain of being bitten by these newly appeared flies while naked in their bathrooms. They also have a strong resistance to cold and can survive even in the sub-zero temperatures in the mountains.

Flies from the Phlebotomine family carry dangerous parasites in their saliva which they transmit through a bite to humans. The disease, which these flies carry, is of high interest to the Pentagon. In 2003 during the USA invasion of Iraq American soldiers were

severely bitten by sand flies and contracted Leishmoniasis. The disease is native to Iraq and Afghanistan and if left untreated the acute form of Leishmoniasis can be fatal.

Sand flies and mosquitoes could be vectors of Rift Valley Virus, Dengue Fever, Chikungunya and Eastern Equine Encephalitis – viruses, which the USA Army researched for their potential as bio-weapons.

Figure 115. Sand flies in Georgia and Dagestan.

1.5.2 City Attack.

1.5.2.1 (U) Attack with Yellow Fever-Infected Mosquitoes. The cost of attacking an urban area covertly with yellow fever-infected mosquitoes was estimated. It was assumed the cost of planning a city attack with yellow fever-infected mosquitoes is comparable with the cost of planning an aerosol attack on Washington, DC (scenario 7 of reference 10). In the present hypothetical attack, 16 simultaneous attacks were planned at a total planning cost of $8,750. The cost of one attack would be $547.00 ($8,750 ÷ 16).

(U) Agent production would involve producing 225,000 yellow fever-infected female A. aegypti. This is the same number used in the hypothetical battalion attack so the cost would be the same ($9,066).

(U) Munition acquisition was estimated to be $500.00 and weapon employment (truck rental and wages of two semi-skilled people for eight hours) was estimated to be $360.00. These costs are summarized in Table 3.

Table 3. (U) Resource Cost Summary for a Yellow Fever-Infected Mosquito Attack on a City.

Item	Cost (1976 $)
Planning	547
Agent Production	9,066
Munition Acquisition	500
Weapon Employment	360
TOTAL:	10,473

Figure 116. Hypothetical Entomological warfare using yellow fever infected mosquitoes.

A USA Army report in 1981 compared two scenarios: 16 simultaneous attacks on a city by A. Aegypti mosquitoes, infected with Yellow Fever, and a Tularemia aerosol attack, and assessed their effectiveness in cost and casualties. Aedes Aegypti, also known as yellow fever mosquito, have been widely used in USA military operations. The same species of mosquitoes are alleged to be the vectors of dengue, chikungunya and the Zika virus, which causes genetic malformations in newborns.

The Crimean-Congo hemorrhagic fever (CCHF) is caused by infection through a tick-borne virus (Nairovirus). The disease was first characterized in Crimea in 1944 and given the name Crimean hemorrhagic fever. It was then later recognized in 1969 as the cause of illness in Congo, thus resulting in the current name of the disease.

NIPAH VIRUS RISK

Asia has a high number of emerging infectious diseases. Tropical regions have a rich array of biodiversity, which means they are also home to a large pool of pathogens, increasing the chances that a novel virus could emerge. Growing human populations and increasing contact between people and wild animals in these regions also ups the risk factor.

These include the Nipah virus. The death rate for Nipah ranges from 40% up to 75% depending on where the outbreak occurs. Fruit bats are its natural host. It is a major concern because there exist no treatment and it possesses a high mortality rate.

The disease's long incubation period as long as 45 days, means there is ample opportunity for an infected host, unaware they are even ill, to spread it. It can infect a wide range of animals, making the possibility of it spreading more likely. And it can be caught either through direct contact or by consuming contaminated food.

Someone afflicted with the Nipah virus may experience respiratory symptoms including a cough, sore throat, aches and fatigue, and encephalitis, a swelling of the brain which can cause seizures and death.

Bangladesh and India have experienced Nipah virus outbreaks, both of which are likely linked to drinking date palm juice. At night, infected fruit bats, or flying foxes, would fly to date palm plantations and lap up the juice as it poured out of the tree. As they feasted, they would urinate in the collection pot. Innocent locals would pick up a juice the next day from their street vendor, slurp away and become infected with the disease. Across 11 different outbreaks of Nipah in Bangladesh from 2001 to 2011, 196 people were detected to have Nipah; 150 of them died. Date palm juice is also popular in Cambodia, where fruit bats fly up to 100 km each night to find fruit. That means humans in these regions need to be concerned not just about being too close to bats, but also about consuming products that bats might have contaminated.

Bat feces or guano make for a popular fertilizer in Cambodia and Thailand and in rural areas with few work opportunities, selling bat droppings can be a vital way to make a living. Duong identified many locations where locals were encouraging the fruit bats to roost nearby their homes so they could collect and sell their guano. Sixty percent of guano harvesters have no idea what risks they face in doing so.

Avoiding bats may have been simple at one point in human history, but as our population expands, humans are changing the planet and destroying wild habitats to meet the increasing demand for resources. Doing so is driving up the spread of disease. "The spread of these [zoonotic] pathogens and risk of transmission accelerate wit land-use changes such as deforestation, urbanization, and agricultural intensification.

Sixty percent of the world's population already lives in Asia and the Pacific regions, and rapid urbanization is still taking place. According to the World Bank, 200 million people moved to urban areas in East Asia between the years 2000 and 2010.

In 1998, a Nipah virus outbreak in Malaysia killed more than 100 people. Researchers concluded that forest fires and local drought had dislodged the bats from their natural habitat and forced them towards fruit trees grown on the same farms as pigs. Under stress, bats have been shown to shed more viruses. The combination of being forced to

relocate and being in close contact with a species they would not normally interact with allowed the virus to jump from bats to pigs, and onwards to the farmers.

Bats harbor Nipah, Covid-19 as well as Ebola and Sars. But bats play important ecological roles. They pollinate more than 500 plant species. They also help to keep insects in check; playing a role in disease control in humans by reducing malaria by eating mosquitoes.

Because Nipah virus is so dangerous, it is considered by governments across the globe to have bioterrorism potential and only a handful of laboratories across the world are allowed to culture, grow and store it.

GENETIC MANIPULATION RISKS

A Chinese court sentenced the doctor who claimed to be behind the world's first gene-edited babies to three years in prison for illegal medical practice, state. He Jiankui, who shocked the scientific community by announcing the birth of twins whose genes had allegedly been altered to confer immunity to HIV, was also fined three million yuan ($430,000).

He was sentenced by a court in Shenzhen for "illegally carrying out the human embryo gene-editing intended for reproduction." Two of his fellow researchers were also sentenced. Zhang Renli was handed a two-year jail term and fined one million yuan while Qin Jinzhou was given 18 months, suspended for two years, and fined 500,000 yuan.

DOG BITES RISK

Dog bite losses exceed $1 billion per year. There have been 30 to 35 fatal dog attacks in the USA annually. Each year, more than 350,000 dog bite victims are seen in emergency rooms, and approximately 850,000 victims receive some form of medical attention. That is about 1,000 USA citizens per day. Based on data collected in the USA between 2001 and 2003, the CDC concluded that there were 4.5 million dog bite victims per year, and that figure appears to be rising. Utility workers and postmen are frequent targets of these attacks.

One of five dog bites results in injuries that require medical intervention and treatment. Even for those who escape being bitten, they sometimes get hurt in the process of getting away from a dog. Even a friendly dog could become frightened or aggressive around strangers.

According to the American Society for the Prevention of Cruelty to Animals (ASPCA), ½ of all American children suffer at least one dog bite before the age of 12. Most of these bites are not from strange animals. It is usually the family pet or a friend or neighbor's dog that does the biting.

The dog strains responsible for serious injury and death are pit bulls, rottweilers, their close mixes and wolf hybrids. Dog bites occur every 75 seconds in the USA.

TELEVISION AND FURNITURE TIP-OVER RISK

The USA Consumer Product Safety Commission (CPSC) estimates about 43,000 people are injured in a television or furniture tip-over related incident each year, more than

25,000, or 59 percent, of whom are children. Examples are falling dressers, wall units or 50- to 100-pound television units.

The statistics show that 349 people were killed between 2000 and 2011 by a falling television, appliance or piece of furniture, 84 percent of them were kids younger than 9 years old. Falling televisions were more deadly, accounting for 62 percent of these fatalities. In 2011, a record 41 tip-over related fatalities occurred.

Three children are injured by a tip-over every hour, or 71 children per day, and one child is killed every two weeks. Seventy percent of injuries involving children were caused by televisions, followed by 26 percent caused by furniture like dressers or tables.

Known causes of tip-overs included climbing (36 percent of cases involving children), hitting or kicking (14 percent) or playing nearby (7 percent). Some of these incidents are occurring as families swap out their heavier, older TVs for flat-screen models. The CPSC received reports that older, heavier television were moved to other areas of the house like the bedroom, where they were placed without a proper stand or anchoring device.

Children younger than 3 years are especially likely to be curious and reach for or try to hold onto a television. Potential injuries include traumatic brain injuries, neck injuries and abdominal trauma such as to the liver or spleen. The CPSC also reported incidents of fractures, bruises and cuts caused by the tip-overs.

If a TV cannot be anchored or mounted on a wall properly, then it's safer to place the TV on a low sturdy base. Other recommendations from the CPSC include keeping remote controls, toys and other items that might attract children off of television stands and furniture and making sure cords and cables are out of reach. Anti-tip brackets should also be installed on televisions and freestanding kitchen ranges, ovens and other appliances.

HYPOTHERMIA RISK

Hypothermia occurs when the normal body temperature of 98.6 ^{o}F or 37 ^{o}C falls below 95 ^{o}F or 35 ^{o}C. It follows exposure to low temperatures, high winds or wet clothing. Body heat would be lost at a higher rate than it is produced using up the body’s stored energy.

A number of symptoms to hypothermia appear as fatigue, drowsiness, uncontrolled shivering, slurred speech, clumsy movements, irritability, irrational behavior or general confusion. The low body temperature affects the human brain making it difficult to think clearly or move well.

A person affected by hypothermia should be moved to a warm dry area, with any wet clothing removed as immediate medical assistance is invoked. The wet clothing would be replaced and the affected person wrapped in a blanket or material that will retain the body heat. To warm the body’s core temperature the affected person should be encouraged to move his legs and arms to generate heat from muscle movement. Caffeinated drinks should be avoided as they cause dehydration.

Health conditions including cardiovascular disease, diabetes, hypertension, or taking medicines make people more susceptible to health hazards associated with cold exposure.

FROSBITE RISK

Frosbite is the freezing of the layers of skin and tissue if people are not dressed properly in cold weather. The ensuing symptoms include pale or waxy white skin color and numbness. It usually affects the extremities such as the fingers, toes, feet, ears and nose. It can damage body tissues permanently and in the extreme require amputation of the affected parts if gangrene is generated.

An affected person should be moved to a dry area and any wet or constrictive clothing affecting the blood supply to the affected area should be removed. Warm water can be applied to the affected area.

Heating pads, hot water, heat lamps and radiators are not recommended as the areas that are numb can be easily burnt. The affected areas should not be rubbed as it can cause further tissue damage.

SUGARY DRINKS RISK

Sugar-sweetened beverages are linked to more than 180,000 obesity-related deaths worldwide each year, according to research presented at an American Heart Association conference. This means about one in every 100 deaths from obesity-related diseases is caused by drinking sugary beverages.

Among the world's 35 largest countries, Mexico had the highest death rates from sugary drinks, and Bangladesh had the lowest. The USA ranked third. The American Beverage Association dismissed the research as "more about sensationalism than science."

When people drink too many beverages containing added sugar, such as soft drinks, fruit drinks, energy or sports beverages, they tend to put on weight. These added pounds increase the risk of developing diabetes, cardiovascular disease and some cancers; conditions often referred to as obesity-related diseases.

Researchers at Harvard University wanted to find out how often people around the globe drank sugar-sweetened beverages looked at 114 national dietary surveys covering more than 60 percent of the world's population. They also used evidence from studies published in medical journals that discussed sugary drinks and other dietary habits. Their data was included in the 2010 Global Burden of Disease Study, which looks at the health and mortality of populations across the world.

The researchers looked at factors that can affect weight such as TV watching, changes in physical activity levels, smoking and the consumption of all kinds of food and drink. When the researchers controlled for these factors, they were able to determine what percentage of deaths from diabetes, heart disease and cancer were linked to sugary drinks.

The investigators examined changes in sugar-sweetened beverage consumption and then its association with change in body fatness or Body Mass Index (BMI), and subsequent deaths from cardiovascular disease, diabetes and cancer. Scientists found that more people died from diabetes, heart disease and cancer in parts of the world where consumption of sugary drinks is high.

Of the nine world regions in 2010, Latin America and the Caribbean had the most diabetes deaths linked to sugary drinks with 38,000. East and Central Eurasia had the most cardiovascular deaths at 11,000. In the USA, sugary drinks were linked to the deaths of 25,000 people from diabetes and other obesity-related diseases. As in many other countries,

the death rates were highest in young adults under age 45, with one in 10 obesity-related deaths associated with sugary beverages.

Almost 3/4 of the deaths caused by sugary drinks are in low and middle income countries. The average consumption of sugar-sweetened beverages in Mexico, the country with the highest death rates among larger nations, was 24 ounces per day.

The body does not seem to detect fullness as well when you drink sugary drinks. That is one explanation for why sugar-sweetened beverages are associated with obesity.

The American Heart Association (AHA) came out with a scientific statement about sugar intake and heart health because it says there is new evidence about the relationship between the two. The statement says some research has found a link between sugar consumption and cardiovascular disease, while other research has not found a direct link. The AHA says that the best way to maintain a healthy weight and to decrease the risk of heart disease is to eat a healthy diet and to limit added sugar to no more than 100 calories a day for women and 150 calories for men.

Soft drinks and other sugar-sweetened beverages are the main source of added sugars in the American diet. One 12-ounce regular soda contains the equivalent of 10 teaspoons of sugar and has about 140 calories.

“ADDED SUGAR” RISK

The “added sugar” hidden in many processed foods substantially raises the risk of dying prematurely from heart problems by nearly three times greater than for people who eat only foods with little added sugar. Someone who normally eats 2,000 calories daily, even if consuming two 12-ounce or 340-gram cans of soda substantially increases the risk. For American adults, sodas and other sugary drinks are the main source of added sugar.

Sugar has been shown to increase blood pressure and levels of unhealthy cholesterol and triglycerides; and also may increase signs of inflammation linked with heart disease. A study published in the Journal of the American Medical Association (JAMA), Internal Medicine in 2014 used national health surveys between 1988 and 2010 that included questions about people's diets were used to calculate risks of dying during 15 years of follow-up. More than 30,000 American adults aged 44 on average were involved. Previous studies have linked diets high in sugar with increased risks for non-fatal heart problems, and with obesity, which can also lead to heart trouble. But in the new study, obesity did not explain the link between sugary diets and death. That link was found even in normal-weight people who ate lots of added sugar.

The researchers focused on sugar added to processed foods or drinks, or sprinkled in coffee or cereal. Even foods that do not taste sweet have added sugar, including many brands of packaged bread, tomato sauce and salad dressing. Naturally occurring sugar, in fruit and some other foods, was not counted. USA government dietary guidelines issued in 2010 say "empty" calories including those from added sugars should account for no more than 15 percent of total daily calories. The average number of daily calories from added sugar among USA adults is about 15 percent toward the end of the study, slightly lower than in previous years. The authors divided participants into five categories based on sugar intake, from less than the safest amount of 10 percent of daily calories to more than 25 percent. Most adults exceed the safest level; and for 1 in 10 adults, added sugar accounts for at least 25 percent of daily calories.

The researchers had death data on almost 12,000 adults, including 831 who died from heart disease during the 15-year follow-up. They took into account other factors known to contribute to heart problems, including smoking, inactivity and excess weight, and still found risks for added sugar. Adults who got at least 25 percent of their calories from added sugar were almost three times more likely to die of heart problems than those who consumed the least at less than 10 percent. For those who got more than 15 percent; or the equivalent of about two cans of sugary soda out of 2,000 calories daily, the risk was almost 20 percent higher than the safest level.

Sugar calories quickly add up: One teaspoon has about 16 calories; one 12-ounce can of non-diet soda contains has about 9 teaspoons of sugar or about 140 calories; many cinnamon rolls have about 13 teaspoons of sugar; one scoop of chocolate ice cream has about 5 teaspoons of sugar.

CAFFEINE ENERGY DRINKS RISK

Figure 117. Caffeine energy drinks.

Researchers at the University of Bonn, Germany imaged the hearts of 17 people an hour after they had an energy drink. They showed that heart contractions were more forceful after the drink. The team reported at the annual meeting of the Radiological Society of North America that children and people with some health conditions should avoid the drinks.

The amount of caffeine in energy drinks is up to three times higher than in other caffeinated beverages like coffee or cola. There are many known side effects associated with a high intake of caffeine, including rapid heart rate, palpitations, rise in blood pressure and, in the most severe cases, seizures or sudden death.

The research gave the participants a drink containing 32 mg / 100 ml of caffeine and 400 mg / 100 ml of another chemical, taurine. They observed the chamber of the heart that pumps blood around the body. They report that the left ventricle, was contracting harder an hour after the energy drink was taken than at the start of the study. They concluded that energy drink consumption has a short-term impact on cardiac contractility. It is not clear how this greater contractility of the heart impacts daily activities, athletic

performance and people with heart disease. The researchers advise children and people with an irregular heartbeat to avoid the drinks [14].

SODIUM INTAKE RISK

A small, steady reduction of sodium in the American diet could save up to half a million lives over the next decade. And a more rapid reduction could save even more lives; as many as 850,000. The New England Journal of Medicine describes how, since the early 1970s, when Finland launched a national campaign to reduce salt intake, daily consumption has dropped by 3,000 mgs / day in men and women, with a corresponding decline in death rates from stroke and coronary heart disease of 75 to 80 percent. Americans still consume a third more than the amount recommended for an otherwise healthy person and more than twice the amount recommended for people with high blood pressure, cardiovascular disease or kidney disease.

Sodium is an essential dietary element, but a mere 200 mgs a day is all one needs for good health. The average American, however, takes in 3,300 mgs daily, primarily from salt added to foods prepared commercially and in restaurants. The USA federal Dietary Guidelines for Americans recommend a maximum of 2,300 mgs / day, about one teaspoon for an otherwise healthy person. The guidelines, and the American Heart Association, recommend an even lower limit, 1,500 mgs /day, for about 60 percent of American adults: those already afflicted with ailments adversely affected by sodium such as hypertension, and adults 51 years of age and older.

Sodium in the diet causes the body to retain water, placing an added burden on the heart and blood vessels. The journal Hypertension, projects that 280,000 to 500,000 lives would be saved by a 40 percent reduction in sodium intake, to about 2,200 mgs / day over 10 years. An instantaneous reduction, to 1,500 mgs, could avert between 700,000 and 1.2 million deaths in 10 years.

Sodium chloride (NaCl) or table salt is just one common dietary source of sodium. Others include Mono Sodium Glutamate (MSG), baking soda, baking powder, disodium phosphate and other Na compounds. About 80 percent of the salt in the American diet, however, is introduced in food factories and restaurant kitchens. Ten types of foods contribute more than 40 percent of the sodium consumed by Americans, according to the Centers for Disease Control (CDC) and Prevention. Other than anchovies, French fries and pretzels, the leading nine main sources of sodium are cold cuts and cured meats, pizza, poultry that is often infused with salt water, soups, sandwiches, cheese, pasta dishes, meat dishes and snacks.

HOSPITAL ERRORS RISK

About 180,000 patients die in hospitals each year from mistakes and substandard care. In a study, Consumer Reports rates hospitals with a safety score, and most are not making the grade. It looked at more than 2,000 hospitals with an eye on hospital-acquired infections, re-admission rates, lack of communication around medications and discharges, the overuse of CT scans and rate of complications. The Mayo Clinics in Florida, Arizona and Minnesota were all near the top in safety.

EGGS RISK

Eggs are readily available, easy to cook, affordable and packed with protein and other nutrients. Eating eggs alongside other food can help our bodies absorb more vitamins. A study found that adding an egg to salad can increase how much vitamin E we get from the salad.

CHOLESTEROL AND SATURATED FAT RISK

Eggs have been controversial due to their high cholesterol content which some studies have linked to an increased risk of heart disease. One egg yolk contains around 185 milligrams of cholesterol, which is more than half of the 300 mg daily amount of cholesterol that the USA dietary guidelines recommend. There have been scientifically unsupported claims the eggs can guard against coronaviruses, or that they have even been responsible for their outbreak.

Cholesterol, a yellowish fat produced in our liver and intestines, can be found in every one of our body's cells. We normally think of it as "bad". But cholesterol is a crucial building block in our cell membranes. It also is needed for the body to make vitamin D, and the hormones testosterone and estrogen. We produce all the cholesterol we need on our own, but it is also found in animal produce we consume, including beef, shrimp and eggs, as well as cheese and butter.

Cholesterol is transported around our body by lipoprotein molecules in the blood. Every person has a different combination of various types of lipoproteins, and our individual make-up plays a role in determining our risk of developing heart disease.

Low-density lipoprotein (LDL) cholesterol – referred to as "bad" cholesterol – is transported from the liver to arteries and body tissues. Researchers say that this can result in a build-up of cholesterol in the blood vessels and increase the risk of cardiovascular disease. Researchers have not definitively linked consumption of cholesterol to an increased risk of cardiovascular disease. As a result, USA dietary guidelines no longer have a cholesterol restriction; nor does the UK. Instead, emphasis is placed on limiting how much saturated fat we consume, which can increase the risk of developing cardiovascular disease.

Foods containing trans fats increase our LDL levels. Although some trans fats occur naturally in animal products, most are made artificially and are found in highest levels in margarines, snacks, and some deep-fried and baked foods, such as pastry, doughnuts and cake. Some deep-fried foods, which contain trans fats, can increase our LDL However, along with shrimp, eggs are the only food high in cholesterol that are low in saturated fat.

While the cholesterol in eggs is much higher than in meat and other animal products, saturated fat increases blood cholesterol. The discussion on the health effects of eggs has shifted partly because our bodies can compensate for the cholesterol we consume. There are systems in place so that, for most people, dietary cholesterol is not a problem. A 2015 review of 40 studies could not find any conclusive evidence on the relationship between dietary cholesterol and heart disease. Humans have good regulation when consuming dietary cholesterol and will make less cholesterol themselves.

Cholesterol is harmful when it is oxidized, but the antioxidants in eggs prevent that process from happening. And when it comes to eggs, cholesterol may pose even less of a

health risk. Cholesterol is more harmful when oxidized in our arteries, but oxidization does not happen to the cholesterol in eggs.

Some cholesterol may be good for us. High-density lipoprotein (HDL) cholesterol travels to the liver, where it is broken down and removed from the body. HDL is thought to have a protective effect against cardiovascular disease by preventing cholesterol from building up in the blood.

What matters is the ratio of HDL to LDL in our bodies, as elevated HDL counteracts the effects of LDL. While most of us are able to buffer the cholesterol we consume with the cholesterol we synthesize in our livers, around a third of us will experience an increase in blood cholesterol by 10% to 15% after consuming it.

Trials have found that lean and healthy people are more likely to see an increase in LDL after eating eggs. Those who are overweight, obese or diabetic will see a smaller increase in LDL and more HDL molecules. So, if you are healthier to begin with, eggs potentially could have a more negative effect than if you are overweight. But if you are healthier, you are also more likely to have good HDL levels, so an increase in LDL probably is not very harmful.

Research published in 2020 challenged the recent consensus that eggs pose no harm to our health. Researchers looked at data from 30,000 adults followed for an average of 17 years and found that each additional half an egg per day was significantly linked to a higher risk of heart disease and death. They controlled for the subjects' diet patterns, overall health and physical activity to try to isolate the effects of eggs. For every additional 300 mg cholesterol person consumed, regardless of the food it came from, they had a 17 percent increased risk of cardiovascular disease, and 18 percent increased risk of all-cause mortality. The study found that each half egg per day led to a 6 percent increased risk of heart disease and 8 percent increased risk of mortality.

Despite the study being one of the largest of its kind to address this specific relationship between eggs and heart disease, it was observational, giving no indication of cause and effect. It also relied upon a single set of self-reported data – participants were asked what they ate over the previous month or year, then followed up their health outcomes for up to 31 years. This means the researchers only got a single snapshot of what the participants were eating, even though our diets can change over time.

The study conflicts with past results. Numerous studies suggest eggs are good for heart health. One previous analysis of half a million adults in China, published in 2018 found the exact opposite: egg consumption was associated with lower risk of heart disease. Those who ate eggs every day had an 18 percent lower risk of death from heart disease and 28 percent lower risk of stroke death compared to those who did not eat eggs.

Choline, TMA and Trimethylamine N-oxide TMAO risk

One way eggs may be harmful is through a compound in eggs called choline which occurs in lecithin, which may help protect us against Alzheimer's disease. It also protects the liver. But it may have negative effects. According to Wikipedia: "Symptomatic choline deficiency – rare in humans – causes nonalcoholic fatty liver disease and muscle damage. Excessive 8–20 gram daily doses of choline can cause low blood pressure, sweating, diarrhea and fish-like body odor due to trimethylamine, which forms in its metabolism.

Rich dietary sources of choline and choline phospholipids include hen egg yolk, wheat germ, and meats, especially organ meats, such as beef liver."

Choline is metabolized by gut microbiota into a molecule called TMO, which is then absorbed into people's livers and converted to TMAO, a molecule associated with an increased risk of cardiovascular disease. Studies where people were observed to have elevated TMAO levels up to 12 hours after eating eggs.

According to Wikipedia: "Trimethylamine N-oxide (TMAO) is an organic compound with the formula $(CH_3)_3NO$. It is in the class of amine oxides. Although the anhydrous compound is known, trimethylamine N-oxide is usually encountered as the dihydrate. Both the anhydrous and hydrated materials are white, water-soluble solids." TMAO is a product of the oxidation of trimethylamine, a common metabolite in animals. TMAO is biosynthesized from trimethylamine, which is derived from choline.

Research measuring egg consumption and TMAO has found transient increases in TMAO. However, TMAO is measured as a marker for heart disease only at a baseline level, which can be detected when people are fasting. One can liken this to how our blood sugar levels increase temporarily after eating carbohydrates, but elevated blood sugar levels are only associated with diabetes when these levels are continuous. This may be because when we eat eggs, we might only get choline's beneficial effects.

The problem is when, instead of being absorbed into the blood, choline continues to the large intestine, where it can become TMA and then TMAO. But in eggs, choline is absorbed and does not go to the large intestine, so it doesn't increase the risk of heart disease."

Lutein Risk

Egg yolks are one of the best sources of lutein, a pigment that has been linked to better eyesight and lower risk of eye disease. There are two types of lutein found the retina of the eye, where it can protect the retina from light damage by working as a blue light filter, as exposure to light makes the eye deteriorate.

While researchers are a long way from understanding why eggs affect us differently, the vast majority of recent research suggests they pose no risk to our health and are much more likely to provide health benefits.

MEAT AND EGGS HEART DISEASE AND STROKE RISK

Dr. Stanley Hazen, of the Cleveland Clinic, USA, reports in the New England Journal of Medicine that red meat and eggs are linked to heart disease. It appears that it is not just what we eat, but how our bodies process it that leads to heart disease [4].

Eggs and meat have high amounts of the fatty substance "lecithin." The bacterial population in the human gut digests lecithin, producing the chemical TMAO. The TMAO then enters the blood stream where it makes likely for the arteries to clog.

Lecithin is present in a variety of biological matters, including venous blood, in human lungs, bile, human brain tissue, fish eggs, fish roe, soybean oil and chicken and sheep brain. According to Wikipedia: "Lecithin (UK: /ˈlɛsɪθɪn/, US: /ˈlɛsəθɪn/, from the Greek lekithos "yolk") is a generic term to designate any group of yellow-brownish fatty substances occurring in animal and plant tissues which are amphiphilic – they attract both

water and fatty substances (and so are both hydrophilic and lipophilic), and are used for smoothing food textures, emulsifying, homogenizing liquid mixtures, and repelling sticking materials.

About 4,000 patients with suspected heart disease were followed for three years. Those that had the highest levels of TMAO were 2 1/2 times more likely to undergo a major cardiovascular event than those with the lowest levels, and the risk is higher with processed meats.

People with normal or low cholesterol levels can suffer a heart attack. When the amount of gut bacteria is lowered, the TMAO levels also decreased, raising the possibility that heart disease could be prevented or treated by developing drugs that lower the TMAO level.

HIV VIRUS EPIDEMIC RISK

According to the World Health Organization, WHO:

> "Since the beginning of the epidemic, 79.3 million [55.9–110 million] people have been infected with the HIV virus and 36.3 million [27.2–47.8 million] people have died of HIV. Globally, 37.7 million [30.2–45.1 million] people were living with HIV at the end of 2020. An estimated 0.7% [0.6-0.9%] of adults aged 15–49 years worldwide are living with HIV, although the burden of the epidemic continues to vary considerably between countries and regions. The WHO African region remains most severely affected, with nearly 1 in every 25 adults (3.6%) living with HIV and accounting for more than two-thirds of the people living with HIV worldwide."

CODON OPTIMIZATION RISK

An overlooked aspect of the COVID mRNA shots, something called "codon optimization," virtually guarantees unexpected results:

> "Trying to tell your body to generate proteins is hard for many reasons. One of them is the fact that when you try to run the protein information via ribosomes which process that code and generate the protein, it can be very slow or can get stuck during the process.
>
> Luckily, scientists found a way to overcome this problem, by doing code substitution: instead of using the original genetic code to generate the protein, they changed the letters in the code so the code would be optimized. This is known as Codon Optimization."

A codon consists of three nucleotides, and nucleotides are the building blocks of DNA. An August 2021 article in Nature Reviews Drug Discovery, addressed the use of codon optimization as follows:

> "The open reading frame of the mRNA vaccine is the most crucial component because it contains the coding sequence that is translated into protein.
>
> Although the open reading frame is not as malleable as the non-coding regions, it can be optimized to increase translation without altering the protein sequence by replacing rarely used codons with more frequently occurring codons that encode the same amino acid residue.
>
> For instance, the biopharmaceutical company CureVac AG discovered that human mRNA codons rarely have A or U at the third position and patented a strategy that replaces A or U at the third position in the open reading frame with G or C. CureVac used this optimization strategy for its SARS-CoV-2 candidate CVnCoV.
>
> Although replacement of rare codons is an attractive optimization strategy, it must be used judiciously. This is because, in the case of some proteins, the slower translation rate of rare codons is necessary for proper protein folding.
>
> To maximize translation, the mRNA sequence typically incorporates modified nucleosides, such as pseudouridine, N1-methylpseudouridine or other nucleoside analogues. Because all native mRNAs include modified nucleosides, the immune system has evolved to recognize unmodified single-stranded RNA, which is a hallmark of viral infection.
>
> Specifically, unmodified mRNA is recognized by pattern recognition receptors, such as Toll-like receptor 3 (TLR3), TLR7 and TLR8, and the retinoic acid-inducible gene I (RIGI) receptor. TLR7 and TLR8 receptors bind to guanosine- or uridine-rich regions in mRNA and trigger the production of type I interferons, such as IFNα, that can block mRNA translation.
>
> The use of modified nucleosides, particularly modified uridine, prevents recognition by pattern recognition receptors, enabling sufficient levels of translation to produce prophylactic amounts of protein.
>
> Both the Moderna and Pfizer–BioNTech SARS-CoV-2 vaccines contain nucleoside-modified mRNAs. Another strategy to avoid detection by pattern recognition receptors, pioneered by CureVac, uses sequence engineering and codon optimization to deplete uridines by boosting the GC content of the vaccine mRNA."

About 60.9% of the codons in Covid-19 shots have been optimized, equivalent to 22.5% of the nucleotides. That all mRNA COVID shots are using codon optimization to one degree or another is clear. A July 2021 article in the journal Vaccines specifically evaluates and comments on the Pfizer/BioNTech and Moderna mRNA shots, noting:

> "The design of Pfizer/BioNTech and Moderna mRNA vaccines involves many different types of optimizations … The mRNA components of the vaccine need to have a 5′-UTR to load ribosomes efficiently onto the mRNA for translation initiation, optimized codon usage for efficient

translation elongation, and optimal stop codon for efficient translation termination.

Both 5′-UTR and the downstream 3′-UTR should be optimized for mRNA stability. The replacement of uridine by N1-methylpseudourinine (Ψ) complicates some of these optimization processes because Ψ is more versatile in wobbling than U. Different optimizations can conflict with each other, and compromises would need to be made."

One key take-home from the Nature Reviews Drug Discovery article cited above is that replacing rare codons "must be used judiciously," as rarer codons can have slower translation rates and a slowed-down rate is actually necessary to prevent protein misfolding.

The spike protein is the toxic part of the virus responsible for the most unique effects of the virus, such as the blood clotting disorders, neurological problems and heart damage. To expect the Covid-19 shot to not produce these kinds of effects would be rather naïve.

A (adenine) and U (uracil) in the third position are rare, and the COVID shots replace these A's and U's with G's (guanine) or C's (cytosine). According to Seneff, this switch results in a 1,000-fold greater amount of spike protein compared to being infected with the actual virus.

What could go wrong? Well, just about anything. Again, the shot induces spike protein at levels unheard of in nature (even if SARS-CoV-2 is a "souped up" manmade concoction), and the spike protein is the toxic part of the virus responsible for the most unique effects of the virus, such as the blood clotting disorders, neurological problems and heart damage.

So, to expect the COVID shot to not produce these kinds of effects would be rather naïve. The codon switches might also result in protein misfolding, which is equally bad news. As explained by Seneff:

"The spike proteins that these mRNA vaccines are producing … aren't able to go into the membrane, which I think is going to encourage it to become a problematic prion protein. Then, when you have inflammation, it upregulates alpha-synuclein [a neuronal protein that regulates synaptic traffic and neurotransmitter release].

So, you're going to get alpha-synuclein drawn into misfolded spike proteins, turning into a mess inside the dendritic cells in the germinal centers in the spleen. And they're going to package up all this crud into exosomes and release them. They're then going to travel along the vagus nerve to the brainstem and cause things like Parkinson's disease.

So, I think this is a complete setup for Parkinson's disease ... It's going to push forward the date at which someone who has a propensity towards Parkinson's is going to get it.

And it's probably going to cause people to get Parkinson's who never would have gotten it in the first place — especially if they keep getting the vaccine every year. Every year you do a booster, you bring the date that you're going to get Parkinson's ever closer."

Other significant threats include immune dysfunction and the flare-up of latent viral infections, which is something Mikovits has been warning about:

> "We use poly(I:C) [a toll-like receptor 3 agonist] to signal the cell to turn on the type I interferon pathway, and because [the spike protein your body produces in response to the COVID shot] is an unnatural synthetic envelope, you're not seeing poly(I:C), and you're not [activating] the Type I interferon pathway.
>
> You've bypassed the plasmacytoid dendritic cell, which combined with IL-10, by talking to the regulatory B cells, decides what subclasses of antibodies to put out. So, you've bypassed the communication between the innate and adaptive immune response. You now miss the signaling of the endocannabinoid receptors.
>
> A large part of Dr. [Francis] Ruscetti's and my work over the last 30 years has been to show you don't need an infectious transmissible virus — just pieces and parts of these viruses are worse, because they also turn on danger signals. They act like danger signals and pathogen-associated molecular patterns.
>
> So, it synergistically leaves that inflammatory cytokine signature on that spins your innate immune response out of control. It just cannot keep up with the myelopoiesis [the production of cells in your bone marrow]. Hence you see a skew-away from the mesenchymal stem cell towards TGF-beta regulated hematopoietic stem cells.
>
> This means you could see bleeding disorders on both ends. You can't make enough firetrucks to send to the fire. Your innate immune response can't get there, and then you've just got a total train wreck of your immune system."

We're now seeing reports of herpes and shingles infection following COVID-19 injection, and this is precisely what you can expect if your Type I interferon pathway is disabled. That's not the end of your potential troubles, however, as these coinfections could accelerate other diseases as well.

For example, herpes viruses have been implicated as a trigger of both AIDS6 and myalgic encephalomyelitis7 (chronic fatigue syndrome or ME-CFS). According to Mikovits, these diseases don't appear until viruses from different families partner up and retroviruses take out the Type 1 interferon pathway. Long term, the COVID mass injection campaign may be laying the foundation for a rapidly approaching avalanche of a wide range of debilitating chronic illnesses.

The codon optimization in the Pfizer and Moderna shots could be problematic:

> "As mammalian host cells attack unmodified exogeneous RNA, all U nucleotides were replaced by N1-methylpseudouridine (Ψ). However, Ψ wobbles more in base-pairing than U and can pair not only with A and G, but also, to a lesser extent, with C and U.

> This is likely to increase misreading of a codon by a near-cognate tRNA. When nucleotide U in stop codons was replaced by Ψ, the rate of misreading of a stop codon by a near-cognate tRNAs increased.
>
> Such readthrough events would not only decrease the number of immunogenic proteins, but also produce a longer protein of unknown fate with potentially deleterious effects.
>
> The designers of both vaccines considered CGG as the optimal codon in the CGN codon family and recoded almost all CGN codons to CGG … [M]ultiple lines of evidence suggest that CGC is a better codon than CGG. The designers of the mRNA vaccines (especially mRNA-1273) chose a wrong codon as the optimal codon."

The paper also points out the importance of vaccine mRNA to be translated accurately and not merely effectively, because if the wrong amino acids are incorporated, it can confuse your immune system and prevent it from identifying the correct targets.

Accuracy is also important in translation termination, and here it comes down to selecting the correct stop codons. Stop codons (UAA, UAG or UGA), when present at the end of an mRNA coding sequence signals the termination of protein synthesis.

According to the author, both Pfizer and Moderna selected less than optimal stop codons. "UGA is a poor choice of a stop codon, and UGAU in Pfizer/BioNTech and Moderna mRNA vaccines could be even worse."

While the variety of diseases we may see a rise in as a result of this vaccination campaign are myriad, some general predictions can be made. We have already seen a massive uptick in blood clotting disorders, heart attacks and stroke, as well as heart inflammation.

More long term, Seneff believes we shall see a significant rise in cancer, accelerated Parkinson's-like diseases, Huntington's disease, and all types of autoimmune diseases and neurodegenerative disorders.

Mikovits also suspects many will develop chronic and debilitating diseases and will die prematurely. At highest risk, she places those who are asymptomatically infected with XMRVs and gamma retroviruses from contaminated conventional vaccines. The COVID shot will effectively accelerate their death by crippling their immune function. "The kids that are highly vaccinated, they're ticking time bombs."

While all of this is highly problematic, there is hope. To do that, you need to become metabolically flexible and optimize your diet. You'll also want to make sure your vitamin D level is optimized to between 60 ng/mL and 80 ng/mL (100 nmol/L to 150 nmol/L).

Time-restricted eating, where you eat all your meals for the day within a six- to eight-hour window will also upregulate autophagy, which may help digest and remove spike protein. Avoid all vegetable oils and processed foods. Focus on certified-organic foods to minimize your glyphosate exposure.

FIZZY SWEETENED DRINKS RISK

According to a study by Dr. Dora Romaguera of the Imperial College London, drinking at least one 330 ml can of sugary soft beverage every day leads to a 22 percent higher risk of developing Type-2 diabetes. This is attributed partially to the associated

higher average body weight, as well as an associated higher level of insulin resistance in the body cells. Drinking artificially sweetened diet drinks similarly leads to a higher risk of diabetes, but this could be explained by the larger body size; a key contributor to the disease [5].

The research covered data on the consumption of sugar-sweetened and artificially-sweetened soft drinks in 28,000 Europeans. The results were published in the Diabetologia journal. When accounting for higher body weight, drinking at least one sugar–sweetened drink per day leads to an 18 percent higher likelihood to suffer from diabetes. Regularly drinking diet soft drinks, leads to an increased risk of diabetes caused primarily by the higher body weight. This implies that diet soft drinks may not trigger the same mechanisms as sugary soft drinks in the human body, but the use of diet soft drinks is not a refuge if body weight is not managed [5].

CAFFEINATED PRODUCTS RISKS

Food manufacturers are marketing for adults caffeine in candy, nuts and other snack foods. Jelly Belly have 50 mg of caffeine in a 100 calorie pack. Decaffeinated coffee still has caffeine. A number of food products boast added caffeine for an energy boost. A caffeinated chewing gum was introduced, and later withdrawn, by Wrigley, a subsidiary of the Mars Company, and is called Alert Energy Gum. It contains 40 mg of caffeine, the equivalent of half a cup of coffee, and more than a 12 ounce can of Coke. The Food and Drug Administration (FDA) investigated the safety of energy drinks and energy shots, prompted by consumer reports of arrhythmias, heart palpitations, illness and death. The only time FDA explicitly approved the added use of caffeine in a food or drink was in the 1950's for cola drinks.

Some people are sensitive to caffeine and may display more symptoms when using caffeine products such as tea, coffee, soft drinks, and some over-the-counter medications. Medical associations have warned that too much caffeine can be dangerous for children, who have less ability to process the stimulant than adults. The American Academy of Pediatrics suggests that caffeine has been linked to harmful effects on young people's developing neurologic and cardiovascular systems [6].

ACRYLAMIDE, ROASTED COFFEE

Acrylamide is created when starchy foods are roasted, grilled or fried for long periods at high temperatures. Studies in animals found that the chemical causes tumors. This suggests that it also has the potential to cause cancer in humans.

Scientists believe that there should be a margin of exposure of 10,000 or higher between an average adult's intake of acrylamide and the lowest dose which could cause adverse effects. But at the moment the numbers are 425 for the average adult and 50 for the highest consuming toddlers, making it a slight public health concern, UK and European food safety experts say.

Coffee sold in California must carry a cancer warning, a court has ruled. The judge in Los Angeles said Starbucks and about 90 other coffee sellers had failed to warn customers about a potentially toxic compound that is produced during the roasting process. The firms were sued by a California-based non-profit-group over the chemical acrylamide.

The group argued that as acrylamide is regarded as carcinogenic under state law, it should be sold with a warning.

Ruling in favour of the Council for Education and Research on Toxics, Superior Court Judge Elihu Berle said the companies should not be exempt from the law, as they had failed to prove that the "consumption of coffee confers a benefit to human health". The lawsuit was filed in 2010 and says coffee sellers should pay fines of up to $2,500 (£1,800) for every person exposed to acrylamide in California since 2002.

The ruling came despite a recent easing of concern about the potential health impact of coffee, which was removed from a list of possible carcinogens by the UN's World Health Organization (WHO) in 2016. A 2017 study of almost half a million people from 10 European countries found that drinking three cups of coffee a day may have health benefits. But skeptical experts said it was impossible to say for sure that the coffee was having a protective effect.

“CARAMEL COLORING” IN SOFT DRINKS

The golden-brown color of many soft drinks comes from the chemical 4-methylimidazole, or 4-MeI. On USA product labels it appears simply as "caramel coloring." Those who say the chemical may possibly cause cancer include The World Health Organization's International Agency for Research on Cancer and the state of California suggest that it is a possible carcinogen and California limits manufacturers to 29 micrograms of exposure for the average consumer per day. Foods exceeding that limit have to carry a warning label that reads: "WARNING: This product contains a chemical known to the State of California to cause cancer."

When Consumer Reports purchased sodas in California and had them analyzed by a lab, it found that one 12-ounce serving of Pepsi One or Malta Goya exceeded the levels permitted without a warning label. Ten other brands tested by the group did meet the California standard, which is estimated to limit the risk of cancer from 4-MeI to one case in every 100,000 lifetimes of daily exposure.

The Food and Drug Administration does not set federal limits on 4-MeI in food, and the data gathered by Consumer Reports show that in some cases consumers outside California are drinking a slightly different ingredient. For example, Pepsi One purchased by the group in December in New York contains four times as much 4-MeI as the same product bought that same month in California. In a statement to Consumer Reports, PepsiCo Inc. said data indicate that the average person consumes less than one-third a can of diet soda per day; therefore, its product meets the California standard, even if a complete serving exceeds that limit [14].

DRUGS OVERDOSE RISK, FENTANYL SYNTHETIC OPIATE

More than 100,000 Americans died of drug overdoses in 2021 -the vast majority were adults - but the fastest growing group to die of overdoses were teenagers. Young Americans are increasingly poisoned by the synthetic opiate Fentanyl, even as fewer teens use drugs

Some think they are taking Percocet, a pain medication that is sometimes abused. But counterfeit pills are laced with Fentanyl, and they get poisoned. Fentanyl is typically

smuggled into the USA by Mexican drug cartels. While it used to be laced into the hardest drugs like heroin, the cartels now mass-produce fentanyl pills in rainbow colors to mimic prescription pills and, some say, to target kids who are more willing to experiment with them.

The USA is an outlier when it comes to overdoses, with a death rate 20 times the global average. Officials stock the overdose reversal medication, Narcan, in schools. The medication, which commonly comes in the form of a nasal spray, can be used by anyone to reverse the effects of an overdose. The spray is used as one spritz up the nose, followed by a rub on the sternum. Then another spray 2-3 minutes later if the person overdosing did not respond.

MENTAL DEPRESSION AND SUICIDE RISKS

Suicide moved from being the eighth leading cause of death among middle-aged USA citizens to the fourth position, behind cancer, heart disease and accidents in 2010. The overall national suicide rate in the USA climbed from 12 suicides per 100,000 people in 1999 to 14 per 100,000 in 2010.

The Center for Disease Control and Prevention (CDC) reports that there were 33,687 deaths from motor vehicle crashes in 2010, while more people at a 38,364 number, committed suicide. The rate among middle-aged Americans reached 28 percent in a decade within a period that includes the recession and the mortgage crisis. People aged 35- 64 account for about 57 percent of suicides in the USA. The trend was most pronounced among white males and females in that age group. Their suicide rate jumped 40 percent between 1999 and 2010.

Luckily, the rates among younger and older people held steady. There was little change among middle-aged African-Americans, Hispanics and most other racial and ethnic groups. The increase among baby boomers in their 50s may be a characteristic of their generation, as they also showed high rates of suicide in their teenage years. Suicides among middle-aged Native Americans and Alaska Natives climbed 65 percent to 18.5 per 100,000. The overall numbers remain very small at 171 such deaths in 2010. Guns are instrumental in nearly half of all suicides in that age group in 2010. Hangings overtook drug overdoses, becoming the second most frequent manner of suicide. Other methods do not result in death. The individual survives, often with even more mental torment, physical scars and other side-effects.

DISTRACTED DRIVING RISKS

According to the Illinois Governor's Highway Safety Association, drivers are 4 times more likely to cause an accident while talking on a cellular phone or driving while intoxicated. The likelihood doubles to 8 times if texting is involved. About ½ million people were injured in distracted driving accidents [7].

The youngest and most inexperienced drivers are most at risk with 16 percent of all distracted driving crashes involving drivers under the age of 20 years. Statistics reveal that during daylight hours 800,000 vehicles are driven by somebody using a hand-held cellular phone.

Texting is of most concern since it involves multitasking in manual, visual and cognitive skills. Reading or sending a text takes the eyes off the road for 4.6 seconds, during which a car driving at 55 miles/hours travels the length of an entire football field [7].

As of January 1st, 2013, the State of Illinois has instigated the following laws to reduce the risks of distracted driving [7]:

i) Ban on texting for all drivers.
ii) Ban on the use of cell-phones for novice drivers (hand-held and hand-free). A novice driver is a person under the age of 19 who is driving on an instruction permit or graduated driver's license. Emergency use of a cell-phone is allowed for these drivers.
iii) Ban on use of cell-phones while driving in a school zone or construction zone. (hand-held and hands-free)
iv) Ban on use of hand-held cell-phones within 500 feet of an emergency scene. (Certain exclusions apply)
v) Ban on use of cell-phones by bus-drivers. (hand-held and hands-free)

RISK FROM ANESTHESIA IN THE ELDERLY

Older people who undergo general anesthesia for major surgery have a 35 percent higher risk of developing dementia later in life. The "Three-City Study" included thousands of people age 65 and older in Bordeaux, Dijon and Montpellier in France starting in 1999. In a subpopulation of 7,008 citizens, 632 participants developed dementia over the course of the study, and those patients were more likely to have had general anesthesia than those who did not develop mental deterioration.

A theory exists that post-operative cognitive dysfunction, a common complication in elderly patients in which their thinking and memory is temporarily impaired, is associated with a higher risk of developing dementia. Previous research has suggested that some anesthetics may prompt inflammation of neural tissues, leading to early signs of Alzheimer's disease including amyloid plaques and protein tangles in the brain [8].

DEHYDRATION RISKS

The human body consists of 60-70 percent water. Symptoms of dehydration include a dry and a sticky mouth, sunken eyes, low tears production, little to no urine output and lethargy, according to the National Institutes of Health (NIH). Insufficient water intake could lead to low blood pressure and a rapid heart rate.

Water consumption moistens the lungs, whose function uses about a pint of water per day, releasing water through the exhalation process. People who do not drink enough fluids can accumulate excess body fat, show poor muscle tone and a decreased ability to digest food. The general recommendation is to use 8-10 glasses of water per day.

Whereas caffeinated and alcoholic beverages are liquid; soda beverages, coffee and tea are diuretic and cause the body to become dehydrated by hastening the body's elimination of fluids. Mild symptoms of dehydration include heart burns, stomach aches, lower back pain, headaches and depression.

HYPONATREMIA, WATER INTOXICATION RISKS

Too much water intake over a short period of time can be dangerous and even fatal. If a person drinks more water than his/her kidneys can excrete, the overall electrolyte level in the blood will drop significantly and the excess water can enter and swell the brain cells, resulting in a potential seizure and/or a coma.

A result of too much water consumption is hyponatremia, a decrease in the blood's Na level. If more water enters the body than the kidneys can process, the mineral content of the blood decreases and the blood's overall Na levels drop. When Na and other electrolyte levels such as K drop in the blood, water can escape the blood and enter the cells as the blood and the cells struggle for electrolyte levels equilibrium.

Water intoxication occurs when hyponatremia leads to cerebral edema. The swelling of cells because of water retention becomes risky if it occurs in the brain, which is known as cerebral edema. Brain cell swelling within the confines of the skull could lead to irreversible brain damage.

The symptoms of cerebral edema mirror other brain conditions such as tumors and concussions. They start with a headache that increases in intensity followed by mental confusion and seizures. Vomiting and exhaustion are possible. As the brain cells continue to swell, the risk of death from water intoxication increases.

An increase in water will add to the body's overall blood volume and place a strain on the heart and the circulatory system. Water drinking contests, are risky from this perspective. Marathon runners are at risk if they try to rehydrate too quickly. The best strategy is to ration the rehydration process over a period of time.

GRAIN BIN ENTRAPMENT

Farmers get into grain bins to unplug jammed grain. The grain acts like quicksand and can literarily drown those caught in it. A total of 180 fatalities over 28 years occurred over the period 1984-2012, or about 6.4 fatalities per year. A total of 92 fatalities have been listed over the 2006-2011 period at an average of 15.3 fatalities/year. Associated accidents are grain bin collapses and suffocation due to the formation of toxic gases from fires.

In 2012, the primary medium of entrapment was soybeans (7 cases) followed by corn (4 cases). Since 1965, there were 1,500 fatal and non-fatal grain entrapments cases. Of 19 entrapments reported in 2012, eight resulted in death, compared with 11 in 2011, 31 in 2010, 19 in 2009, 17 in 2008 and 16 in 2007.

GRAIN ELEVATORS DUST EXPLOSIONS

The storage and conveyance of grain leads to the generation of dust with a large surface area in which a spark from a starting motor or a cigarette light can initiate a deflagration in the grain dust. In December 1977, a series of five grain elevator explosions killed 59 people and injured 48.

Table 19. Dust explosions statistics. Source: OSHA, USA Department of Labor.

Year	Number	Injuries	Deaths
1976-1989	281	480	155

1990-1999	130	119	15
2000-2010	89	77	7
2011	3	1	7
2012	7	6	0

Figure 118. Suspected dust explosion and fire aftermath, Broadlands Grain Elevator, Illinois, summer 2013. Photos: Barbara Ragheb.

INTERNET COUNTERFEIT DRUGS RISKS

The National Association of Boards of Pharmacy reviewed 10,000 internet drug websites and suggests that 97 percent of them were peddling counterfeit or substandard medications. The National Crime Prevention Council and the USA Food and Drug

Administration, after studying the drugs, found the following characteristics to be most prevalent:

1. Some of the counterfeit drugs were found to contain toxic materials as fillers such as drywall, antifreeze and yellow highway paint.
2. Some tested drugs contained three times the active ingredient of their non-counterfeit counterparts. In one case, the counterfeiters emptied bottles of the anti-psychotic drug Zyprexa, replacing them with aspirin.
3. Some fake drugs contain some active ingredient, but are sub-potent, which is hazardous in the treatment of diseases such as malaria and HIV.
4. Some of these drugs are nothing but chalk or water. A version of the growth hormone drug for AIDS patients Serostim, was found to have no active ingredient at all.

Patients cannot tell the difference in the imitations without going through detailed laboratory testing. According to the Smithsonian magazine, the anti-malarial drug Artesunate was counterfeited with flour. In 2009, the World Health Organization (WHO) estimated that counterfeit drugs were associated with 20 percent of the 1 million deaths from malaria worldwide, for a total of 10^6 x 0.2 = .200,000 cases.

As forged labeling continues to get sophisticated, wholesalers are buying from multiple sources while shopping for the best price, jumbling up the product line. A growing number of high-demand, but expensive new pharmaceutical treatments allows forgers to rake in substantial profits. In addition, criminals are attracted to the fake drugs business, because they can get away with short prison terms or just fines when they are caught. Loopholes in regulation from country to country make it easy for unscrupulous individuals or organized crime to exploit the situation, making huge profits before disappearing from the market.

RISK FROM ARSENIC IN APPLE JUICE

The USA Food and Drug Administration (USFDA), after decades of consideration, proposed limiting the amount of inorganic arsenic in apple juice to the same level of the potential cancer-causing chemical allowed in USA drinking water. The USFDA proposed a limit of 10 parts per billion (ppb) for inorganic arsenic in apple juice, the level set by the USA Environmental Protection Agency (EPA) for arsenic in drinking water.

Inorganic arsenic may be found in foods because it is present in the environment, both as a naturally occurring mineral and due to the use of arsenic-containing pesticides. Inorganic arsenic has been associated with skin lesions, developmental effects, cardiovascular disease, neurotoxicity and diabetes. Organic forms of arsenic, also found in soil and ground water, are considered essentially harmless.

OBESITY RISK

About 18.2 percent of premature deaths in the USA between 1986 and 2006 were associated with excess body mass, according to a team of sociologists led by a Columbia University demographer. That estimate, published in the American Journal of Public Health, is far higher than the 5 percent toll widely cited by researchers. The new figures do not reflect newly discovered facts about obesity's effects on health. Rather, they emerged

after the researchers applied a finer-grained approach to examining obesity across the USA population [9].

Using historical survey data, the study authors toted up differences in excess weight status across different gender, ethnic and age groups. They combined that data with existing "mortality risk" statistics to estimate how many Americans over age 40 who died during that 20-year period did so because of weight-related causes. The study makes clear that as obesity has become more widespread across successive waves of American generations, it has the momentum to reduce the average life expectancy of an entire population for many years to come. Some premature deaths could still be prevented by public campaigns or medical therapies that drive down obesity or its effect on health.

The study found that weight-related early mortality had struck American women harder than men, and that African American women had suffered the most. The premature deaths of 21.7 percent of white women between 1986 and 2006 could be attributed in part to excess weight, as could 26.8 percent of early deaths among African American women.

Among white men, 15.6 percent of premature deaths in that period were linked to excess weight. Among black men, the figure was only 5 percent. Though African American men have high rates of obesity, they are also more likely than all other groups to die prematurely of other causes, such as injury or violence. The latest calculation calls into question the emerging belief that obesity in old age confers some protection against premature death or the so-called obesity paradox that has given comfort to many older adults struggling to shed weight. The study concluded, the probability of death among those carrying excess weight continued to rise after age 60, and did so steeply [9].

SURGICAL PROCEDURES INFECTION RISK

A report shows that 198 patients acquired new infections while being treated at New Hampshire hospitals in 2012. New Hampshire's 31 hospitals have been required since 2009 to provide data on patients who develop infections after heart, colon and knee surgeries or through central lines or catheters inserted in blood vessels near the heart or another major vessel. This includes 116 surgical site infections, 21 bloodstream infections associated with central lines and 61 urinary tract infections.

RISKS OF SPICES USE IN FOOD

According to the USA Food and Drug Administration (USFDA), 7 percent of imported spices over a three-year period were contaminated with the salmonella pathogen. In a report released on October 30, 2013, the USFDA says testing of imported spices between 2007 and 2010 showed that spices were twice as likely as other inspected foods to be contaminated with the pathogen. More than 80 different types of salmonella were detected. The study looked at spices imported from several countries, with many of the shipments coming from India, Mexico, Thailand and Vietnam.

In 2009 and 2010, black pepper and red pepper from India, Vietnam and China used in salami caused hundreds of illnesses. The FDA says there have been 14 known outbreaks around the world since 1973, causing almost 2,000 illnesses, many of which were in children. During the three-year period, 749 shipments of spice were refused entry into the

USA because of salmonella contamination, while 238 other shipments were denied because of the presence of what the FDA calls "filth" as insects, excrement, hair or other materials.

The USFDA said some of the spices that were found contaminated at the border were later cooked or treated to eliminate possible pathogens, so much of the salmonella was likely gone by the time the spices were eaten. The agency also noted that the amount of spice generally eaten at a meal is small, meaning people have less of a chance of getting sick from a contaminated spice than a contaminated fruit or vegetable.

Most all of the spices eaten in the USA are imported, and most come from small farms in a variety of countries that have different levels of food safety oversight. The report says spices are produced by a wide variety of agricultural practices, including "on very small farms where farm animals are used to plow, crops are harvested by hand, and spices are dried in open air." All of these practices have potential for animal, bird or human contamination. Off the farm, spices from the small farms are often combined, sold to exchanges or packing companies, or stored for years, increasing the chances that they are temporarily in unclean circumstances.

The chances of someone getting sick can be reduced by adding spices to food before it is cooked. Problems arose because of generally unhygienic conditions, including the failure to limit animal and insect access to food and not taking steps like irradiation to kill any potential pathogens.

RISK IN ANTIBACTERIAL SOAPS

The USA Food and Drug Administration (FDA) warned that antibacterial chemicals in soaps and body washes may pose health risks. It proposed a rule requiring manufacturers to prove such soaps are safe and more effective against infection than plain soap and water.

Studies indicate an ingredient in such products could scramble hormone levels and boost drug-proof bacteria. The proposal rule does not apply to alcohol-based hand sanitizers and products used in healthcare settings.

Data suggest that the risks associated with long-term, daily use of antibacterial soaps may outweigh the benefits. Certain added ingredients in such products such as “triclosan” in liquid soaps and “triclocarban” in bar soaps, may contribute to bacterial resistance to antibiotics. Such products may also have "unanticipated hormonal effects that are of concern.” Recent studies of such chemicals on animals have shown they may alter hormones, the FDA said, but such results have not yet been proven in humans. In March 2013, a federal appeals court approved a lawsuit by the non-profit Natural Resources Defense Council, aimed at forcing the FDA to review the health impacts of triclosan.

MEDICAL DEVICES AND ROBOTIC SURGERY RISK

In robotic surgery, a physician sits at a console several feet from the patient and peers into a high-definition display. Foot pedals and hand controls maneuver mechanical arms equipped with tools, guided by a 3-D camera that shows the work as it is done inside a patient.

Officials in Australia and the UK tracked hip implants in their countries using registries and first demonstrated high failure rates with metal-on-metal hip implants.

Australia's registry noticed high failure rates in one metal hip model as early as 2007, according to the website of Australia's Therapeutic Goods Administration. Johnson & Johnson cited failure rate data from the British registry as it recalled two of its metal-on-metal devices in August 2010. In 2012, the British data showed metal-on-metal hips from various manufacturers failed at high rates, according to results published in The Lancet.

The USA's Food and Drug Administration (FDA) made an "initial communication" about potential long-term risks of removable filters to prevent lung blood clots in August 2010, after it received more than 920 reports of serious problems from the filters over five years. The agency's warning was issued the same day as the Journal of the American Medical Association (JAMA) Internal Medicine released a study showing some models of the devices could fracture in as much as 16 percent of patients, sometimes leaving shards impaled in internal organs.

The Intuitive robotic surgery system was cleared by the FDA in 2000, after a trial, done in a Mexico City hospital, of 233 patients in two kinds of surgery, gall bladder removal and heartburn operations. In 2013, it was used in the USA for everything from hysterectomies to heart-valve procedures to operations for head-and-neck and prostate cancer. Few robotic operations have been studied in large randomized trials to identify the advantages and disadvantages, compared with standard less-invasive operations.

The FDA received 3,697 adverse reports involving deaths, injuries, or malfunctions linked to robotic surgery procedures in 2013 through November 3, compared with 1,595 in all of 2012. Some of the increase may have come as the result of media attention, announcement of recalls of robotic instruments, or more device use,

The number of robotic operations rose 18 percent worldwide in the first nine months of 2013 compared with the first nine months of 2012, according to a regulatory filing from the Intuitive medical robotics company. In 2013, the FDA surveyed 11 doctors who have performed from 70 to 600 robot surgeries each using Intuitive's robotic instrument, the only such product cleared in the USA for a wide variety of soft tissue procedures such as gynecologic and prostate operations [13].

FRAGMENTED SLEEP RISK

A study published in the journal "Cancer Research" suggests that "Fragmented sleep" changes how the immune system deals with cancer in ways that make the disease more aggressive. Toll-like receptor 4, a biological messenger, helps control activation of the innate immune system. It appears to be a lynchpin for the cancer-promoting effects of sleep loss. The researchers used mice, housed in small groups. During the day—when mice normally sleep—a quiet, motorized brush moved through half of the cages every two minutes, forcing those mice to wake up and then go back to sleep. The rest of the mice were not disturbed. After seven days in this setting, both groups of mice were injected with cells from one of two tumor types (TC-1 or 3LLC). All mice developed palpable tumors within 9 to 12 days. Four weeks after inoculation the researchers evaluated the tumors. They found that tumors from mice with fragmented sleep were twice as large, for both tumor types, as those from mice that had slept normally. A follow-up experiment found that when tumor cells were implanted in the thigh muscle, which should help contain growth, the tumors were much more aggressive and invaded surrounding the tissues in mice with the fragmented sleep.

PESTICIDES EXPOSURE RISK

A study that was published in the Journal of the American Medical Association (JAMA} Neurology reveals that patients with Alzheimer's disease have significantly higher levels of DDE, the long-lasting metabolite of the pesticide DDT, in their blood than healthy people. In a case-control study involving 86 Alzheimer's patients and 79 healthy elderly controls, researchers found that DDE levels were almost four times higher in serum samples from Alzheimer's patients than in controls. Having DDE levels in the highest third of the range in the study increased someone's risk of Alzheimer's by a factor of four.

The study identifies a strong environmental risk factor for Alzheimer's disease. The magnitude of the effect is large and is comparable in size to the most common genetic risk factor for late-onset Alzheimer disease.

Figure 119. DDT Spraying in the home.

BISPHENOL A, BPA AND PHTHALATES AND OTHER INCORPORATED CHEMICALS RISK

Bisphenol A, or BPA, and phthalates are referred to as "everywhere chemicals" because they are found in so many products such as water bottles and kitchen vinyl flooring. BPA epoxy resins can leach into food from the lining of metallic food cans. In one CDC study, researchers found traces of BPA in the urine of nearly all 2,517 participants. BPA is frequently found in plastic wrap, although many companies have started to remove BPA from their products.

Scientists have voiced concerns about these chemicals disrupting our bodies' hormones. Recent studies link them to a variety of fertility problems in men and women. The FDA says it is investigating the safety of BPA and monitoring the exposure to phthalates.

Most people's exposure to BPA comes from food and water stored in plastic containers, according to the Centers for Disease Control and Prevention. BPA can leach from these containers into meals, especially when they are heated in microwave ovens.

The number of chemicals known to be toxic to children's developing brains has doubled over the last seven years. These chemicals can enter the brain through the blood brain barrier and cause neurological symptoms. When this happens in children or during pregnancy, those chemicals are extremely toxic, and the effects are permanent.

Five chemicals are identified as neuro-toxicants which are substances that impact brain development and can cause a number of neurodevelopmental disabilities including Attention Deficit Hyperactivity Disorder (ADHD), autism, dyslexia and other cognitive damage: lead, methyl-mercury, arsenic, Poly-Chlorinated Biphenyls, or PCBs, and toluene. Six more chemicals have been added to the list: manganese; fluoride; tetra-chloro-ethylene, a solvent; a class of chemicals called poly-brominated-diphenyl ethers, or flame retardants; and two pesticides, chlorpyrifos, which is widely used in agriculture, and dichloro-diphenyl-trichloroethane, or DDT.

Banned in the United States in 1979, PCBs were used in hundreds of products including paint, plastic, rubber products and dyes. Toluene exists in household products like paint thinners, detergents, nail polish, spot removers and antifreeze.

Fluoride, in tap water in many areas, leads to a decline on average of about seven IQ points in Chinese children.

At least 1,000 chemicals using lab animals have shown that they somehow interfere with brain function in rodents as rats and mice, and those are prime candidates for regulatory control to protect human developing brains. But this testing has not been done systematically. At greatest risk are pregnant women and small children as the biggest window of vulnerability occurs in utero, during infancy and early childhood.

Beyond reduced IQ, shortening of attention span, increased risk of Attention Deficit Hyperactivity Disorder (ADHD) are observed. These include emotional problems, less impulse control, being more likely to make bad decisions, get into trouble, dyslexia and dropping out of school. These are problems that are established early, but travel through childhood, adolescence, even into adult life.

In 2007, the European Union adopted regulations known as Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) to protect human health from risks posed by chemicals. REACH covers all chemicals, placing the burden of proof on companies to prove that any chemicals they make are safe.

Example of products banned in Europe but marketed in the USA are cosmetics and phthalates. Phthalates are a group of chemicals used in hundreds of products from cosmetics, perfume, hair spray, soap, shampoos, plastic and vinyl toys, shower curtains, mini-blinds, food containers and plastic wrap, shampoos and lotions. Phthalates are used in hair spray to help avoid stiffness; they allow the spray to form a flexible film on the hair, according to the FDA. They are found in plastic plumbing pipes, medical tubing and fluid bags, vinyl flooring and other building materials. They are used to soften and increase the flexibility of plastic and vinyl. The floors and walls of homes may also contain phthalates. A 2010 test of four representative vinyl flooring samples found four of the six phthalates severely restricted in children's products, with levels as high as 84,000 parts per million or 84 times what is allowed in toys.

Phthalates previously were used in pacifiers, soft rattles and teethers. In 1999, after a push from the USA Consumer Product Safety Commission, American companies stopped using them in those products. The Food and Drug Administration asserts that two of the most common phthalates; di-butyl-phthalate, or DBP, used as a plasticizer in products such

as nail polishes to reduce cracking by making them less brittle, and di-methyl-phthalate, or DMP used in hairsprays, are now rarely used in the USA. Di-ethyl-phthalate, or DEP, used in fragrances, is the only phthalate still used in cosmetics, according to the FDA. An expert panel that convened from 1998 to 2000 by the National Toxicology Program (NTP), part of the National Institute for Environmental Safety and Health, concluded that reproductive risks from exposure to phthalates were minimal to negligible in most cases.

Toothbrushes can contain phthalates and dental materials used to treat and prevent cavities can contribute to very low-level BPA exposure for a few hours after placement, according to the American Dental Association.

Phthalates can be found in kids' toys, rattles and teethers. If a plastic product is flexible, it probably contains phthalates unless the label specifically says it does not, according to the National Institute of Environmental Health Sciences. The biggest risk comes from items children place in their mouths. Congress has permanently banned three types of phthalates: DEHP, DBP and BBP1, in any amount over 0.1 percent in many children's products.

The Environmental Working Group; an environmental health research organization that specializes in toxic chemical analysis, has long called for reforms. In 2004, the group tested 10 samples of umbilical cord blood for hundreds of industrial pollutants and found an average of 200 in each sample. The 1976 Toxic Substances Control Act governs the exposure of toxic chemicals.

BPA is an endocrine disrupter that can mimic estrogen. In 2012, the Food and Drug Administration said BPA could no longer be used in baby bottles and children’s drinking cups. Canadian regulators formally declared BPA a toxic substance in 2010 and banned it from all children’s products. The American Chemistry Council, an industry trade group, has said BPA is safe and has opposed federal and state legislative proposals to ban it [19].

A study, published in Hypertension, a journal of the American Heart Association, used a randomized controlled trial. The authors, a team from Seoul National University’s department of preventive medicine in Korea, recruited 60 older subjects, most of whom were women, and assigned them to drink soy milk from cans or glass bottles on three separate occasions, weeks apart. A majority had no history of high blood pressure, though some did. The researchers chose soy milk because it does not have any properties that are known to increase blood pressure. And unlike soda, fruit juice and other acidic beverages, which are more likely to leach BPA from containers, soy milk is considered fairly neutral. When the subjects drank from glass bottles, the study found, their urinary BPA levels remained fairly low. But within two hours of drinking from a can, their levels of BPA were about 16 times higher. As BPA levels rose, so too did systolic blood pressure readings – on average by about five millimeters of mercury. In general, every 20 millimeter increase in systolic blood pressure doubles the risk of cardiovascular disease [19].

BPA is known to block certain estrogen receptors that are thought to be responsible for repairing blood vessels and controlling blood pressure. The chemical may also affect blood pressure indirectly by disrupting thyroid hormone. A study in the journal Environmental Health Perspectives found that plastic products advertised as BPA-free still leached chemicals with estrogenic activity, and some of these chemicals were even more potent than BPA [19].

VITAMIN C DEFICIENCY STROKE RISK

According to the American Academy of Neurology, consuming foods that contain Vitamin C may lower the risk of the most common kind of hemorrhagic stroke. Fruit and vegetables, such as oranges, papayas, peppers, broccoli and strawberries, contain Vitamin C. According to the American Stroke Association, hemorrhagic stroke accounts for approximately 13 percent of stroke cases. It results from a weakened vessel that ruptures and bleeds into the surrounding brain. The blood collects and compresses the surrounding brain tissue.

The reported research involved 65 people who had dealt with an intra-cerebral hemorrhagic stroke. They were examined in contrast to 65 healthy people who had not experienced an intra-cerebral hemorrhagic stroke. The levels of vitamin C in their blood were obtained. Forty-one percent of cases had normal levels of vitamin C, while 45 percent had sapped levels of vitamin C and 14 percent were considered lacking the vitamin. The researchers discovered that, on average, the people who had a stroke had deficient levels of vitamin C, while those who had not experienced a stroke had normal levels of vitamin C.

The results suggest that vitamin C deficiency should be considered as a risk factor for this severe type of stroke, as were high blood pressure, drinking alcohol and being overweight. Research is needed to explore specifically how vitamin C may help to reduce stroke risk. For instance, it may regulate blood pressure.

RISK OF BRASS GAS CONNECTIONS

Manufacturers have stopped making flexible gas connectors made of uncoated brass 4 decades ago, yet many homes still use these corrugated metal tubes for the connection of gas appliances such as stoves and water heaters. Some of these connectors have a serious flaw that places homes at risk for a leak and a fire or a gas explosion.

Uncoated brass connection must be replaced by an AGA- certified plastic-coated brass or stainless steel connectors to connect gas appliances.

PORTABLE AND STANDBY GENERATORS RISKS

Portable generators are used by homeowners and contractors as a temporary power sources in the case of power outages or in the field if electrical connections are not available. Permanent or standby generators are run for an extended period of time using an independent fuel source such as propane gas or natural gas. Permanent generators are connected directly into the home power supply to operate sump pumps, and appliances like furnaces, well pumps and lights.

Generators generate CO_2 and CO and must not be used in an enclosed area like a garage. They must be used only in well-ventilated outdoor locations away from windows, doors and intake vents.

A transfer switch needs to be professionally installed on permanent standby generators to disconnect the home from the power grid while the generator is in in use, to prevent the electrocution risk from the hazardous “back-feed” to the neighbors, the home-owner and to utility crews working on reconnecting the interrupted power supply that would triggered the operation of the standby generator.

Portable and standby generators pose a risk of electrocution if operated in a wet environment. Under rainy or wet conditions outdoors they must be placed under a protective canopy and on a dry surface. Hands must be dry before touching the generator.

The generator must be allowed to cool down before adding new fuel to avoid fire hazards.

HEPATITIS C VIRUS (HCV) RISK

Hepatitis C Virus (HCV) infection is a hazardous liver infection that has become the main cause of cirrhosis, liver cancer and liver transplants in the USA, according to the CDC. Some patients who contract HCV recover in a matter of weeks, but at least 75 percent of them eventually develop chronic infections that can last for the rest of their lives. The virus can be spread through contact with infected blood, such as infected blood transfusions or the use of infected hypodermic needles. Health experts estimate that hepatitis C now kills more Americans each year than HIV [15].

Analyzing data from thousands of people who participated in the National Health and Nutrition Examination Survey, researchers from the Centers for Disease Control and Prevention estimated that about 1 percent of the USA population over age 5 have hepatitis C. If so, that would translate to 2.68 million people with HCV.

The researchers estimated that 900,000 additional people once had the liver disease but no longer have an active infection. Altogether, 1.3 percent of the USA population has a past or current HCV infection, according to a 2014 study published in the Annals of Internal Medicine [15].

Compared with Americans who never had the virus, those with chronic infections were more likely to have received a blood transfusion before 1992 and to have injected illicit drugs. However, 49 percent of people with chronic infections had neither of these risk factors in their history, therefore, “risk-based screening alone is an incomplete approach to identifying chronically infected persons. [15].”

People with hepatitis C are more likely to be men; to be between the ages of 40 and 59; to have less education; and to have lower family income. Overall, 81percent of all people with chronic hepatitis C were born between 1945 and 1965. This is why the CDC recommends that all people born during that window to get tested at least once. Such screening would flag about 800,000 people who otherwise would not know they were infected; if all of them got treatment, an estimated 120,000 deaths due to HCV could be avoided [15].

RISK OF TESTOSTERONE INJECTIONS

A National Cancer Institute study published on January 29, 2014 reiterates results from an earlier study that taking testosterone tempts a heart attack. About 3 percent of men in the USA 40 and older receive testosterone therapy. More than 55,000 men were studied for 90 days before receiving a prescription for testosterone therapy and for 90 days afterward. Their increased risk of heart attack or myocardial infarction went up by 36 percent overall. For men over 65 years of age, that risk doubled. A man over 65 taking testosterone is more than 70 percent more likely to have a heart attack within 90 days of starting treatment than a similar person who does not get the therapy.

A study of men in the Veterans Affairs health care system published in November 2013 showed a 30 percent increase for risk of stroke, heart attack and death among those taking testosterone therapy.

RISK OF BROAD-SPECTRUM ANTIBIOTICS USE

The broad-spectrum "azithromycin" antibiotic is easy to take: one pill a day for five days. However, in many cases, azithromycin can make patients sicker, not better. Its widespread use as the most popularly prescribed antibiotic in the USA has helped superbugs, as well as many other threatening bacteria, become resistant to it.

In just 2013, the FDA has warned that azithromycin can cause a fatal arrhythmia of the heart known as torsades de pointe. The Canadian Pediatric Society insisted that azithromycin not be used at all in cases of pneumonia, ear infections and sore throats in children. The Infectious Diseases Society of America has recommended that azithromycin not be used at all for sinusitis. A Centers for Disease Control study published on February 14 2014 in Morbidity and Mortality Weekly Report indicates that azithromycin is often ineffective in cases of shigella, a common but potentially fatal diarrhea.

Often, there are better antibiotics to prescribe for common illnesses. In October 2013, a review study of 94 million patient visits to doctors published in JAMA Internal Medicine reported that in 73 percent of visits for acute bronchitis and 60 percent of visits for sore throats, patients left with prescriptions for antibiotics. New guidelines suggest only 10 percent of sore throat patients and no acute bronchitis patients should get prescriptions. About 15 percent of all the sore throat prescriptions in the study were made for azithromycin, which is often ineffective. Penicillin, which was prescribed in only 9 percent of cases, remains highly effective in treating sore throats.

Researchers suggest that a cough from acute bronchitis, which typically follows a cold or flu, should go untreated for at least three weeks, the amount of time the body takes to overwhelm it. However, studies show that most sufferers in the USA go to their doctors for bronchitis within a week after symptoms begin, and they typically get a prescription.

Overuse of antibiotics is not just causing rapidly increased resistance by bacteria. It causes allergies, yeast infections, nausea and an increasing association with irritable bowel syndrome. Countries that have recommended the use of narrow-spectrum antibiotics have seen a fall in their resistance rates.

FLUOROQUINOLONE ANTIBIOTICS, CIPRO BENEFITS VS RISKS

The fluoroquinolones antibiotics treat or prevent certain bacterial infections. Their generic or brand names are:

Ciprofloxacin (Cipro)
Delafloxacin (Baxdela)
Levofloxacin (Levaquin)
Moxifloxacin (Avelox)
Ofloxacin

Physicians prescribe these as needed, but they can cause serious side effects:

Nausea
Diarrhea
Headache
Dizziness
Lightheadedness
Trouble sleeping

There is a possibility that the immune system will respond to these antibiotics with more anaphylactic or allergic severe reactions, including:

Tendinitis
Tendon rupture
Ruptures of the aorta
Numbness or tingling, “pins and needles” in arms and legs
Muscle weakness
Muscle pain
Joint pain
Joint swelling
Irregular heartbeat
Ringing or buzzing in ears
Vision problems
Skin rash
Skin sensitivity to sunlight

Some individuals reported emotional and psychological reactions while taking them:

Anxiety
Depression
Hallucinations
Suicidal thoughts
Confusion

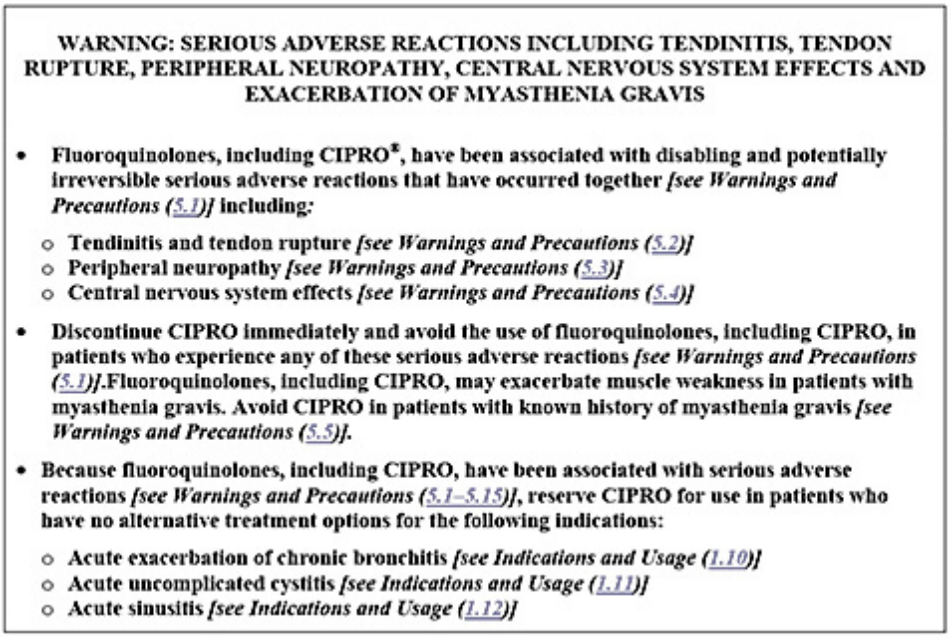
Serious side effects can start after the first or second dose as anaphylaxis:

Long-term pain
Problems with tendons, muscles, and joints, including swelling, pain, and tendon rupture
Symptoms that lasted longer than a year, which means they may be permanent.

These side effects led to changes in quality of life such as job loss, financial problems, and increased family tension. The Federal Drug Administration (FDA) put its strongest warning on the drug packaging:

"Fluoroquinolones carry a higher chance of tendinitis and tendon rupture. It is greater for those over 60, in kidney, heart, and lung transplant recipients, and those taking steroid medications.
Stop taking the fluoroquinolone at the first sign of tendon pain, swelling, or inflammation. Avoid exercise and use of the affected area, and immediately ask your doctor to switch to a non-fluoroquinolone drug."

A higher incidence of ruptures or tears in the aorta has been found with fluoroquinolones. Stop taking the medication if you have sudden severe constant pain in the stomach, chest or back and seek medical treatment immediately.



WARNING: SERIOUS ADVERSE REACTIONS INCLUDING TENDINITIS, TENDON RUPTURE, PERIPHERAL NEUROPATHY, CENTRAL NERVOUS SYSTEM EFFECTS AND EXACERBATION OF MYASTHENIA GRAVIS

- **Fluoroquinolones, including CIPRO®, have been associated with disabling and potentially irreversible serious adverse reactions that have occurred together *[see Warnings and Precautions (5.1)]* including:**
  - **Tendinitis and tendon rupture *[see Warnings and Precautions (5.2)]***
  - **Peripheral neuropathy *[see Warnings and Precautions (5.3)]***
  - **Central nervous system effects *[see Warnings and Precautions (5.4)]***
- **Discontinue CIPRO immediately and avoid the use of fluoroquinolones, including CIPRO, in patients who experience any of these serious adverse reactions *[see Warnings and Precautions (5.1)]*.Fluoroquinolones, including CIPRO, may exacerbate muscle weakness in patients with myasthenia gravis. Avoid CIPRO in patients with known history of myasthenia gravis *[see Warnings and Precautions (5.5)]*.**
- **Because fluoroquinolones, including CIPRO, have been associated with serious adverse reactions *[see Warnings and Precautions (5.1–5.15)]*, reserve CIPRO for use in patients who have no alternative treatment options for the following indications:**
  - **Acute exacerbation of chronic bronchitis *[see Indications and Usage (1.10)]***
  - **Acute uncomplicated cystitis *[see Indications and Usage (1.11)]***
  - **Acute sinusitis *[see Indications and Usage (1.12)]***

Figure 120. Drug warning about the fluoroquinolones. Source: FDA.

The broad-spectrum antibiotic "Cipro," a fluoroquinolone antibacterial medicine, can cause serious side effects. Some of these serious side effects can happen at the same time and could result in death. If you get any of the following serious side effects while you take Cipro, you should stop taking Cipro immediately and get medical help right away:

Joint pain, swelling, popping sounds, or muscle weakness
Tingling and possible nerve damage
Anxiety, depression, hallucinations, suicidal thoughts, confusion
For some types of sinusitis, chronic bronchitis, and urinary tract infections, the risks of fluoroquinolone drugs are greater than the benefits for most people.
For some serious infections, like pneumonia or infections inside the abdomen, the benefits of fluoroquinolone drugs outweigh the risks.

Stop taking Cipro and seek emergency medical help right away if you have any serious side effects after starting treatment, such as:

Unusual joint or tendon pain
Muscle weakness
A tingling or burning sensation
Arm or leg numbness
Pain in the abdomen, chest or back
Confusion and hallucinations

RISKS OF FARM-FED TILAPIA FISH

According to the National Fisheries Institute, the Tilapia fish is the fourth most eaten seafood in the USA, behind shrimp, salmon and canned tuna. Its popularity comes from the fact that it is easy to farm, so it is inexpensive as it is adaptable to different types of feed.

In 2008, researchers at the Wake Forest University School of Medicine released a study comparing fatty acid levels among popular fish. It found that tilapia contained far less omega-3 fatty acid than other American favorites, such as salmon and mackerel. According to the paper, salmon also has a "more favorable" omega-3 to omega-6 ratio. While both fatty acids are important, omega-3 has anti-inflammatory properties that play a critical role in brain development and cognitive function and may prevent diseases like diabetes and Alzheimer's. The report suggested that the "inflammatory potential of hamburger (80 percent lean) and pork bacon is lower than the average serving of farmed tilapia (100 g)." The report caused concern when it stated that farmed tilapia contains high levels of arachidonic acid, an omega-6 fatty acid that, while necessary to help repair damaged body tissues, has been linked to brain disorders like Alzheimer's disease and may exacerbate inflammation. The observation is that tilapia has as much omega-3 as other popular seafood, including lobster, mahi-mahi and yellow-fin tuna. Tilapia is also very low in fat. A 4-ounce serving of tilapia has about 1 gram of saturated fat, 29 grams of protein and around 200 mg of omega-3. By comparison, a 1-ounce serving of bacon of about 4 strips contains 4 grams of saturated fat, 10 grams of protein and 52 mg of omega-3.

A rumor going around the Internet: that farm-raised tilapia from China are fed animal feces. A study conducted by the Economic Research Service of the USA Department of Agriculture noted that "many of China's farms and food processors are situated in heavily industrialized regions where water, air and soil are contaminated by industrial effluents and vehicle exhaust." The report also stated that it "is common practice to let livestock and poultry roam freely in fields and to spread livestock and poultry waste on fields or use it as fish feed." The USDA report was based on documents obtained from the Food and Drug Administration, which oversees seafood inspections.

According to Monterey Bay Aquarium Seafood Watch, over 95 percent of tilapia consumed in the USA in 2013 came from overseas, and 73 percent of those imports came from China. One reason is that the fish thrives in a subtropical climate, making it a difficult fish to farm in most of the USA. In 2006, Seafood Watch listed farmed Chinese tilapia as "Avoid" due to poor food quality enforcement and high levels of chemicals, antibacterial drugs (nitrofurans) and malachite green, which is used to dye silk, leather and paper, in fish samples. Seafood Watch cautions that the fish currently tests in the "red zone" for the presence of banned or illegal chemicals such as antibiotics, malachite green and methyl

testosterone hormones used in Chinese tilapia production. The group says tilapia raised in Ecuador, the USA or Canada are alternative choices.

A 2004 paper, “Domestic Wastewater Treatment in Developing Countries,” that cites the practice of using properly treated wastewater as a sustainable, and ultimately profitable, farming technique. Since 2005, Country of Origin Labeling (COOL), which is overseen by the USDA, requires seafood and shellfish retailers to label product origins. But labeling exceptions and a lack of enforcement make it hard to know exactly what is on a dinner plate. Processed seafood such as fish sticks or other prepared food sold at supermarkets and seafood retailers is exempt from labeling. Whole fish sold at grocery stores is required to have a country-of-origin label and to indicate whether the fish has been farm-raised or caught wild, but not everyone does it. The USDA conducts supplier inspections, and stores in violation have a mandated timeframe to correct the problem.

RISK FROM MIDDLE EAST RESPIRATORY SYNDROME, MERS

The Middle East Respiratory Syndrome (MERS) is a type of corona virus of the same family as the common cold causing respiratory infections that can evolve into pneumonia and kidney failure. Its first death was recorded in Saudi Arabia in June 2012. Camels are under suspicion of being the primary source as well as human to human transmission under unsanitary crowded conditions and in hospitals.

Cases occurred in Jordan, Qatar, the United Arab Emirates, France, Germany, Italy, Tunisia, Egypt, the UK and the USA. A report in the New England Journal of Medicine found "identical" MERS viruses in camels and their owners. Other possible carriers could be sheep and goats which are usually bred along with camels in the Middle East.

About half of the cases were spread between people. It seems to have spread after close contact with family members or medical staff. The World Health Organization (WHO) does not recommend restrictions on trade or travel. It warns people to avoid raw camel milk, camel urine and to ensure that camel meat is properly cooked.

RISK FROM SLUDGE, “BIOSOLIDS”

About one half of sewage waste solids are land-filled or incinerated. The other one half of the 15 trillion gallons of sewage Americans flush annually is biologically scrubbed, "dewatered," processed and sold as products with the names BioEdge, Nitrohumus, and Vital Cycle to spread on farmland, lawns, and home vegetable gardens. In 2007 the Carlyle Group paid $772 million for the sludge-residuals company Synagro, whose products are the most popular on the market.

Theoretically, recycling municipal sludge into an inexpensive fertilizer means cleaner rivers and oceans. But as sludge has spread across the country, so have concerns that it may cause as many environmental problems as it solves. In communities where sludge has been used, residents have reported ailments ranging from migraines to pneumonia to mysterious deaths. In a 1994 episode often cited by sludge disposal critics, an 11-year-old Pennsylvania boy died of a staph infection after biking through sludge at an abandoned mine.

Sludge may contain discarded medications such as Prozac flushed down toilets or motor oil hosed from factory floors. Sludge sold to consumers is pathogen free, but sludge

used on farms and industrial sites is permitted to contain low levels of human pathogens. Sludge might be contaminated with radioactive waste. Food companies such as Del Monte and H. J. Heinz would not accept produce grown on sludge-treated land. The Netherlands and Switzerland effectively ban the use of sludge on farmland, and 37 states regulate it more strictly than the EPA.

The EPA acknowledges that "biosolids" have their own distinctive odor, but it doesn't regulate their smell. Studies have shown that severe odors can cause health problems, including depression and stress that can lead to chronic hypertension and heart disease. An EPA survey of sludge samples from across the USA found contamination by 10 flame retardants and 12 pharmaceuticals and exceptionally high levels of endocrine disruptors such as triclosan, an ingredient in antibacterial soap that scientists believe is killing amphibians.

Some scientists are concerned that dangerous levels of contaminants from sludge are passing into crops and groundwater as well as blowing off fields and becoming airborne. Some chemicals in sludge can interact with one another to become more persistent or toxic. Research has suggested that the toxins such as thallium used in rat poison in sludge can pass into milk and meat.

In May 2007, the USA Environmental Protection Agency (EPA) determined that sludge had contaminated as many as 5,000 acres of grazing land about 25 miles from Kimbrough's Alabama ranch with perfluorooctanoic acid (PFOA), a probable carcinogen used in Teflon manufacturing. The chemical was traced back to a local manufacturer that had dumped contaminated wastewater straight into the sewer system.

A single American's daily sludge output can generate enough power to light a 60-Watt bulb for more than nine hours a day. Sludge is rich in methane, the main component of natural gas. The wastewater sector, which uses about 1 percent of the nation's electricity, could power itself with sludge and possibly have wattage to spare. Fewer than 10 percent of the nation's 6,000 public wastewater plants have anaerobic digesters that can extract methane from sludge. Just 20 percent burn the gas for energy. Flint, Michigan, is one of several cities worldwide to fuel buses with gas from sludge. Los Angeles injects sludge into a mile-deep well, where pressure and heat are expected to release enough methane to power 1,000 homes. Methane removal cuts sludge's volume in half.

Leftover sludge is often incinerated, releasing heavy metals into the air and packing landfills with enough ash each year to fill more than 3,100 dump trucks. Using high-temperature or low-oxygen reactions, they covert sludge into a synthetic gas or oil, or a char similar to barbecue briquettes. The process can produce twice as much energy as it consumes. In Southern California, a plant converts sludge from about a third of Los Angeles and Orange counties into a char that replaces coal at a local cement kiln; its ash is mixed into the cement.

EBOLA AND MEASLES VIRUSES RISKS

Ebola is a deadly virus with initial symptoms which can include a sudden fever, intense weakness, muscle pain and a sore throat. Subsequent stages can include vomiting, diarrhea and in some cases both internal and external bleeding, known as hemorrhaging. The incubation period can last from two days to three weeks. Ebola can be associated with other illnesses such as malaria and typhoid.

Ebola spreads between humans by direct contact with bodily fluids and contaminated environments. Funerals can be a particular risk if mourners have direct contact with the body. The World Health Organization (WHO) estimates the fatality rate is between 41% and 100%.

The Sudan strain of Ebola has no approved vaccine, unlike the more common Zaire strain. The Zaire strain was responsible for the largest ever outbreak of Ebola, in West Africa from December 2013 to 2016. More than 11,000 people died. the The Ervebo vaccine, developed by Merck, was used during an outbreak of the Zaire strain in the west of the Democratic Republic of Congo. It was granted clearance by the WHO, which said it had limited infections and saved lives. A second vaccine by Johnson & Johnson has been approved for use by the European Medicines Agency. Neither of these vaccines has been tested against the Sudan strain.

Ebola jumps to humans from infected animals, such as chimpanzees, fruit bats and forest antelope. Bushmeat as wild forest animals hunted for human consumption is thought to be the natural reservoir of the virus. It then spreads between humans by direct contact with contaminated bodily fluids such as blood, saliva, vomit, semen, vaginal discharge, urine, feces and sweat. Men who have recovered from Ebola have also been found to harbor the virus in their semen for a period after recovery.

To prevent infection, health professionals advise avoiding contact with cases, including stopping shaking hands, washing hands with soap and water and cleaning surfaces with chlorinated water. It is important to isolate cases and their contacts. Countries usually set up holding centers for suspected cases and treatment centers for laboratory-confirmed cases.

In eastern DR Congo, which borders Uganda, survivors of Ebola played a key role in providing care for infected patients as it has been established that they cannot be re-infected.

The Ebola virus lives in bats, and WHO says new outbreaks can be expected in the Democratic Republic of Congo. By far the largest epidemic of Ebola was in 2014-2016 in the West African countries of Liberia, Sierra Leone and Guinea. More than 28,000 people were infected in that epidemic and more than 11,000 of them died.

The Covid-19 pandemic has touched 7 of Congo's 25 provinces, with more than 3,000 confirmed cases and 72 deaths. While Ebola and COVID-19 have drawn international attention, measles has killed more Congolese than those diseases combined. WHO said there have been 369,520 measles cases and 6,779 deaths since 2019.

The number of Ebola cases in Liberia and Sierra Leone could have risen to between 550,000 and 1.4 million by January 2015 if there were no "additional interventions or changes in community behavior," the Center for Disease Control and Prevention said in a report on September 23, 2014. The range of estimated cases; from 550,000 to 1.4 million, is wide because experts suspected the count is highly under-reported. The official death toll from Ebola in West Africa has climbed to more than 2,800 in six months, with 5,800 cases confirmed as of September 22, 2014, according to the World Health Organization (WHO).

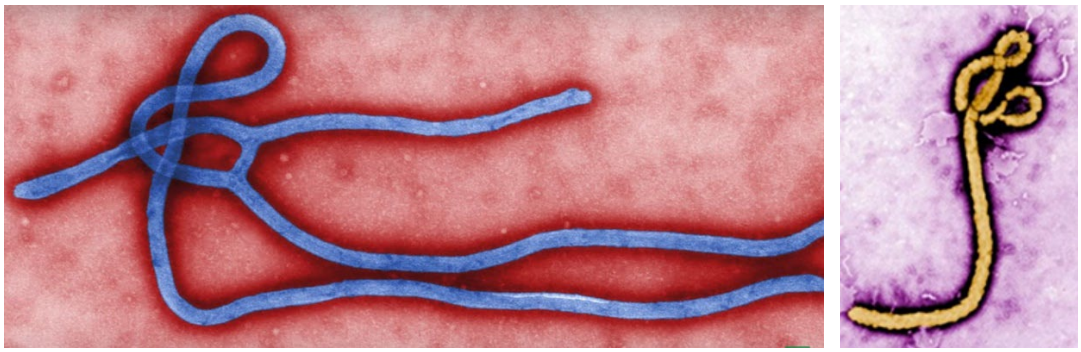


Figure 121. Ebola virus.

The CDC estimates that if 71 percent of people with Ebola are properly cared for in medical facilities, the epidemic could decrease and eventually end. WHO experts suggest that the "current epidemiologic outlook is bleak." They also warn that without "drastic improvements" in measures to control its spread, the number of cases and deaths from Ebola is expected to continue climbing from hundreds to thousands per week. The cumulative number of cases could exceed 20,000 by November 2, 2014.

The spread was blamed not on a particularly virulent strain of the virus, but the outbreak was so deadly because of a "combination of dysfunctional health systems, international indifference, high population mobility, local customs, densely populated capitals, and lack of trust in authorities after years of armed conflict. “Ebola has reached the point where it could establish itself as an endemic infection because of a highly inadequate and late global response." The development of a vaccine controlled the spread of the virus to industrialized nations and contained in Africa.

SNOW SHOVELING RISK

Every winter season, about 100 people in the USA die while shoveling snow. A study looking at data from 1990 to 2006 by researchers at the USA Nationwide Children's Hospital recorded 1,647 fatalities from cardiac-related injuries associated with shoveling snow. The actual numbers could be double this figure. In Canada, these deaths make the news every winter [18].

When healthy young men shoveled snow, their heart rate and blood pressure increase more than when they exercise on a treadmill. Combining this activity with cold air, which causes arteries to constrict and decrease blood supply, one gets a perfect storm for a heart attack.

Snow shoveling is particularly strenuous because it uses arm work, which is more taxing than leg work. Many people hold their breath during the hard work, which also puts a strain on the body. In addition, the prime time for snow clearance is between 6 am and 10 am which is when circadian fluctuations make us more vulnerable to heart attacks.

Snow shoveling is so dangerous that anyone over the age of 55 should not to do it. People at greatest risk are those who are habitually sedentary with known or suspected coronary disease, who go out once a year to clear snow. Smoking and being overweight drastically increase the risk.

If one must do it, pushing rather than lifting the snow, dressing in layers, taking regular breaks indoors and not eating nor smoking before shoveling is advised. Using a snow-blower may be a better option, but there have also been heart attacks recorded in men using blowers.

ARSENIC IN WINE RISK

Popular wines are reported to contain enough arsenic to eventually cause cancer. CBS News reported on March 26, 2015 that "very high levels of arsenic" showed up in almost a quarter of 1,300 wines tested by independent Denver-based lab Beverage-Grades. "Very high," according to Beverage-Grades founder and former wine distributor Kevin Hicks, meant four to five times more arsenic than the EPA standard for drinking water, which is 10 parts per billion (ppb), or 10 micrograms per liter (mcg/L) [20].

Among the top-selling wines with three, four and five times the 10 ppb standard were, respectively, Trader Joe's Two-Buck Chuck White Zinfandel, Ménage à Trois Moscato and Franzia White Grenache. A trend of higher amounts of arsenic exists as the cheaper the wine was on a per-liter basis [20].

The EPA maximum contaminant level of 10 ppb of arsenic in drinking water is based on calculations that assume a person will drink approximately 2 liters of water a day, a reasonable standard. If a person drinks 2 liters of wine a day, he has bigger problems than just the arsenic levels in the wine. For one, his liver would be affected by cirrhosis and he likely won't last long enough for him to develop cancer. A daily drinker of that much would qualify as an alcoholic [20].

For two standard glasses of wine a day, a 5 oz. glass is approximately 150 ml, so two glasses is 300 ml. If that wine contains arsenic at five times the EPA standard for drinking water, then 300 x 5 means he is getting as much arsenic as the equivalent of drinking 1.5 liters of drinking water at the maximum amount allowed by the EPA. That calculation, ignores the net effect of arsenic from different sources.

The biggest health concerns related to arsenic intake are different types of cancer, especially bladder, lung and skin cancer. A 1999 National Academy of Sciences report estimated the risk of dying from cancer due to arsenic in drinking water at 10 ppb at approximately 1 in 500 to 1 in 1,000, which many people would find too high.

Drinking water typically has far lower levels than this maximum. A recent study on rural wells water, which is more likely to have contaminants than municipal water supplies, found median levels at one tenth the standard, and most cities have arsenic levels below 5 ppb. Los Angeles water averages 1.4 ppb and had a recorded maximum of 3.4 ppb. Chicago's drinking water supply averages 0.17 ppb with a maximum recorded 1 ppb. So even if one is drinking 2 L of water per day, that makes the "extra" arsenic one might be getting from wine that much less of an issue [20].

The EPA levels appear to be good enough for the FDA, the agency actually tasked with regulating food and drink, including wine, but that is solely for drinking water. The only standard the FDA has for arsenic in food or drinks is 10 ppb in bottled water. They have a proposal for the same standard in apple juice, but beyond that, the FDA offers no guidance in arsenic levels in food. The FDA has proposed a 10 ppb standard for apple juice. The FDA suggests that levels as high as two to five times the EPA drinking water standard have been detected in some fruit juices but do not pose a concern because individuals do

not typically drink 2 liters of juice a day. They do not drink that much wine daily, either [20].

Arsenic poisoning is a serious concern with chronic exposure. More than cancer risk, arsenic poisoning can damage the central and peripheral nervous systems, the liver and the kidneys. Arsenic is a systemic poison that affects virtually every organ system in the body. These concerns have led arsenic to make headlines for its presence in rice products, baby formula and apple juice.

A study in late 2013 found those who drank more than two beers or a glass of white wine daily had 20 to 30 percent higher arsenic levels. But even in that study, the health significance of those findings was unclear, as was the source of the arsenic in the alcoholic drinks.

Even arsenic poisoning at levels below what will kill a person have unmistakable symptoms: brownish green spots on the hands, feet and sometimes trunk as well as white lines in the fingernails. These can appear at low levels of arsenic intake, and the risk increases as arsenic intake increases. For those consuming dangerously high levels of arsenic, it would be hard to miss those spots, as well as symptoms such as headaches, confusion, drowsiness and diarrhea [20].

Steps are needed to identify the source of the arsenic and reducing it. One can surmise that it originates from the grape seeds or from the soils where the grape vines are planted or from the water supplies used to irrigate the grape vines.

POTASSIUM IN BANANAS AND TOMATOES RISK

Bananas are one of the world's most popular fruits, rich vitamins and minerals. Potassium levels are dangerously high if one eats more than six bananas. Potassium is crucial for survival and can be found within every single cell of the body. It is an electrolyte that helps generate electrical charges which helps the cell function properly. It helps keep the heart rate steady and triggers insulin release from the pancreas to help control blood sugars, and more importantly keeps blood pressure in check [21].

However, if the level of potassium in the body is too low or too high it can result in an irregular heartbeat, stomach pain, nausea and diarrhea. Potassium chloride is one of the chemicals used in lethal injections for the condemned in the USA. At extremely high doses can cause cardiac arrest.

For a healthy person, it would be impossible to overdose on bananas. One would need to eat around 400 bananas a day to build up the kind of potassium levels that would cause the heart to stop beating. Adults should consume about 3,500 mg of K per day, according to the UK's National Health Service. The average banana, weighing 125 g, contains 450 mg of potassium, meaning a healthy person can consume at least seven and half bananas before reaching the recommended level.

People with kidney disease should steer clear of foods that are high in K. These patients have a very low kidney function which can potentially see a build-up of harmful potassium levels in their blood-stream because they cannot get rid of the mineral when they pass urine. A patient on dialysis had a heart attack after eating too many tomatoes, which are rich in potassium. His kidneys had already stopped working so he was unable to get rid of the excess.

Like many foods, bananas naturally contain some radioactive isotopes, particularly the K^{40} in the potassium. The USA think tank, Nuclear Threat Initiative, warns that they can trigger sensors used at USA ports of entry to detect smuggled nuclear material.

A typical banana contains a small amount of 0.1 microsieverts in radiation. A typical CT scan in a hospital exposes humans to between 10 and 15 millisieverts, or about 100,000 times more. Bananas are not as radioactive as Brazil nuts which concentrate the thorium mineral from the ground, and both are safe when eating them in moderation."

CLOSTRIDIUM DIFFICILE, OVERUSE OF ANTIBIOTICS, SUPERBUGS RISK

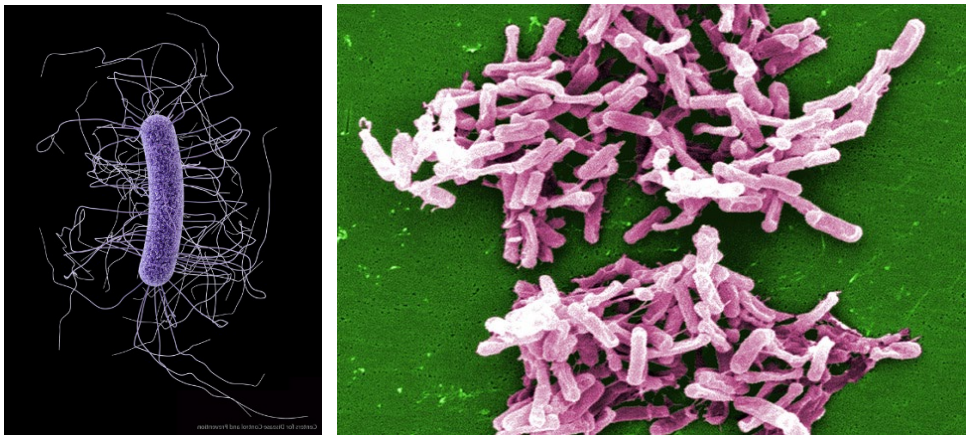


Figure 122. Clostridium difficile bacterium. Gram-positive C. difficile bacteria from a stool sample obtained using a .1µm filter (right).Source: CDC.

This hard-to-treat bacteria, known as Clostridium difficile (C. diff.), can cause infectious diarrhea. It is considered as a growing problem in hospitals, killing an estimated 14,000 people annually in the USA. The superbug Clostridium difficile has been linked to the deaths of 29,000 Americans a year. There were nearly twice as many deaths associated with the bacteria than had previously been recorded. Infections by the deadly bug was due to the overuse of antibiotics. People can become infected if they touch items or surfaces that are contaminated with feces and then touch their mouth or mucous membranes. Healthcare workers can spread the bacteria to other patients or contaminate surfaces through hand contact.

The germ - Clostridium difficile, or C. diff. - flourishes in the gut after antibiotics kill off other bacteria and causes diarrhea. It can be severe and is blamed for about 15,000 deaths annually - mostly in people over the age of 65. Patients who have been in the hospital and have taken antibiotics are greatest at risk for developing C. diff. infections.

For years, it has been seen as a growing problem, and health officials have made it a focus in a campaign to reduce infections picked up in the hospital. A study led by the Centers for Disease Control and Prevention and published in the New England Journal of Medicine, found that in 2011, at least 453,000 Americans got sick from C. difficile. The number probably would be more like 600,000 if the most sophisticated tests had been used in every case. Researchers previously had put the number of annual cases at around

250,000. The new study cast a wider net than earlier research, and used information from labs in selected counties in 10 states.

The infections can be prevented by improving antibiotic prescribing and by improving infection control in the health care system. C. difficile is found in the colon and can cause diarrhea and a more serious intestinal condition known as colitis. It is spread by spores in feces. The spores are difficult to kill with most conventional household cleaners or alcohol-based hand sanitizers. About two-thirds of C. difficile cases occur in hospitals or nursing homes or in recently discharged patients. Of the other third, researchers say a majority had visited a medical facility like a doctor's office or dentist in the 12 weeks before their diagnosis.

C. difficile is treated with antibiotics, but health officials are especially concerned about the growing prevalence of antibiotic resistance. Experimental treatment alternatives involving fecal transplants from a healthy person, perhaps in the form of a ‘poop pill,’ have shown promise and may work more effectively than current drugs by reintroducing healthy bacteria that fight the infection. Hospitals and other health care facilities have been stepping up efforts to more thoroughly clean rooms to prevent C. difficile from spreading to other patients. There also have been programs to use antibiotics more sparingly.

These infections can be prevented by improving antibiotic prescribing and by improving infection control in the health care system. Between 30 and 50 per cent of antibiotics prescribed in hospital are unnecessary and incorrect. This can increase the spread of the bacteria, which can be picked up from contaminated surfaces or spread from person to person. Two-thirds of C. difficile cases occur in hospitals or nursing homes or in recently discharged patients. The other third were mostly people out in the community who got sick and saw a doctor.

The CDC has documented a 10 percent decrease in hospital-onset C. difficile infections between 2011 and 2013. Fighting the infections costs hospitals $4.8 billion each year, according to the CDC.

SMALLPOX RISK

The smallpox virus is uniquely human and has been eradicated off the planet. In part, because it was uniquely human, except in weapons laboratories in the USA and Russia who will not destroy it until the other side does. The USA has not weaponized the smallpox virus, but Russia does not pretend that it has not mixed the smallpox virus with Ebola, with no other purpose than military use. Transmission was only human to human. However, there existed an animal version, particularly Cowpox, from which the vaccine was created. It is assumed the smallpox came from animals originally as a mutation, probably a rodent. Scientists worry that a melting permafrost may revive the 1890s smallpox occurrences.

Cowpox, monkeypox, etc. are all Orthopoxe viruses in the family Poxvidirae. They can all infect humans given bad luck. Smallpox was not infecting animals back, but only humans. Smallpox is a mutation from one of the other orthopoxes. Edward Jenner created the smallpox vaccine. Louis Pasteur hypothesized that one could create vaccines for more than smallpox and created new ones based on the idea.

Smallpox gets into the body when its spores are breathed. They attach themselves to the back of the throat and the inside of the alveoli in the lungs. About two to three days into infection, a rash appears. In its worst forms the rash takes over the whole body initially

in the form of pimples and then later as large blisters until the whole skin surface is taken over by the smallpox blisters.

The infected person becomes highly infectious. Each of those blisters is packed with smallpox spores. If a blister is burst, the fluid will come out and large numbers of viruses will be spilled onto whatever it touches. Ten to twelve days later, the entourage of the afflicted person would show signs of the disease. After another ten to twelve-days incubation period, their friends would show signs of infection. The disease spreads exponentially. Its rate of increase gets bigger and bigger the more people are infected, bringing tremendous devastation in the infected population.

The first smallpox epidemic of the New World swept through Central America and reached the Inca Empire. Wherever it went, the virus decimated the native population, making them an easier prey for the conquistadors invaders.

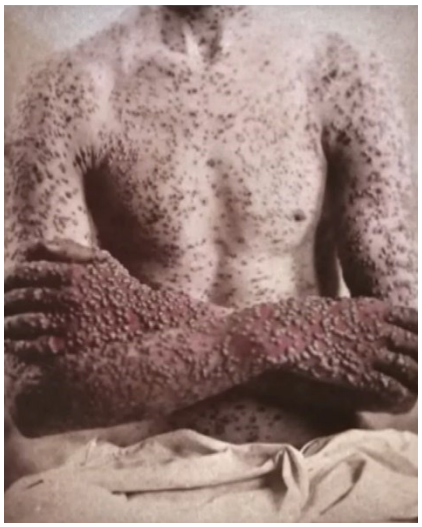
People of European origin initially lived at close quarters with their domesticated animals. They acquired measles and smallpox from cattle and domestic animals, so that these worst killers of humans had a legacy of 10,000 years of mutual contact.

During the Middle Age, infectious diseases including typhoid fever, typhus and the bubonic plague swept throughout Europe and claimed millions of lives. Paradoxically, repeated epidemics selectively immune surviving individuals whose genes provided them with inherent immunity towards these diseases. They would pass on their genetic resistance to their progeny. Over the centuries, whole populations acquired some degree of protection against the spread of diseases like smallpox, a protection the Incas never had.

Once smallpox arrived to the New World, nobody in the New World had ever been subjected to a disease of this kind before, so the number of people who were susceptible was much greater. There was no natural immunity, and therefore the number of people, who could both contract the disease and then spread it, and the number of people to receive it once it had spread, was much higher.

In Europe in the Middle Ages a form of biological warfare was to use catapults and trebuchets to launch bodies of the plague dead into a besieged city. This type of biological warfare was also later used by the British in a reverse fashion in North America against the native Indian population. Under siege, they threw blankets from their smallpox sick yards over the ramparts to be collected by the unsuspecting Indians and used with deadly results.

There has been a debate about the number of American indigenous people who died in the Spanish, British, and French crusades in the New World. Some scholars suggest there may have been a population of 20 million Native Americans, and the vast majority, a full 95 percent of these “noble savages” were killed by Old World diseases: a whole continent virtually emptied of its people through biological warfare, then occupied by its conquerors.



Smallpox infection.

MONKEYPOX RISK

The Monkeypox rare disease can be transmitted through bodily fluids and respiratory droplets, according to the CDC. It has an incubation period of three to 17 days.

Monkeypox is caused by a virus that is related to smallpox, the only human virus to have been eradicated. It causes less severe illness than smallpox but is still quite dangerous. The CDC said that the fatality rate for the strain of monkeypox seen in the Dallas, Gtexas July 2021 case is about 10 percent.

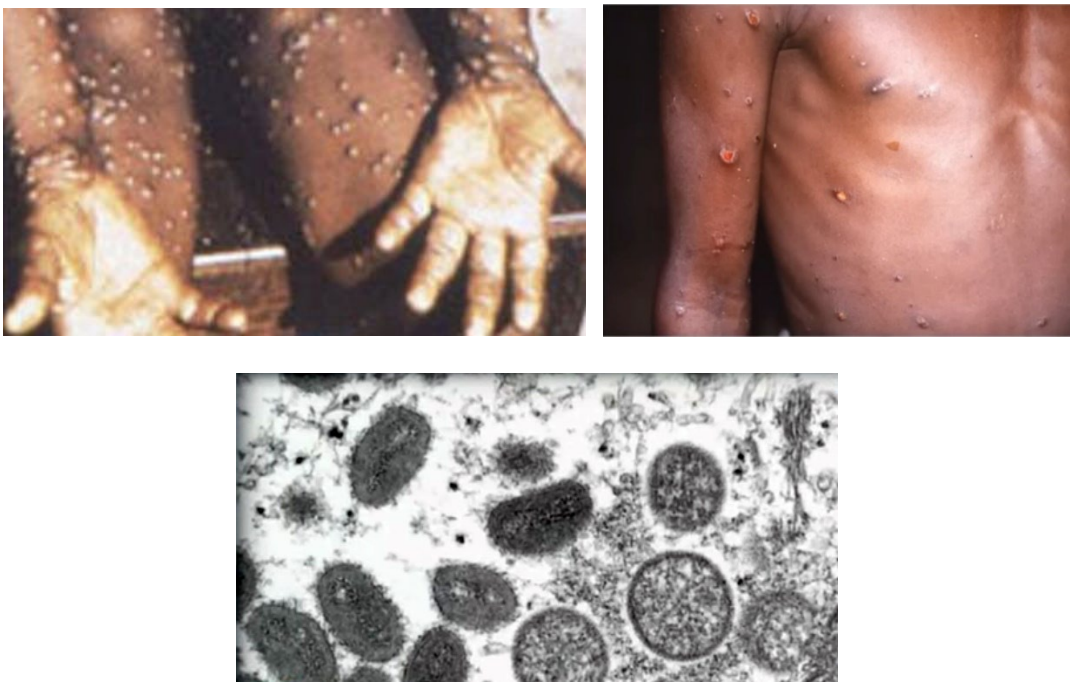


Figure 123. Monkeypox infection and virus.

Monkeypox is rarely seen in people. There was a large outbreak in the USA in 2003, when a shipment of animals from Ghana contained several rodents and other small mammals that were infected with the virus; 47 confirmed and probable cases were reported in five states. The outbreak was the first-time human cases of monkeypox were reported outside of Africa.

Nigeria has seen a sharp uptick of monkeypox cases over the past few years, while seven cases have been reported outside its borders, four in the UK, and one in Singapore, Israel and the USA. One of the UK patients was a local healthcare worker who had unprotected contact with a monkeypox patient.

First identified in 1970 in the Democratic Republic of the Congo, the original source of the monkeypox virus has yet to be identified - however cases have been linked to the handling of bushmeat as well as the trade of exotic small mammals.

Those who contract the disease experience fever, chills, swollen glands, and its namesake rash that spreads across the body. It can spread via inhalation of respiratory droplets from infected individuals or contact with their lesions or bodily fluids. It can also be transmitted via bed linens or other items used by an infected person.

GENETIC DISEASE IMMUNITY RISK

Research by Austin Nguyen, a Ph. D. candidate in computational biology and biomedical engineering at Oregon Health and Science University in Portland, Oregon, Abhinav Nellore, an assistant professor of biomedical engineering and surgery and Reid Thompson, an assistant professor of radiation medicine, at Oregon Health & Science University considers the situation when a pathogen infects human cells and the body reacts by turning on alarm systems. These alarms identify invaders and tell the immune system to send cytotoxic T cells, a type of white blood cell, to destroy the infected cells and hopefully slow the infection. However, not all alarm systems are created equal. People have different versions of the same genes or alleles and some of these alleles are more sensitive to certain viruses or pathogens than others.

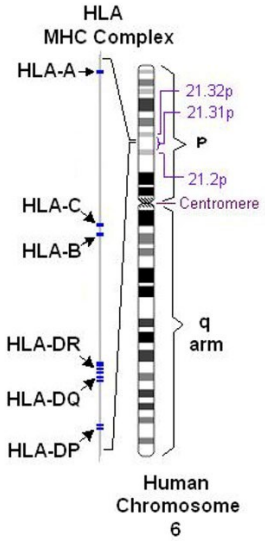


Figure 124. Schematic of a Human Leukocyte Antigen, HLA protein.

A part of the alarm system is called the Human Leukocyte Antigen system, HLA. Each person has multiple alleles of the genes that make up their HLA type. Each allele codes for a different HLA protein. These proteins are the sensors of the alarm system and find intruders by binding to various peptides or chains of amino acids that make up parts of the pathogen that are foreign to the body.

Once an HLA protein binds to a virus or piece of a virus, it transports the intruder to the cell surface. This marks the cell as infected and from there the immune system will kill the cell. The more peptides of a virus that a person's HLAs can detect, the stronger the immune response. It is like a more sensitive sensor of the alarm system.

Some HLA types were found to bind to a large number of the SARS-CoV-2 peptides while others bind to very few. This means that some sensors may be better tailored to SARS-CoV-2 than others. If true, the specific HLA alleles a person has would likely be a factor in how effective their immune response is to Covid-19 virus.

A computer model was applied to the 2002-2004 SARS outbreak. The section of DNA that codes for HLAs is on the sixth chromosome. There appear to be similarities in how effective alleles were at identifying SARS and SARS-CoV-2. If an HLA allele appeared to be bad at recognizing SARS-CoV-2, it was also bad at recognizing SARS. The analysis predicted that one allele, called B46:01, is particularly bad with regards to both SARS-CoV-2 and SARS-CoV. Previous studies showed that people with this allele tended to have more severe SARS infections and higher viral loads than people with other versions of the HLA gene.

Variation in HLA genes seems to be a part of the explanation for the huge differences in infection severity in many Covid-19 patients. These differences in the HLA genes are probably not the only genetic factor that affects severity of COVID-19, but they may be a significant piece of the puzzle. It is important to further study how HLA types can clinically affect Covid-19 severity and to test these predictions using real cases. Understanding how variation in HLA types may affect the clinical course of COVID-19 could help identify individuals at higher risk from the disease.

RISK FROM PLAGUE, BLACK DEATH, YERSINIA PESTIS

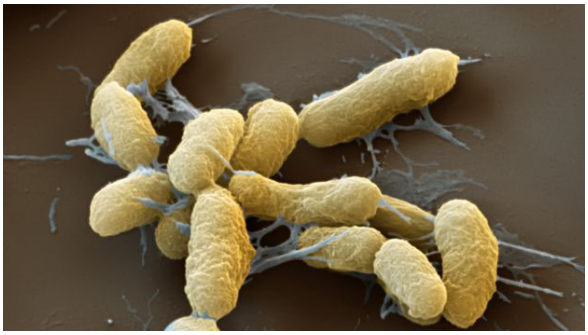


Figure 125. Yersinia Pestis, plague bacteria.

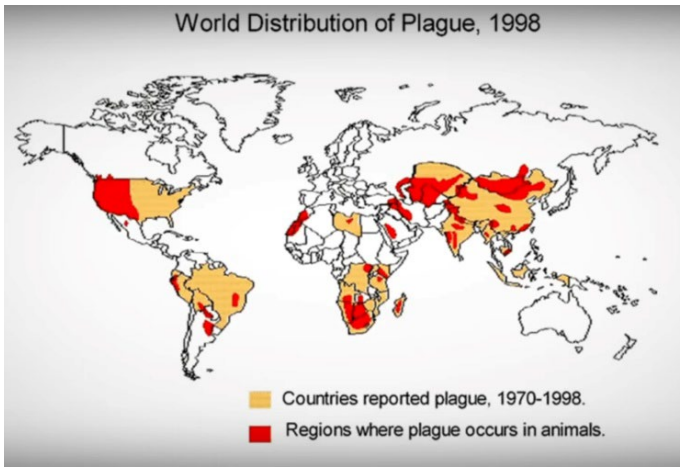


Figure 126. Worldwide distribution of endemic plague, 1998.

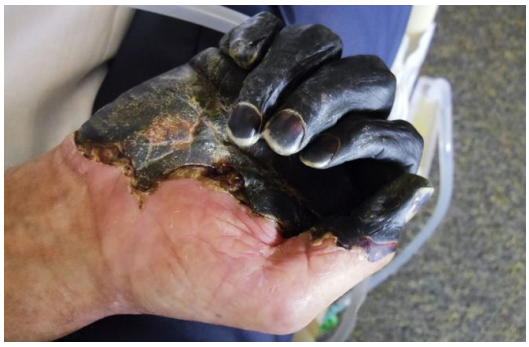


Figure 127. Hand affected by gangrene from bubonic plague infection.

The word quarantine comes from the medieval Venetian word “quarantena”, referring to the 40 days Christ spent in the wilderness according to the Bible. Long before science confirmed that viruses and bacteria cause disease, quarantining was a very effective weapon in the fight against plagues. In Milan, Italy during the great plague, they closed the gates. If there was plague in a house they blocked it and they would not allow residents out until they recovered or died. Consequently, Milan had a much lower incidence of deaths than the rest of Italy.

Plague is spread to humans through a bite from an infected flea. People can decrease their risk by treating their pets for fleas and avoiding contact with wildlife. They should use insect repellant and wear long pants and socks when visiting plague affected areas.

The symptoms of plague typically appear within two to six days of exposure, and include sudden fever, chills, headache and weakness. There is typically a painful swelling of the lymph nodes in the armpit, groin or neck.

Plague symptoms in animals include fever, loss of appetite and lethargy along with swollen lymph nodes under the jaw. Prompt diagnosis and immediate antibiotic treatment can greatly reduce the risk of death in both people and pets.

Plague was first introduced into the USA in 1900, by rat–infested steamships that had sailed from affected areas, mostly from Asia. Epidemics occurred in port cities. The last urban plague epidemic in the USA occurred in Los Angeles from 1924 through 1925.

Plague then spread from urban rats to rural rodent species, and became entrenched in many areas of the western USA. Since that time, plague has occurred as scattered cases in rural areas. Most human cases in the USA occur in two regions:
1. Northern New Mexico, northern Arizona, and southern Colorado,
2. California, southern Oregon, and far western Nevada

Over 80 percent of the USA's plague cases have been the bubonic form. In recent decades, an average of seven human plague cases have been reported each year (range: 1–17 cases per year). Plague has occurred in people of all ages from infants up to age 96, though 50 percent of cases occur in people ages 12–45. It occurs in both men and women, though historically is slightly more common among men, probably because of increased outdoor activities that put them at higher risk.

Americans are still dying from the plague disease that ravaged globe in the Middle-Ages. The Black Death caused about 50 million deaths across Africa, Asia and Europe in the 14th Century and wiped out up to half of Europe's population. In London, the Great Plague of 1665, killed about a fifth of the city's inhabitants. A 19th Century pandemic in China and India, killed more than 12 million. The disease is endemic in Madagascar, the Democratic Republic of Congo and Peru as well as the USA [22].

The bacterium Yersinia Pestis was introduced to the USA by rats infested with fleas from steamships in 1900 causing infestations in the Western port cities. The last urban plague was in Los Angeles in 1925. It spread to rural rats and mice, and became entrenched in parts of the USA.

The disease vector to humans is typically fleas. But it can be caused by handling dead carcasses of animals like squirrels or rabbits as well as by bites whilst hand feeding chipmunks, ferrets or squirrels. It has a 30-60 percent fatality rate if left untreated. Antibiotics are effective if patients are diagnosed early.

More than 80 percent of USA cases have been bubonic plague, the most common form, which affects the lymph nodes and causes gangrene. There are two other plague types: septicaemic, an infection of the blood, and pneumonic, which infects the lungs.

Symptoms develop after three to seven days and are flu-like with a laboratory test confirming the diagnosis. Most cases occur during the summer, when people are active outdoors.

The plague-endemic areas are New Mexico, Arizona, California and Colorado, according to the CDC. Prairie dogs are the main reservoir for plague, and they tend to be west of the 100th meridian. Black-footed ferrets and the Canada lynx are other susceptible species. The animal reservoir is what makes the plague hard, if not impossible, to eradicate [22].

The only human disease eradicated, smallpox, does not exist in animals. It is the same with polio, which the WHO is keen to eradicate, but which remains endemic in three countries: Nigeria, Afghanistan and Pakistan and has returned to Syria, caused by its civil war.

Scientists are trying to improve ways of diagnosing the infection and to develop an effective human vaccine, as the plague has been classified as a "category A bioweapon

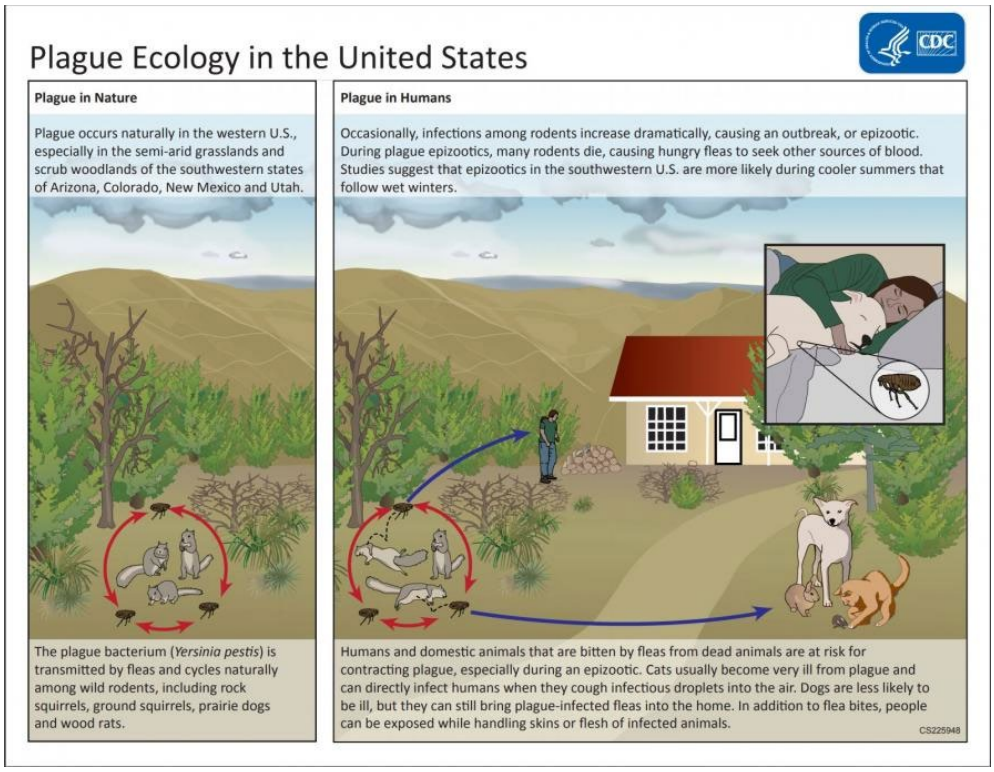


Figure 128. Plague ecology. Source: CDC.

Author Holle Abee [28] offers this interesting description of the black plague:

"The black plague, also known as the black death, is a disease caused by the bacterium *Yersinia pestis*. It enters the body through the skin and travels via the lymph system. The bacteria live in the digestive tracts of fleas. The fleas, of course, live off blood from a host, and when the fleas swallow the blood, it becomes infected with the bacteria. As the bacteria multiply inside the flea, an intestinal blockage forms, starving the parasite because nutrients cannot be absorbed. The flea vomits in an effort to clear the blockage, and since the flea is starving, it feeds voraciously. When the infected flea vomits the diseased blood into a bite site on a host animal or human, the host becomes infected with black plague.

The disease was once devastating, and the resulting death was horrible. There were actually three forms of the black plague – the bubonic form, the pneumonic form, and the septicemic form. Victims of the bubonic plague suffered painful swollen lymph nodes in the neck and the underarms, called buboes. They were also wracked with high fever, vomiting, pounding headaches, and gangrene. Some were so weak that they barely had the energy to swallow.

The pneumonic form was even more punishing. As the body tried to fight off the disease, large amounts of phlegm were produced. The victims had to constantly cough up sputum in an effort to breathe, and more than ninety-five percent of the time, the patient drowned in his own body fluids.

The pneumonic form of the plague didn't need rats or fleas to spread – it was an airborne bacterium spread by the coughs of infected individuals.
Septicemic black plague was a form of blood poisoning and had a mortality rate of one hundred percent. With this type of plague, the individual suffered from high fever and purple blotches on the skin. Fortunately, this deadliest form was also the rarest.

From the middle of the 1300s until the 1700s, the black plague terrorized much of Europe and parts of Asia. Most historians believe the plague was first brought to Europe on ships from Asia. The most likely culprit was the black rats that often foraged among the ships' holds for food scraps. These were smaller relatives of the brown rats.
The initial outbreak of the plague in fourteenth-century Europe was the most virulent. In fact, much of the populations of England and France were decimated. In some parts of England the death toll was 50%. Some parts of France suffered an astounding loss of ninety percent of their populations.

Many modern readers assume that there was only one outbreak of the black plague, but there were actually several. In fact, it raged through Europe about once every generation until the beginning of the eighteenth century. One of the last major outbreaks occurred in England with the Great Plague of London, which took place in 1665-1666.
Interestingly, the fate of mankind was curiously linked to that of the common house cat. When the cat populations rose, the pandemic ebbed, and when the cat population plummeted, the black plague made a resurgence. Why?

Remember that the plague was spread by fleas that lived on rats. A vicious cycle kept the disease going. Infected fleas would bite a rat, and the rodent would become infected. Then other fleas biting the infected rat would become infected themselves. Once the host rat died of the plague, any fleas living on it would find themselves homeless and would go in search of a new host. Unfortunately, this often took the form of a human. When the sick infected fleas bit the human in order to feed, the human would become infected. So why didn't the Europeans just keep plenty of cats around to kill the rats and thereby reduce the incidence of the plague? They had cats at the time. They were originally brought to Europe by the Romans, who had discovered the felines in Egypt. Keeping pet cats as mousers had become popular in Europe by the time of the first plague.

To fully answer that question, you need to understand the belief system of medieval Europe. Based on historical accounts and medieval art, people during this period were prone to many superstitions. The Catholic Church was the most powerful entity in Europe at the time, and the masses were consumed with the presence of evil and eradicating it in any form it might be believed to take. Because of their secretive nature and their ability to survive extraordinary circumstances, the general population came to fear cats as consorts of Satan. The innocent cats began to be killed by the thousands.

The cats ultimately got their revenge, of course. Since there were few felines left, the rat populations increased unchecked, and the plague grew even more widespread. You'd think that the humans would make the connection by this point, but instead, they made things even worse. They began to associate the plague's new vigor with the cats and even with dogs. They believed that since both of these animals typically harbored fleas, they must be the cause of the plague. Subsequently, cats were outlawed in many parts of Europe, and huge numbers of cats and dogs were killed. In fact, at one point in the middle ages, there were barely any cats left in England at all.

Even though cat ownership was illegal in some regions, a few people kept their felines. Other people finally noticed that these cat owners often seemed to be immune to the black plague. Word spread quickly, and more observations of this phenomenon were noticed. This resulted in research, crude as it was during the time.

Eventually, it was decided that the *rats*, not the *cats*, were responsible for spreading the black plague. Then, of course, everyone wanted to own a cat or two. And since cats are prolific breeders, it didn't take long for the demand to be satisfied. The laws which had been the cats' death sentence were repealed. In many regions, a new law took its place – one that protected felines instead of banning them and almost causing their extinction in Europe."

CHAGAS DISEASE RISK

It is spread by the "kissing bug." This parasitic illness is rarely fatal, but it can cause debilitating heart problems and other complications. It has been dubbed the "new AIDS of the Americas" because its spread through the northern hemisphere mimics the early spread of HIV. More than 300,000 infected people live in the USA.

MEASLES RISK

Parents refusing to vaccinate their children contributed to a series of outbreaks that sickened hundreds of people in 2014 and 2015. The year 2014 saw more measles cases in the USA than any year since 1994. It is extremely contagious and can be fatal.

STAPH INFECTION RISK

These infections are caused by a germ commonly found on the skin or nose; staph infections can be deadly and some strains no longer respond to common antibiotics.

E. COLI RISK

This type of deadly food poisoning caused a big scare in the early 1990s when four children died after visiting a fast food restaurant. Since then, the bacterium has been linked to some packaged salads and other fresh foods.

HAND, FOOD AND MOUTH DISEASE RISK

This highly contagious bug mostly affects children. It is spread through saliva, feces, and the fluid from blisters. There is no cure, but the body often fights off the virus on its own.

TUBERCULOSIS, TB RISK

It is not highly contagious, but it does cause frequent scares. In 2013, there were more than 9,500 cases in the USA. At a hospital in El Paso, Texas, in 2014, more than 700 patients and 40 employees were exposed to a disease-carrier who worked at the hospital nursery. Worldwide, TB kills at least 1 million people every year.

SALMONELLA RISK

Raw chicken is most often associated with this type of food poisoning. In 2014, a California chicken producer issued a recall connected with a strain of salmonella that had been making hundreds of people sick for more than a year.

MALARIA RISK

Malaria, spread by infected mosquitoes, sickens more than 200 million people each year with high fevers, shaking chills, nausea and other severe flu-like symptoms. The World Health Organization (WHO) says it killed 627,000 in 2012. Health officials are alarmed by the spread of a drug-resistant strain in Asia that could make the disease even harder to control.

BRUCELLOSIS RISK

Symptoms are similar to that of the flu. Rarely fatal, but when the disease causes complications, such as abscesses or infection of organs, surgery to remove the infected areas might be necessary. People can get the disease through contact with infected livestock or from eating unpasteurized dairy products.

LEGIONELLA, LEGIONNAIRE DISEASE RISK

Legionnaire's Disease, caused by the Legionella bacteria, festers in moist environments in hotels and cruise ships. It can be fatal in up to one-third of the cases.

HUMAN IMMMUNO DEFICIENCY VIRUS HIV/AIDS RISK

Globally, an estimated 36 million people have died of AIDS since the epidemic emerged in the 1980s. The virus attacks the immune system, and while drugs have helped increase survival rates, there is no known cure.

EBOLA VIRUS RISK

This sickness causes victims to essentially bleed to death internally. The latest major outbreak of the virus, ravaging West Africa in 2014-2015, has killed at least 8,235 people. Ebola is a gruesome pathogen. A hemorrhagic fever, it can cause severe internal bleeding – in the worst cases, people bleed from their eyes, nose and other orifices as their organs shut down. The first identifiable cases amongst humans were reported in 1976, during an outbreak in Zaire, now the Democratic Republic of Congo, or DRC. The outbreak took place in the village of Yambuku, in the north of the country, near the Ebola River, from where this new disease took its name.

Presumed to have jumped from the wild to humans via the bushmeat trade, Ebola is thought to be carried by bats. The Zairean government quarantined the region amid rising panic and the outbreak was relatively quickly contained, but the fatality rate was shockingly high. Of the 318 people confirmed to have been infected, 280 died. That is a fatality rate of 88%.

Over the next few decades, sporadic outbreaks occurred mostly in southern Africa, mostly in the DRC and neighboring Uganda. Each time hundreds of cases were reported. The worst fatality rate, during an outbreak in the DRC in 2003, was 90%.

The worst outbreak so far, however, came in 2013 and 2014. Instead of the vast jungle-covered interiors of the DRC, this took place in the far more crowded countries of West Africa. The outbreak was traced to a one-year-old child who developed the infection and died in Guinea. From Guinea, it spread to Liberia and Sierra Leone, becoming global news as it did so.

The Ebola outbreak showed the importance of the holy trinity of pandemic prevention: detection, isolation and treatment.

NECROTIZING FASCIITIS RISK

Known as the flesh-eating bacteria, this condition is rare but still kills in the USA. A Michigan woman died of the infection in July 2012.

CARBAPENEM-RESISTANT ENTEROBACTERIACEAE, CRE RISK

At least seven people were infected and two of them died after being exposed to an antibiotic-resistant superbug during specialized endoscopy procedures at Ronald Reagan UCLA Medical Center in 2015. This bug is known as the "nightmare" bacteria because of its resistance to antibiotics. UCLA is just the latest to have an outbreak of infection and the cases further highlight the challenges hospitals face with the growing risk of drug-resistant superbugs.

TOXOPLASMA GONDII PARASITE RISK

The human body is a mishmash of many different organisms. Microbes in the gut can produce neurotransmitters that alter the mood. Some scientists have proposed that the microbes may sway the appetite, so that one craves their favorite food.

The infection of the parasite Toxoplasma Gondii might lead a person to their death. The microbe warps rats' brains so that they are attracted to cats, which offer them a cozy home for it to reproduce. Humans can be infected and subjected to the same kind of mind control. The microbe makes someone adopt risky behavior, and increases the chance they will suffer from schizophrenia or suicidal depression. A third of the meat in the UK carries this parasite, despite the fact an infection could contribute to these mental illnesses is known.

SEASONAL FLU RISK

According to the USA Department of Health and Human Services, the fall season's start sparks the onset of flu season, beginning in the autumn months and stretching into as late as May. The flu typically peaks in January and February during the brunt of winter.

As a respiratory illness, the flu spreads from person to person, mostly through coughs, sneezes and even general talking. It is possible to contract the flu by touching a surface infected with the flu virus then transmitting it to the mouth, nose or eyes. Up to 20 percent of the USA population will be impacted by the flu each year.

COMMON COLD RISK

The Common colds can affect anyone at any time of the year, but peak cold activity hits during the winter and rainy months, according to the University of Maryland Medical Center (UMMC).

There are over 1 billion cold cases reported in the USA throughout each year. An upper respiratory infection, colds are spread similarly to the flu. Colds ordinarily bring nasal congestion, scratchy throats and sneezing along with other symptoms depending on the strain.

NOROVIRUS RISK

This is the most common stomach inflammation illness in the USA, commonly referred to as the stomach flu, norovirus reaches its highest strength during the winter months. As an extremely contagious virus, norovirus is the cause of up to 21 million illnesses each year, according to USA Centers for Disease Control and Prevention. Outbreaks spread from person to person, most commonly in long-term care facilities.

ACUTE EAR INFECTIONS RISK

Ear infections, especially in children, are more likely to occur in winter than any other season. Changes in climate, especially as colder air takes hold, will enhance the threat of an acute ear infection. Ear infections are the number one reason parents take their children to the doctor. Symptoms of general ear pain and even nausea can be the most disruptive symptoms.

BRONCHIOLITIS RISK

Caused by a virus that impacts children, mostly under the age of two, bronchiolitis is a swelling and mucus buildup within the smallest lung air passages. The virus peaks in the fall and winter months. It most commonly is caused by a viral infection and is spread from person to person when coming in direct contact with nose and throat fluids of someone carrying the virus. The CDC recommends to wash hands frequently as the easiest way to prevent the spread of the illness. Disinfect counter tops, door knobs and other frequently touched surfaces often.

GUN DEATHS RISKS

The risks of gun deaths in the USA is suicide, not homicide. There were 33,000 gun-related deaths during 2013 in the USA, but 21,175 of them were suicides, and another 1,000 were due to accidental discharges or other undetermined reasons.

Statistics show that each year 7,000 people take their lives by poisoning and another 11,000 by “suffocation” or, hanging. In a typical year there are more suicides by hanging than there are homicides by guns.

The comparison is more telling when one considers that some considerable share of the 10,000 or so annual homicides stem from activities such as drug distribution, gambling and prostitution that would not involve any murders at all had they not been driven into the criminal underground by the proscriptions and prohibitions of the state.

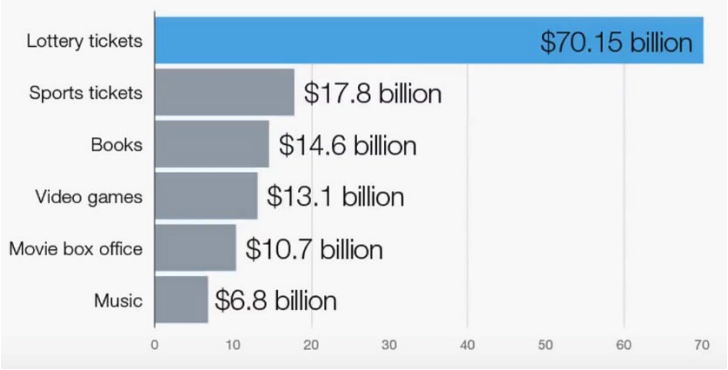
LOTTERY RISKS

Lottery organizers base their work on a well-understood facet of human nature: people do not understand odds. They pay less attention to the probability of a given event than the consequences if it takes place. The odds of a terrorist incident on a plane come to 1 per 16.6 million departures, statistician Nate Silver calculated in 2009, but people tend to focus on the outcome; hundreds of passengers perishing at once, than on the probabilities [23]. The same phenomenon can be observed with the Powerball lottery: Customers focus their attention less on that incomprehensibly small 1 in 292 million probability, and more on what they would do with the billion-dollar prize if they win it.

The Powerball gambling fever gripped the USA, with a jackpot of nearly $1.5 billion at the January 13, 2016 drawing. Powerball officials in the 44 states that participate in the game are quoted expressing astonishment at the size of the jackpot and the nationwide frenzy it has induced.

The rules were changed to increase the odds of winning any prize, while making it more difficult to win the jackpot prize. For each $2 entry, players select five "white" numbers and 1 single "red" number. At each drawing, five numbered white balls and a red ball are picked. Matching all the whites and the red, one wins the jackpot. Matching only the whites, one wins the second prize of $1 million; only the red, and one wins $4, which they are likely to convert into another pair of tickets [23].

The rules were changed to increase the white numbers to 69 from 59 and to decrease the red number to 26 from 35. The effect was to decrease the odds of winning the jackpot from 1 in 175.2 million to 1 in 292.2 million. The odd of winning the $4 in change was reduced to 1 in 92 from 1 in 111 [23].



Match	Prize	Odds
+	Grand Prize	1 in 292,201,338.00
	$1,000,000	1 in 11,688,053.52
+	$50,000	1 in 913,129.18
	$100	1 in 36,525.17
+	$100	1 in 14,494.11
	$7	1 in 579.76
+	$7	1 in 701.33
+	$4	1 in 91.98
	$4	1 in 38.32

The overall odds of winning a prize are 1 in 24.87.
The odds presented here are based on a $2 play (rounded to two decimal places).

Figure 129. Lotteries spending in the USA. Odds of winning in Powerball game. Source: New York State Gaming Commission [23].

The odds of obtaining a winning number is:

$$odds = \frac{{}^{n}C_{r}}{{}^{m}C_{r}}\frac{1}{s} \tag{10}$$

where: ${}^{n}C_{r} = \frac{n!}{r!(n-r)!}$ is the number of combinations or arrangements of r objects out of n objects; for the white balls,
s is the number of choices for the red balls,
$n! = n(n-1)(n-2)...1$, is the factorial of n,
0!=1, by definition, there is only 1 way to arrange 0 objects.

EXAMPLE 1

For n = 5, r = 5, m =69, s = 26,

$$odds = \frac{{}^{n}C_{r}}{{}^{m}C_{r}}\frac{1}{s} = \frac{{}^{5}C_{5}}{{}^{69}C_{5}}\frac{1}{26} = \frac{\frac{5!}{5!(5-5)!}}{\frac{69!}{5!(69-5)!}}\frac{1}{26} = \frac{\frac{1}{(0)!}}{\frac{69!}{5!(64)!}}\frac{1}{26} = \frac{1}{\frac{69!}{5!(64)!}}\frac{1}{26} = \frac{5!(64)!}{69!}\frac{1}{26}$$

$$= \frac{120}{69\times 68\times 67\times 66\times 65}\frac{1}{26} = \frac{120}{1,348,621,560}\frac{1}{26} = \frac{1}{292,201,338}$$

EXAMPLE 2

For n = 5, r = 5, m =59, s = 35,

$$odds = \frac{{}^{n}C_{r}}{{}^{m}C_{r}}\frac{1}{s} = \frac{{}^{5}C_{5}}{{}^{59}C_{5}}\frac{1}{35} = \frac{\frac{5!}{5!(5-5)!}}{\frac{59!}{5!(59-5)!}}\frac{1}{35} = \frac{\frac{1}{(0)!}}{\frac{59!}{5!(54)!}}\frac{1}{35} = \frac{1}{\frac{59!}{5!(54)!}}\frac{1}{35} = \frac{5!(54)!}{59!}\frac{1}{35}$$

$$= \frac{120}{59\times 58\times 57\times 56\times 55}\frac{1}{35} = \frac{120}{600,766,320}\frac{1}{35} = \frac{1}{175,223,510}$$

It is understood that in economic terms, the people who are exploited by the mismatch of expectations tend to be disproportionately low-income and less educated. Lotteries are effectively a tax on the poor. In 1999, researchers at Duke University reported that American households spent an average of $162 per year on lottery tickets, but low-income households spent $289 and those with less than $10,000 in income spent $597.

Higher lottery purchases are associated with lower educational attainment and ethnic minorities. Experts are not entirely sure why "those who can least afford it play the most," as German sociologists asked in a 2013 paper. The pessimistic, and perhaps condescending, view is that the poor and less-educated do not have the intellectual gifts to appraise the odds; but middle-class and rich people play the lottery too. The sociological answer is that lower-income people have a greater need to relieve tension in their daily lives, gambling is a socially acceptable way to do so, and only the lottery offers the lure of a potentially life-changing payoff. Another attraction, the German researchers conjectured, is that lotteries are egalitarian; every buyer of a ticket has the same chance of success. That may be more appealing to those in the lower socioeconomic strata; for whom equal opportunity may seem like a rare break, than to the more affluent, who may look at an equal-opportunity situation as one working to their disadvantage [23].

The assertion that lottery revenues are used to fund education is little more than window-dressing. In California, $1.39 billion in lottery funds went to education in 2015. That is less than 2 percent of the state's education budget of more than $76 billion. If the schools and higher education systems were properly funded by taxes, there would be no

need to provide the dribble of funding out of the paychecks of the working-class Californians [23].

GAMBLER'S FALLACY, MONTE CARLO FALLACY RISK

The "gambler's fallacy" is a reasoning flaw that creates deceptive biases that lead people to anticipate patterns that do not really exist. People with higher IQs are more susceptible to the gambler's fallacy, perhaps because they believe they can better predict patterns.

After obtaining a sequence of tails in tossing a fair coin, many people believe the odds change so that the sequence must somehow even out, increasing the chance of a heads on the subsequent toss. Probability theory tells us that if the events are statistically independent, the chance of a heads is still 50 percent even if you had 500 or 5,000 tails in a row.

The gambler's fallacy is sometimes known as Monte Carlo Fallacy, after an event at one of Monaco's roulette tables in 1913, with 26 blacks in a row. Observational studies confirm that it continues to influence bets today. People with higher IQs are more susceptible to the gambler's fallacy than people who score less well on standardized tests. It could be that the more intelligent people overthink the patterns and believe that they are smart enough to predict what comes next.

The bias appears to be present in stock market trading. Investors will base their decisions on the belief that the random fluctuations in prices will "even out". USA judges' decisions on whether to grant asylum to refugees. The judges were up to 5.5 percent less likely to grant a case if they had granted the two previous cases which is a serious decline from the average acceptance rate of 29 percent.

Bank loan officers were up to 8 percent more likely to reject an application after they had accepted two or more in a row. In Major League Baseball games the umpires were about 1.5 percent less likely to call a pitch a strike if the previous pitch was also called a strike.

In businesses employee recruitment if the interviewers have already seen one good candidate, they might not expect another exceptional individual. The same applies to teachers grading essays. A publisher considering new publications might reject the next one based on the fact that he has recently commissioned other manuscripts.

RISK OF QUICKSAND

Wet quicksand

Quicksand usually consists of sand or clay and salt that became waterlogged, often in river deltas. The ground looks solid, but when you step on it the sand begins to liquefy. But then the water and sand separate, leaving a layer of densely packed wet sand which can trap it. The friction between the sand particles is reduced, meaning it cannot support your weight anymore and at first you do sink.

Daniel Bonn from the University of Amsterdam used aluminum beads which have the same density as a human. He put them on top of the sand and then, to simulate the flailing of a panicking human, he shook the whole model and waited to see what happened.

At first they sunk a little, but as the sand gradually began to mix with water again, the buoyancy of the mixture increases and they floated back up to the top. Bonn and his team tried placing all sorts of objects on his lab-made quicksand. If they were of density equivalent to a human they did sink, but never completely, only half way.

Although quicksand does not continue to pull you right under, if you cannot get free in time, a high tide can sweep across you. This is really when quicksand can be dangerous. We do still need to be wary. If one want to free oneself without waiting for rescue or for the sand to liquefy again, then Bonn's research showed that just to release one foot, you would need to provide a force of 100,000 newtons, the equivalent of the strength to lift a medium-sized car.

The quicksand effect means that falling into a silo full of grain can often be fatal. In the lab Bonn's team found that salt was an essential ingredient because it increased the instability of quicksand, leading to the formation of these dangerous areas of thick sediment.

Another team from Switzerland and Brazil, discovered a kind of quicksand that does not need salt. They tested samples from the shores of a lagoon in north eastern Brazil. They found that bacteria formed a crust on the top of the soil, giving the impression of a stable surface, but when stepped on the surface collapsed. The good news is that basins formed from this kind of soil are very rarely deeper than the height of a human, so even if someone did slip into the quicksand they would not drown [24].

Dry quicksand

The dry quicksand effect means that falling into a silo full of grain can often be fatal. To survive a fall into dry quicksand, you need outside help as quickly as possible. The classic idea of quicksand drags a person down. Each time a person exhales, the volume of his chest reduced, causing grain to rush to fill the gap and making it progressively harder for him to breathe.

The firefighters use a clever solution. They lower a cylinder over the trapped person's body. Then they suck the grain out with an industrial vacuum. The grain could not fall more tightly around the person and he can survive.

To survive a fall into dry quicksand, one needs outside help as quickly as possible. In some wet quicksand a person need to wiggle their leg a little in order to introduce water to the sand around the feet to liquefy the sand again.

The idea is to stay calm and lean back and spread out to spread the body weight more evenly and wait until they float back up to the surface [24].

RISK OF MERCURY IN FISH

A study published in the journal Science Advances suggests that rising global temperatures could boost mercury levels in fish by up to seven times the current levels. Extra rainfall drives up the amount of organic material flowing into the seas which alters the food chain, adding a layer of complex organisms which boosts the concentrations of mercury up the line.

Mercury is one of the world's most toxic metals, and according to the World Health Organization, is one of the top ten threats to public health. The substance at high levels has

been linked to damage to the nervous system, paralysis and mental impairment in children. The most common form of exposure to mercury is by eating fish containing methyl-mercury, an organic form of the chemical which forms when bacteria react with mercury in water, soil or plants.

Levels of mercury in the world's ecosystems have increased by between 200 and 500 percent, since the industrial, driven up by the use of fossil fuels such as coal. In recent years there are have been concentrated efforts to limit the amount of mercury entering the environment, with an international treaty, called the Minamata Convention, signed by 136 countries in place since 2013.

Swedish researchers from Umea University recreated the conditions found in the Bothnian sea estuary and discovered that as global temperatures increase, there is an increased run-off of organic matter into the world's oceans and lakes. This encourages the growth of bacteria at the expense of phytoplankton. The extra step in the food chain enriches methyl-mercury by a factor of ten in each such step in the food web."

Under the warmest climate scenario suggested by the Intergovernmental Panel on Climate Change, there would be an increase in organic matter run-off of 15-20 percent by the end of this century. This in turn would see levels of methyl-mercury in zooplankton, the bottom link in the food chain, grow by between two and seven fold.

Different parts of the world suffer different impacts, with lakes and coastal waters in the northern hemisphere being the most likely to have significant increases in methyl-mercury levels in fish, while the Mediterranean, the central USA and Southern Africa will likely see reductions.

ESCOLAR, BUTTERFISH, OILFISH, WALOO/WALU, “WHITE TUNA” MISLABELING RISK

The importation of this buttery and succulent fish is banned in Italy and Japan. The governments of Canada, Sweden and Denmark require that all escolar fish come with warning labels. In the USA, the FDA lifted the escolar ban in 1992 because the fish is nontoxic. Sushi restaurants occasionally serve it as "super white tuna" or "king tuna."

The nonprofit ocean protection group Oceana took 1,215 samples of fish from across the USA and genetically tested them. It disclosed that 59 percent of the fish labeled "tuna" sold at restaurants and grocery stores in the USA is not tuna. Sushi restaurants were far more likely to mislabel their fish than grocery stores or other restaurants.

With some varieties of fish in danger of being overfished and other species becoming undesirable due to their high mercury content, seafood purveyors sell it as a fish that is delicious, cheap, sustainable, and low in mercury.

Escolar is a type of snake mackerel that cannot metabolize the wax esters naturally found in its diet. These esters are called gempylotoxin, and are very similar to castor oil or mineral oil. This is what gives the flesh of escolar its oily texture. When full portions of escolar are consumed, these wax esters cause serious gastrointestinal symptoms.

There are two different species of Escolar. They are known as Smouth-skin (Lepidocybium Flavobrunneum) and Rough-skin (Ruvettus Pretiosus) Escolar, the latter being the much cheaper yet problematic fish.

These two different fish species have been lumped together. A good seafood processor would ensure to deep-skin the Escolar to remove the high oil content muscle tissue between the skin and flesh, drastically reducing the purgative issues.

The fish is considered as environmentally sustainable due to its short population doubling time, so using this fish prevents the extinction of other species.

Consumption of escolar causes explosive, oily, orange "explosive diarrhea." The discharges are difficult to control and accidents can happen while passing gas. Other side effects can occur including erratic heart rate, cold sweats, chest pressure and other symptoms similar to the beginnings of a heart attack or anxiety attack can happen within 1 hour of eating Escolar.

Serious medical toxicity problems often occur after eating the barracuda fish caught in Mexican waters.

ZIKA VIRUS, DENGUE FEVER, AEDES AEGYPTI MOSQUITO RISK

Zika is a virus discovered in a Rhesus monkey in the Zika forest of Uganda in 1947. It is native to tropical Africa, Southeast Asia, and the Pacific Islands. Infections have exploded in Latin America and the Caribbean. The virus is spread through bites from the same kind of mosquitoes that can spread other tropical diseases, like chikungunya and dengue fever [25].

The Zika microcephaly may be an effect to the pesticide pyriproxyfen. Pyripyroxyfen interferes with a mosquito growth hormone, preventing the larvae from developing into adults, according to biologist Laura Harrington, professor and chairperson of the entomology department at Cornell University in New York.

The virus arrived in Brazil in 2013, likely by plane from French Polynesia. It only took a few months for it to spread to 60 countries. And everywhere Zika became established, it had been preceded by the Aedes aegypti mosquito. The Aedes aegypti mosquito has taken over the title as the world's most dangerous mosquito from the malaria-carrying Anopheles. The Aedes aegypti carries diseases such as dengue fever, yellow fever and Zika. In English, the word Aedes means a ne'er-do-well person; an idle, irresponsible, lazy person. In ancient Roman religion, Aedes is a shrine or a temple.

The Aedes aegypti mosquito was present when the chikungunya fever broke out on the island of La Réunion in 2005. It was there when chikungunya spread to India and it was there when the virus jumped from the Caribbean to the American mainland. Even yellow fever, which long seemed to have been eradicated, is making a comeback. By the time Angola, the Democratic Republic of Congo and Uganda in the spring of 2016 reported the worst outbreak of the disease in decades, the mosquito had already infected 2,000 people. Three hundred of them died. About 1 in 5 people who are infected with the Zika virus develop symptoms. Zika illness involves fever, rash, joint pain, and red eyes, which usually last no more than a week. There is no medicine or vaccine for it. Hospitalizations are rare, and deaths from Zika have been rarely reported [25].

The Aedes aegypti mosquito is attracted both by the CO_2 that people exhale and by their perspiration, an alluring combination of butanoic acid and propanoic acid. Female mosquitoes pursue this scent until they come close enough to their victims to sense the warmth and dampness that everyone's body emits. Humans emit out about 500 odor molecules, and the mosquito can detect about 20 of these. The CO_2 in the breath, the

carboxylic acid in the socks or the sweat on the skin tell the mosquito about the location of a human [25].

The lifecycle of a female Aedes aegypti is at least 10 days long. During this period, it lays several hundred tiny eggs on four or five occasions. In contrast to the Anopheles mosquito, which lays its eggs on the surface of standing water, the Aedes aegypti mosquito positions its spawn just above the water's surface. When the rain comes and the water level climbs, a new lifecycle begins in each egg.

DEET is still the most reliable mosquito repellant substance. It is a synthetic molecule that was developed in the 1940s by the USA military after it became clear that, in some wars, almost as many men were being lost to mosquitoes as to enemy fire. DEET activates certain receptors on the mosquito antennae, thus confusing them. But DEET has two disadvantages. First, it has side-effects. And second, it does not work as well on Aedes aegypti mosquitoes as it does on the Anopheles mosquito. Interestingly, a natural anti-mosquito substance is present in 10 percent of the human population.

Blood is vital for female mosquitoes as it provides the protein necessary to complete the egg formation process. To prevent blood from quickly clotting, mosquitoes secrete an anticoagulant into their host's bodies. It is this exchange of bodily fluids that makes mosquitoes into a “vector”, or an animal that transmits pathogens.

Evidence links Zika infection in pregnant women to a rare condition called microcephaly, in which the newly-born’s head is smaller than normal and the brain has not developed properly. Brazil had a recent spike in the birth defect.

Infections are occurring in Mexico, and the kind of mosquitoes that can carry the virus are found along the southern USA. Travelers are advised to wear long sleeves and long pants and use insect repellent.

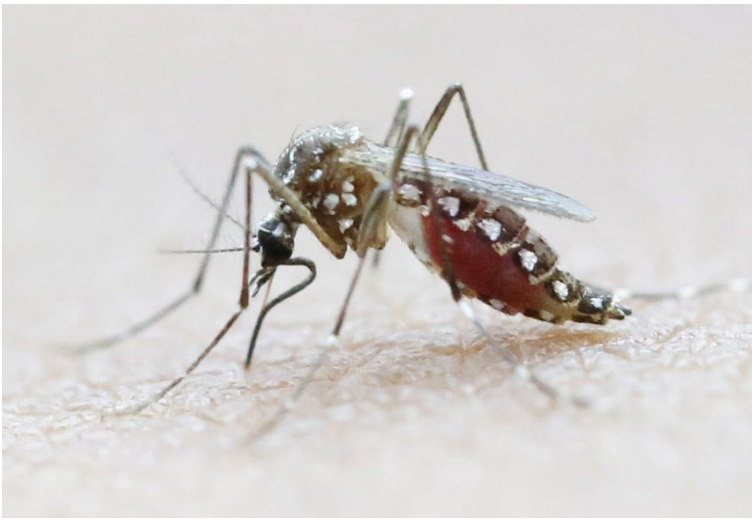


Figure 130. The black-and-white striped Aedes aegypti mosquito is one of the world's most dangerous vectors, a term used to describe insects that transmit diseases. The mosquito carries chikungunya, dengue fever, yellow fever and Zika. India is afflicted by diseases carried by the Aedes aegypti, including regular dengue fever outbreaks. This mosquito is the most dangerous animal in the world presenting a threat to some 4 billion people globally [25].

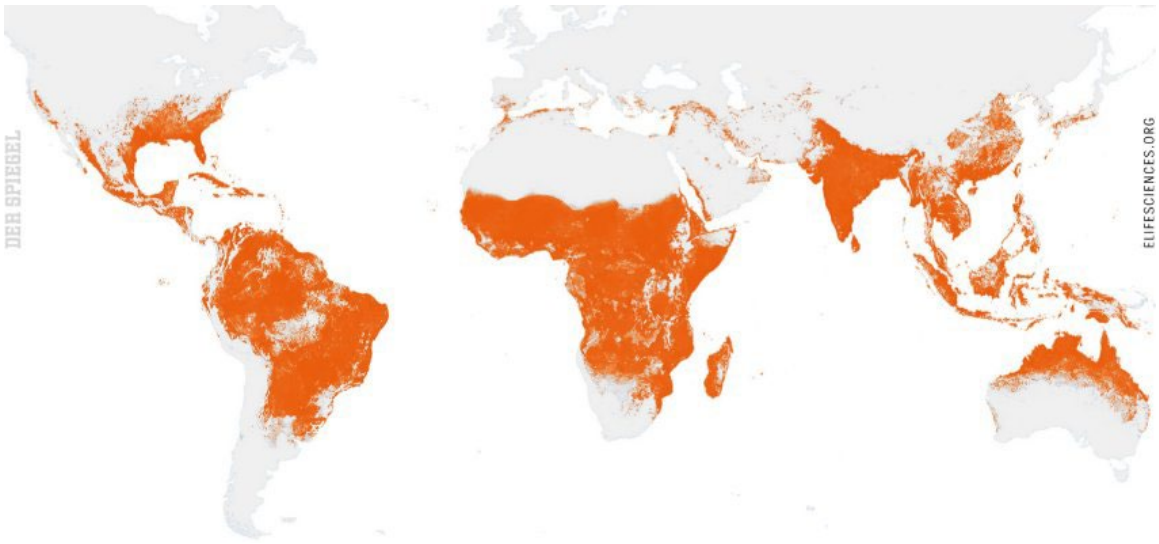


Figure 131. Areas of the world at risk of diseases carried by the Aedes aegypti mosquito. Mosquitoes were on this planet before humans and they may still be here if humans were gone.

The CDC reported more than 500 cases it is monitoring, including nearly 300 pregnant women thought to have the disease, determined by actual lab tests. The increasing number of cases is not because the disease is spreading by mosquitoes in the USA. All cases are thought to have been acquired by travel or by having intercourse with a person carrying the disease.

Table 20. Mosquito deaths worldwide.

Disease	Deaths / year
Malaria	450,000
Yellow fever	45,000
Dengue fever	20,000
Japanese encephalitis	17,000
Total	532,000

There are numerous good reasons to think the disease can cause microcephaly in infants as well as Guillain-Barré syndrome in anyone. Guillain-Barré is potentially as consequential, if not more so, as an outcome of the Zika virus, although neither microcephaly nor Guillain-Barré has been proven as yet to be caused by the virus. The CDC has declared a causal relationship between the virus and brain diseases like microcephaly, and justifies its conclusion partly because of "the absence of an alternative explanation."

Guillain-Barré causes sudden onset of paralysis and can be life-threatening because victims may lose the ability to breathe. It typically comes on following an infection, but is rare, affecting about one in 100,000 people annually. People with the Zika virus seem to have an increased chance of succumbing to the syndrome.

No one has a good test for the Zika virus, because dengue fever and yellow fever can trigger an antibody test for it. A real-time reverse-transcription polymerase chain reaction (PCR) test is available, but only certain high-precision testing labs can perform it. The blood serum must be collected within three days of onset of the symptoms (urine for PCR testing can be used up to 14 days after the onset of symptoms), and the CDC is not promising anyone will get test results back in less than three weeks.

The Utah Department of Health is reported a "unique" case of Zika in July 2016 in Utah whereby a person reportedly became infected with the virus without a clear means of transmission. The case was discovered in a care giver of an elderly individual with the virus who died in late June 2016. The caregiver is not believed to have traveled to an area with Zika or to have had sex with someone who had the virus. Evidence is needed that the Zika can be passed from one person to another person by sneezing or coughing or touching or hugging or sharing utensils. As there is currently no evidence that the Aedes mosquito is capable of spreading Zika is in Utah, the investigation is seeking to discover how the caregiver became infected.

The majority of people who get the virus do not even know they have it because they will have no symptoms. Those that do will experience mild fever, rash, joint pain, conjunctivitis (red eyes), muscle pain or headache. No one is sure what the incubation period of the virus is, but the CDC is guessing it is a few days to a week.

Whereas the Anopheles was the mosquito of the 20th century, the Aedes aegypti seems intent on taking that title for the 21st. The number of people dying of malaria has long been in decline, but Aedes-spread dengue fever, by contrast, is considered the fastest spreading mosquito-borne illness in the world. Fully 128 countries are now considered at risk of dengue and around 4 million people become infected each year, according to WHO. Most of them suffer from rashes, joint pain and high fever. But an estimated 20,000 per year have a different reaction: They experience severe internal bleeding which often ends in death.

An artificial genetic modification that is passed on during mating is under consideration to control the mosquito. That gene produces a protein called tTAV, which ensures that the mosquitoes' larvae will die before reaching adulthood. The British company Oxitec conducted trials on the Cayman Islands and in Panama. The method succeeded in reducing the wild Aedes aegypti population by 90 percent in just a few months. The USA biotech firm Intrexon purchased Oxitec, which was originally formed out of an Oxford University research project, for $160 million.

In a country like India inpatient treatment of dengue fever patients can easily cost as much as half of a family's annual income. In Thailand, the tourism industry estimates that dengue-induced revenue losses could amount to as much as $363 million. In Malaysia, researchers have calculated that 10,000 dengue cases resulted in the loss of 940,000 work days.

Mosquitoes originally lived exclusively in sub-Saharan Africa. They preferred targeting wild animals to satiate their thirst for blood. Females mostly laid their eggs in branch hollows that filled with water during the rainy season. Evolution researchers have differing answers to the question as to when mosquitoes began changing their behavior. According to one theory, when the Sahara began expanding around 1,000 years ago, much of the mosquitoes' habitat dried out, which in turn meant that water could only reliably be found in places where humans had settled, and these humans soon became their most stable

source of blood. A second theory holds that the domestication of the mosquito only happened later, as a spontaneous event that took place on a slave ship traveling from Africa to the New World. The theory was developed by the Brazilian historian Rodrigo Magalhaes, who wrote his Ph.D. about the 20th century South American fight against an insect that has repeatedly caused yellow fever outbreaks since its arrival.

An American doctor named Fred Soper, in 1947 became the coordinator of a program to eliminate the Aedes aegypti mosquito under the auspices of the Pan American Health Organization. He possessed the miracle weapon that would make it possible: “Dichloro-diphenyl-trichloro ethane” or DDT. DDT is a chemical whose potency as an insecticide was discovered in 1939 by an employee of the Swiss pharmaceutical company Geigy. He was awarded the Nobel Prize for medicine.

Fred Soper managed to get South American countries to change their laws such that local mosquito hunters were provided access to private homes. In 1958, 11 years after launching his campaign, Fred Soper announced that all countries in South and Central America had successfully eliminated the Aedes aegypti mosquito.

Because the USA had not experienced a yellow fever epidemic since 1905 and because dengue and Zika had not yet become a danger, American politicians were reluctant to allocate millions of dollars to do battle against an apparently harmless insect. By 1965, the Aedes aegypti was back, first in Mexico and then, one year later in Nicaragua and two years after that in the northern Brazilian city of Belém, where researchers determined that the mosquitoes had the exact same genetic code as Aedes aegypti mosquitoes in Florida. During the time when Fred Soper's army of sprayers was making its way through Central and South America a mutation in the mosquito's genetic code took place during one of the species' myriad breeding cycles, one which made the insect immune to DDT. It was a mutation that guaranteed the survival of the species.

In addition to adapting to humans and the development of resistance to DDT, Aedes aegypti, in contrast to the malaria-carrying mosquito Anopheles, was able to quickly adapt to conditions in rapidly growing megacities. Whereas they once bred in branch hollows found in the pre-historic African forest, today they are just as comfortable with car tires, plastic bottles or computer casings.

A vaccine for yellow fever was developed in the 1940s, but in the decades since then, there has been no additional vaccine created to protect humans from the diseases carried by Aedes aegypti.

Aedes aegypti, the mosquito of the 21st century, has become established in the slums of cities like Rio de Janeiro, Brazil, where the sewage system is just as dysfunctional as garbage disposal. In Piracicaba, the neighborhood mosquito hunters have found that the stomachs of many Aedes females can now hold twice as much blood as they could just 20 years ago. In a city like Singapore, which is lit up all night long, researchers have found that the mosquitoes now suck blood around the clock.

The forecasts of climate researchers also play into the hands of Aedes aegypti. Steady warming is one element, but more important is the possibility of an increasing number of droughts, which will lead more people to store water in tanks over their rooftops [25].

NAEGLERIA FOWLERI AMOEBA RISK FROM SWIMMING IN FRESH WATER SOURCES

Naegleria fowleri is a heat-loving amoeba commonly found around the world in warm fresh water bodies such as lakes, rivers, ponds and hot springs, as well as soil, but not in salt water, according to the Centers for Disease Control and Prevention [17]. If ingested, the amoeba can cause an infection known as Primary Amebic Meningoencephalitis (PAM). Infection-causing PAM is extremely rare, but from 1962 to 2013, there have been 132 cases reported in the USA, with 34 cases coming between 2004 and 2013 [17].

The initial symptoms are the same as bacterial meningitis and typically start five days after the infection: headache, fever, nausea, vomiting and a stiff neck. During the later stages of the infection, people develop seizures, become lethargic and can develop an altered mental state and eventually go into a coma.

A precautions to take to lower the risk of infection is using nose plugs since infection typically occurs after the amoeba enters the body through the nose and travels to the brain when a person is swimming underwater.

Cases of Naegleria fowleri are more common in the months of July, August and September when there is prolonged heat and thus higher water temperatures and lower water levels. Most of the cases occur in the USA's southern-tier states, and about 50 percent of the cases occurred in Texas and Florida.

The following tips for Summer Swimmers are suggested by the CDC [17]:

1. Hold your nose shut, use nose clips or keep your head above water in warm bodies of freshwater.
2. Avoid digging in or stirring up the sediment while taking part in water-related activities in shallow, warm bodies of freshwater.
3. Avoid water-related activities in warm freshwater during periods of high water temperature and low water levels.
4. Do not put your head under water in hot springs.

Humans are infected by the deadly organisms when water containing the amoeba travels through the nose and migrates to the brain, destroying its tissue. High temperatures in the summer months elevate the risk of coming into contact with the brain-eating amoeba.

Most infections in the USA occur during periods of prolonged heat, high water temperatures and lower water levels. The amoeba grows best at high temperatures up to 115 ^{o}F but can survive for brief periods of time in warmer conditions, according to the Centers for Disease Control and Prevention. The amoeba can also be found in river or lake sediment where temperatures are below the preferred threshold.

Cases of Naegleria fowleri are rare but deadly with a fatality rate of 97 percent. After initial symptoms such as headaches, vomiting and fever, the disease progresses rapidly and in most cases does result in death within 3-18 days. Over the period 2006-2015, 37 cases of Naegleria fowleri were reported in the USA.

MEAT GRILLING, BARBECUE RISKS

Cooking meat on the grill presents a higher risk for colorectal, breast, stomach and pancreatic cancers. According to Karen Collins, nutrition advisor for the American Institute

for Cancer Research (AICR), two cancer-causing compounds can form when meat is cooked on the grill: HCAs and PAHs:

1. HCAs, or heterocyclic amines, are formed when animal protein is exposed to intense heat.
2. PAHs, or polycyclic aromatic hydrocarbons, form in smoke and are deposited on meat. Most often, this occurs when fat from meat drips onto charcoal or another heat source, causing smoke to develop.

The risk may not be equal for all people. Genetic differences may cause some people to face a greater risk than others despite the same exposure.

Since the HCAs are generated by exposure to intense heat, two different steps can reduce that. One is by reducing the temperature. When meat is cooked to the same degree of doneness at a high temperature, finishing the cooking faster causes the amount of HCAs that form to be substantially increased. This can be cut by cooking slower on medium instead of high temperature.

Well-done, blackened meat also has higher levels of these compounds, thus one must consider limiting the exposure to this intense heat by not cooking animal proteins to super well-done levels.

Acidic marinades, such as lemon juice, vinegar, and herbs and spices can reduce the formation of HCAs by over 90 percent, according to the AICR. The AICR recommends that one reduces the risk by making overall lifestyle changes and eating healthier foods. It advises to focus most meals around whole grains, fruits and vegetables, some of which contain phytochemicals that naturally deactivate harmful carcinogens.

LEAD AND COPPER WATER CONTAMINATION RISK

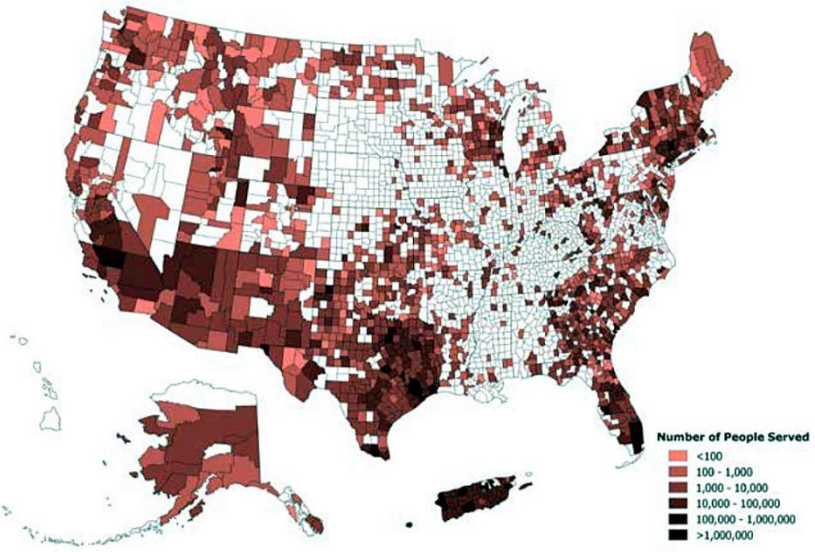


Figure 132. Number of people served by community water systems with reported violations of the Pb and Cu rules in 2015: 18 million. Source: EPA.

According to the Natural Resources Defense Council (NRDC), more than 18 million Americans were served by 5,363 community water systems with lead violations in 2015. A total of 1,110 of those water systems, which collectively serve 3.9 million people, showed lead levels in excess of 15 parts per billion (ppb) in at least 10 percent of the homes tested. Though public health officials say that no levels of lead should be considered safe, the 15 ppb-mark is the action level set by the EPA. All 50 USA states had at least one water system in violation of the lead and copper rule in 2015. The states and the EPA took formal enforcement action against just 11.2 percent of the over 8,000 violations in 2015 leaving 88.8 percent free from any formal enforcement action.

Lead exposure can have damaging and life-altering consequences, even at low levels. Children and babies are most at risk, with side effects including developmental delay, learning difficulties and slowed growth, according to the Mayo Clinic.

In April 2014, the city of Flint, Michigan, lead-contaminated water resulted when the city's water supply was switched from Lake Huron to the Flint River, which contains highly corrosive and polluted water, without first treating the lead pipes. As these pipes corroded, Pb levels soared as high as 10,000 ppb in some locations.

The lack of enforcement can be attributed in part to severe understaffing of the EPA at the federal level. Underreporting may be due to a variety of issues, including bad or unreliable testing methods and testing in houses not served by lead service lines.

SWIMMING IN FRESH-WATER AND SALT-WATER RISKS

During the summer months, millions of people across the USA are attracted to swim in fresh or salt water, chlorinated pools. Unknown to them they are at risk of contracting the following risks.

1. Cyanobacteria toxic algae

Toxic algae, known as blue-green algae, cyanobacteria are microscopic organisms found naturally in all types of water; fresh, combined salt and fresh water and marine water, according to the Centers for Disease Control and Prevention (CDC). Sometimes the algae start to multiply quickly, forming toxic blooms in warm waters that are not moving fast and are filled with nutrients, such as fertilizer or septic overflows. One may be able to see the blooms that spread across the water’s surface and the CDC recommends that you and your pets stay away from water that is discolored or has a foamy or scummy surface.

Cyanobacteria tend to outcompete other algae when water temperatures get above about 20 degrees Celsius or 68 degrees Fahrenheit, and they outcompete most other organisms and persist for long periods of time.

2. Naegleria fowleri brain-eating amoeba

Naegleria is an amoeba commonly found in the environment, in water and soil. Only one species of Naegleria has been found to infect humans, Naegleria fowleri. It is important to note that these deadly infections are rare, but they did happen in the USA. Between 1962

and 2016, the CDC reported 143 known Naegleria fowleri infections, with only four survivors, a fatality rate of more than 97 percent.

The amoeba, a single-celled organism, lives in warm freshwater, such as lakes, rivers and hot springs. These organisms can travel up the nose to the brain and spinal cord as people swim or dive. This can cause a brain infection called Primary Amoebic Meningoencephalitis (PAM). CDC researchers said people do not become infected from drinking contaminated water.

Naegleria fowleri is thermophilic, or heat-loving. Most infections occur during July, August and September when there is prolonged heat, higher water temperatures and lower water levels.

3. Vibriosis, Vibrio vulnificus flesh-eating bacteria

Several cases of Vibrio vulnificus bacteria have been confirmed in the summer of 2017 in Mobile County, Alabama. Those affected are recovering, but health officials continue to warn the public about how to avoid soft-tissue infections. Vibriosis infections can occur when people eat raw or undercooked seafood, particularly oysters, or when an open wound is exposed to warm seawater, according to the Alabama Department of Public Health.

Vibrio bacteria naturally live in certain coastal waters, according to the CDC, and are measured in higher concentrations between May and October. Those individuals with open wounds, cuts, abrasions and sores, must stay out of brackish and warm salt water. Persons with low immune systems, cancer, diabetes, liver disease and other chronic conditions should avoid eating raw or undercooked seafood, especially oysters.

4. Cercarial Dermatitis swimmer’s itch parasites

This itchy rash occurs when people come into contact with water that is infested with parasites. According to the American Academy of Dermatology, the parasites burrow into the skin when the water starts to evaporate, not when the person is in the water. They cause tingling or burning spots, welts or blisters in the affected areas. Oral and topical medications eventually calm the rash and itch but the skin remains sensitive for about a week.

5. Cryptosporidiosis parasites

This parasitic infection is often found in swimming pools and water playgrounds. Outbreaks occur when swimmers swallow water contaminated with fecal matter discharged by other swimmers. Cryptosporidium is the leading cause of outbreaks from recreational water venues and can survive for up to 10 days even in properly chlorinated water, making it extremely hard to kill.

Cryptosporidiosis causes a gastrointestinal illness that lasts for a few weeks. The CDC's data for 2016 shows at least 32 outbreaks occurred in 13 states, compared to 13 outbreaks reported for 2013 and 16 outbreaks reported for 2014. The higher numbers could be due to an actual increase in the number of outbreaks, or it could be related to better surveillance systems and laboratory methods for diagnosis.

Figure 133. Cyanobacteria toxic algae. Source: CDC.

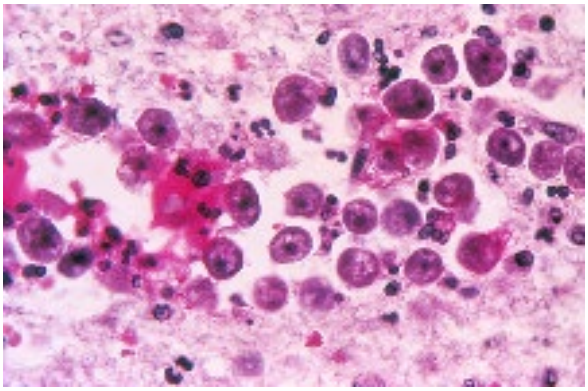


Figure 134. Naegleria Fowleri, Brain-eating amoeba. Source: CDC.

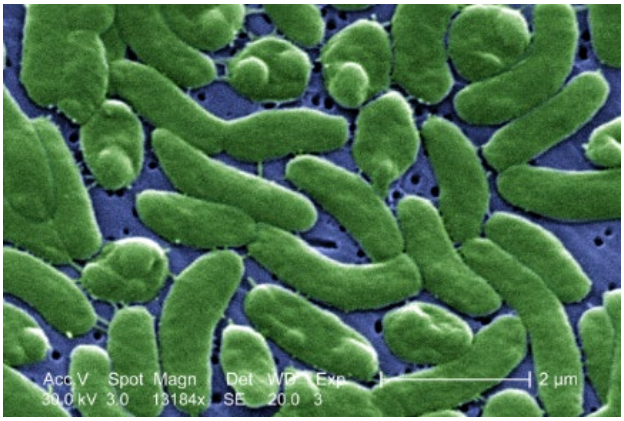


Figure 135. Vibriosis, flesh-eating bacteria. Source: CDC.

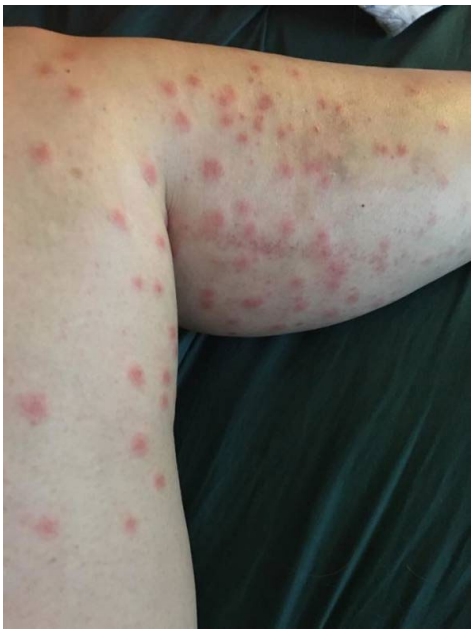


Figure 136. Cercarial Dermatitis, swimmer itch parasites. Source: CDC.

Figure 137. Cryptosporidiosis parasites occur in swimming pools and fresh water supplies. Source: CDC.

HYOSCINE, SCOPOLAMINE, DEVIL'S BREATH DRUG RISK

Hyoscine, from the nightshade family of plants, is also known colloquially as "Devil's Breath". It is medically used to treat nausea, motion sickness, and gastro-intestinal pain, among others, with common side-effects including sleepiness and dry mouth. In higher doses it can cause hallucinations, agitation, seizures and unconsciousness. The drug is most widely known in Colombia, where it is derived from the "borrachero" tree which grows wild in the northern Andean region.

In the criminal world, the drug is used for its ability to diminish resistance, creating "zombies", and reduce memory of past events. As such it is used in robberies, sexual

assaults, date rapes and kidnappings. Hyoscine, a prescription drug, has gained notoriety as a date rape drug.

About 50,000 incidents are associated with the drug every year in Colombia. Horror stories are attributed to the drug; for instance, that its powder can be blown into the victims' faces to incapacitate them.

ACTIVE SUPERVOLCANOES ERUPTION RISK, YELLOWSTONE, LONG VALLEY, VALLES

Figure 138. Eruption of Mt. Kilauea, May 15, 2018, Hawaii. Lava flow and fires.

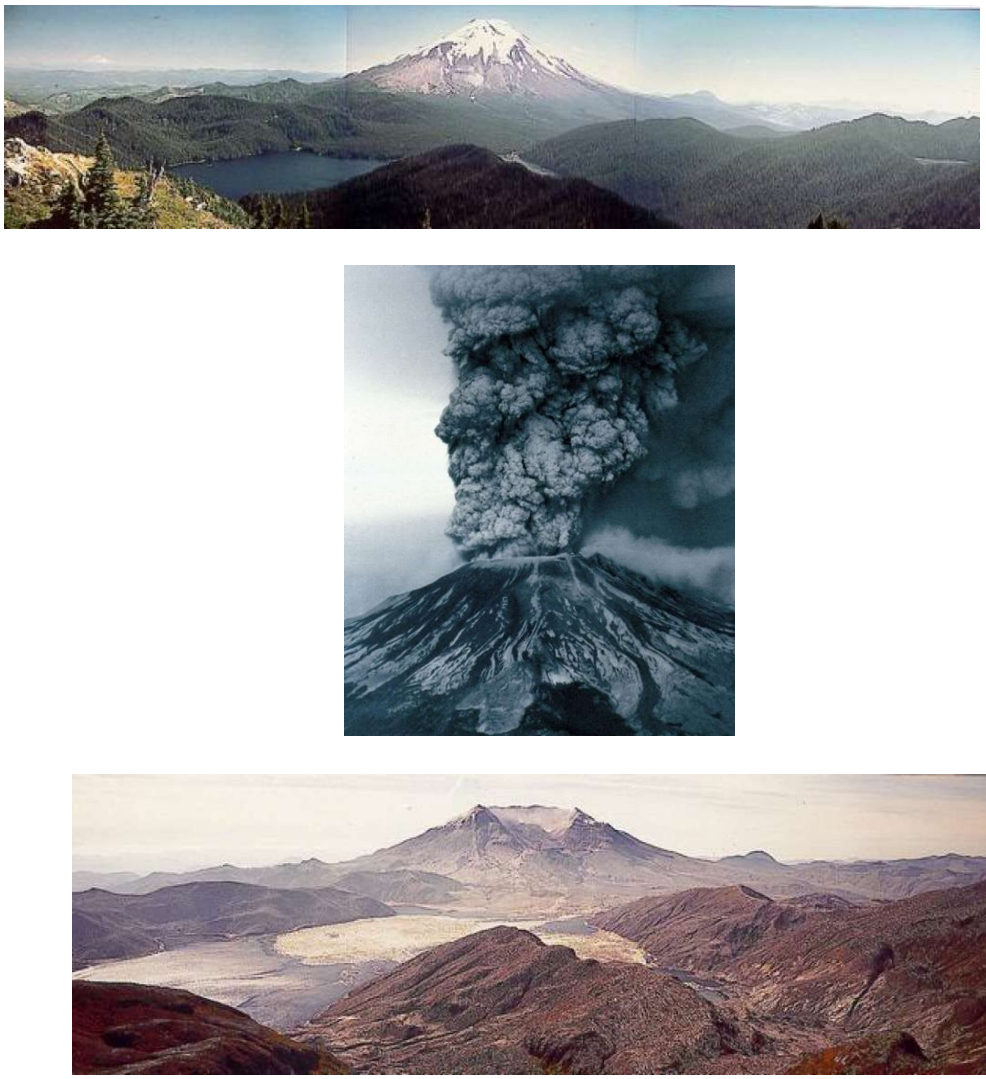


Figure 139. Mount St. Helens volcano erupted in 1980 and has been active as of 2008.

The USA is home to three active super-volcanoes, the United States Geological Survey, USGS has determined: Yellowstone, Long Valley and the Valles Caldera in New Mexico. Valles is the oldest of the three and had its big event 1.25 million years ago, creating a 12-by-14 mile caldera when it blasted 70 cubic miles of magma.

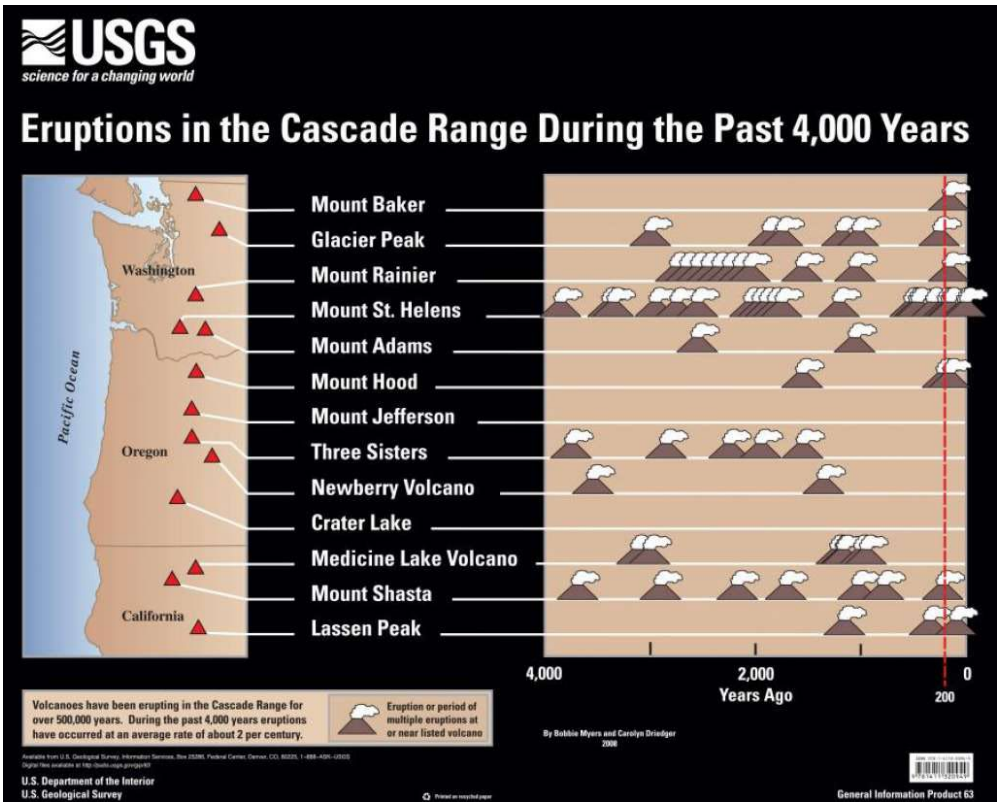


Figure 140. Cascade Range volcanic eruptions.

Figure 141. Sunset Lake hot spring, Yellowstone. If a lake disappears and drains into the Magma Chamber then it is time for concern as it would cause a steam explosion. Small earthquakes may open up a fissure in the faults zones and cause a lake to drain into the magma. The lakes do not have to be above ground and visible. The underground water shed could drain through a fissure like the ocean water in the Krakatoa eruption, or snow from a mountain cap like in Mount Saint Helens.

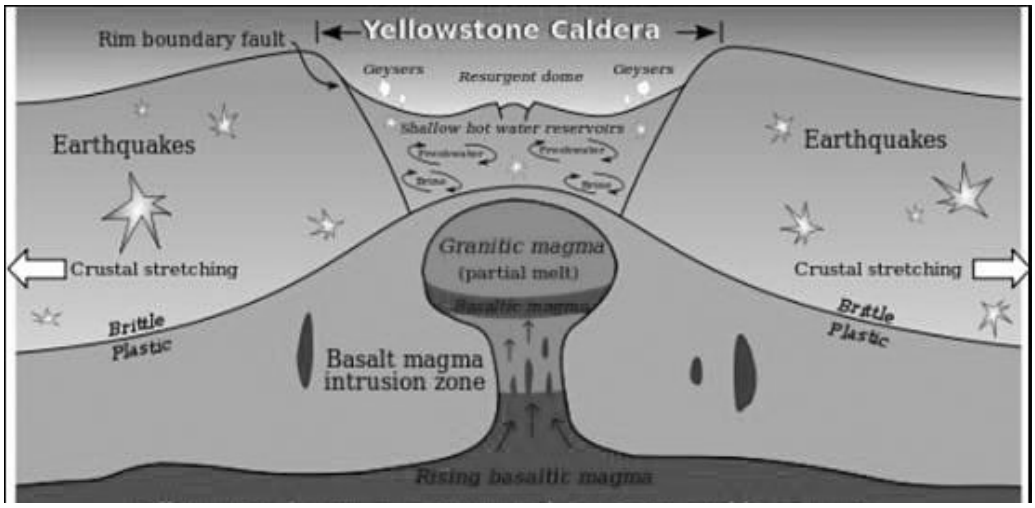


Figure 142. Magma intrusion, Yellowstone caldera.

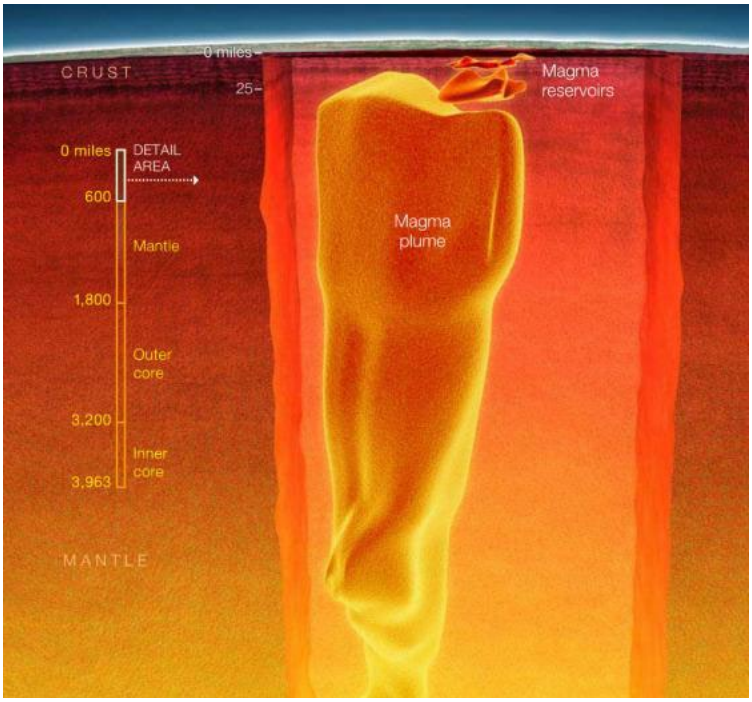


Figure 143. Magma reservoir, Yellowstone. Source: National Geographic.

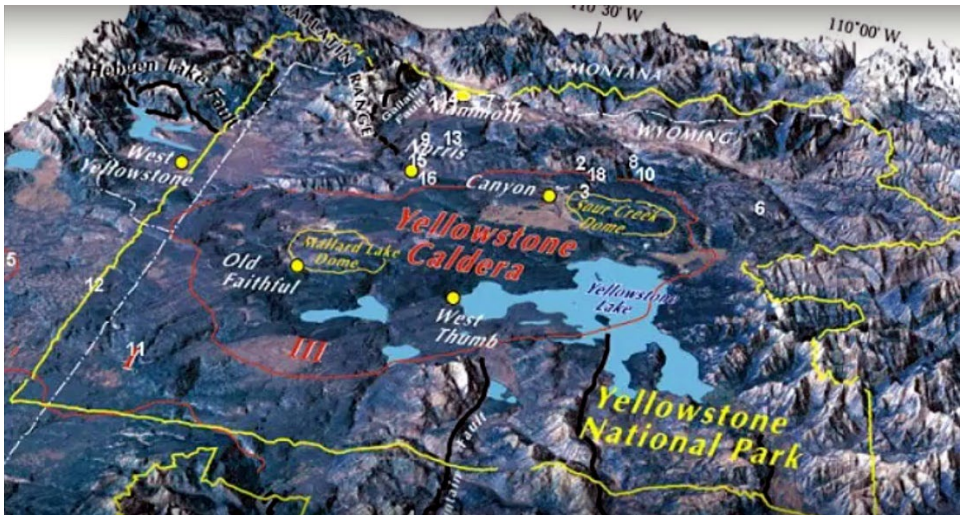


Figure 144. Yellowstone caldera.

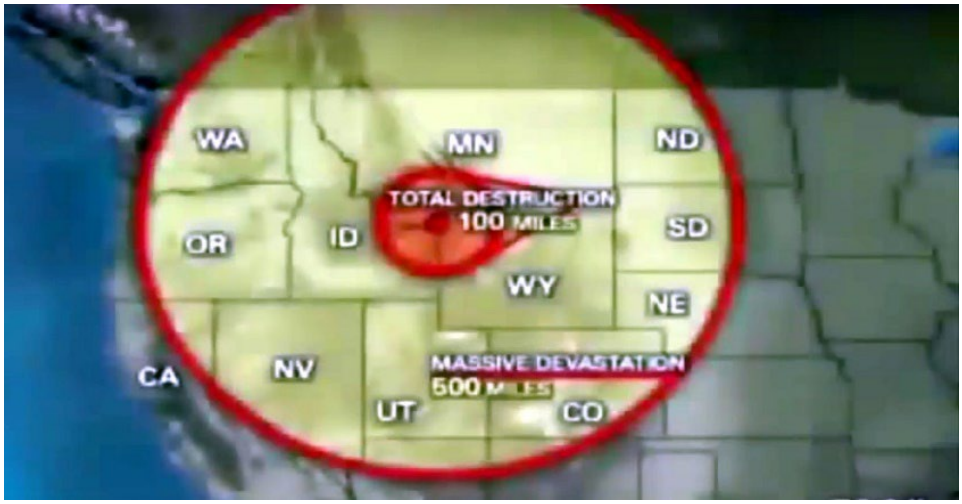


Figure 145. Extent of damage from a Yellowstone eruption. Three explosive eruptions have occurred at Yellowstone in the past 2.1 million years with a recurrence interval of about 600,000 to 800,000 years

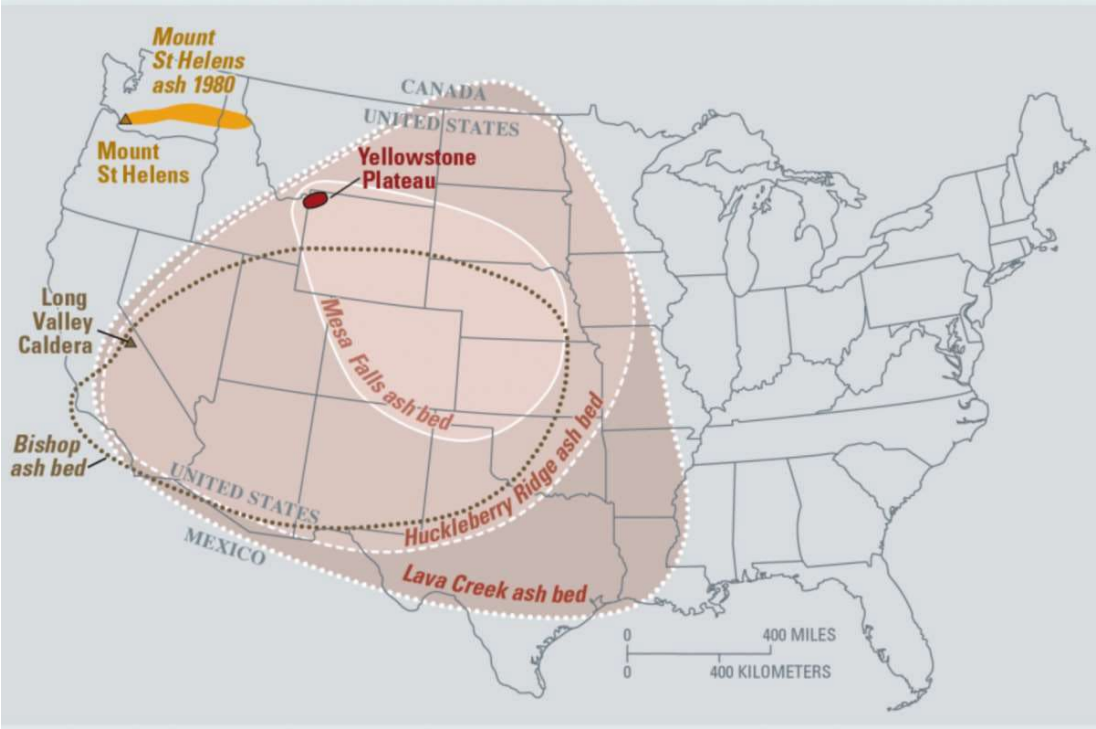


Figure 146. Ash boundaries from past volcanic Mount St. Helens, Yellowstone and Long Valley eruptions. Long Valley has many hot springs, fumaroles and a geothermal system that fuels the Casa Diablo geothermal power plant. Long Valley's last mega-eruption, the Bishop Tuff eruption 760,000 years ago, kicked out 150 cubic miles of magma, and is the third largest super-eruption in geologically recent times. Source: USGS.

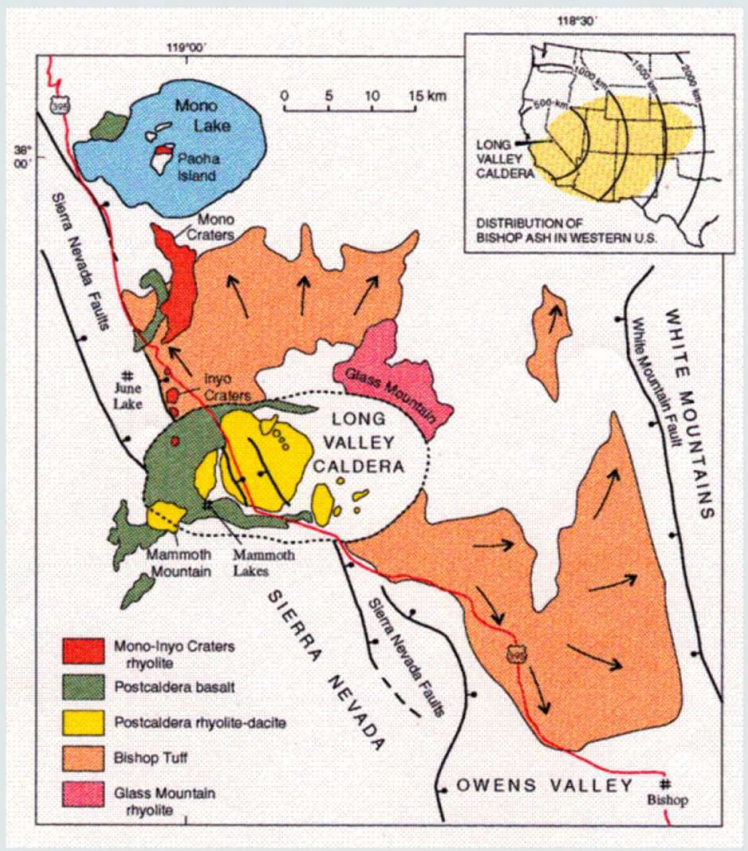


Figure 147. Long Valley caldera, California. A reservoir under the Long Valley Caldera of more than 240 cubic miles of magma with 27 percent of it hot enough and the right composition to be liquid. If it all blasted out of the ground, that would make Long Valley; located south of Mono Lake near the Nevada border; as cataclysmic as the Yellowstone super-volcano's last super-eruption 640,000 years ago that formed its current 35-by-50 mile caldera, which is the depression left after an eruption so large the ground surface collapses over a wide area.

Yellowstone is one of the most seismically active areas in the USA. About 700 to 3,000 earthquakes occur each year in the Yellowstone area; most are not felt. They result from the extensive network of faults associated with the volcano and surrounding tectonic features. Situated in northwest Wyoming, Yellowstone National Park brings in millions of annual tourists, who marvel at the geysers, steam vents, and bubbling eddies of geothermally heated water. Earthquakes there are caused by volcanic fluids entering shallow rock fractures.

Contained within three overlapping calderas that represent past eruptions from hundreds of thousands and even millions of years ago, the Yellowstone volcano is roughly 34 by 45 miles wide and only three miles below the surface. Its last eruption was 640,000 years ago when it is estimated to have dumped over 2,000 times the amount of ash as the Mount St. Helens eruption.

Swarms of earthquakes actually in Idaho or Montana are usual in the area. The state lines were drawn irrespective of Yellowstone National Park. The town of West

Yellowstone sits right at the west entrance to the park and is in Iaho. The Wyoming state border is a few miles east into the park from that entrance. The north entrance is just south of Gardiner Mntana. But virtually all of the park, and Grand Teton Mountain, are in Wyoming.

In 2018, the park recorded a swarm of 153 quakes. The USA Geological Survey says the odds are only one in 730,000 that the Yellowstone super-volcano will erupt in a given year. The super-volcano eruption threat has become a predictable meme in recent years, usually resurfacing during earthquakes swarms. The reason is that if the super-volcano did go off, it would def be a game-changer:

> "The sky will darken, black rain will fall, and the Earth will be plunged into the equivalent of a nuclear winter."

Volcanologists insist there is no imminent threat of a super-volcano eruption at the moment but larger earthquakes and hydrothermal blasts could present a real danger to tourists. Over the years, over 300 people have died at Yellowstone, in accidents ranging from driving off of 800-foot cliffs to unknowingly diving into 200-degree boiling water and succumbing to the fumes emitted by hydrothermal vents. In 2016, a 23-year-old man fell off a boardwalk overlooking the Norris Geyser Basin and he was completely dissolved except for one of his shoes.

A swarm of more than 800 earthquakes have been recorded at the Yellowstone Caldera, a long-dormant super-volcano located in Yellowstone National Park, in June 2017. Small earthquakes are desirable to the extent that they indicate cumulative pressure release.

The USA Geological Survey says the risk level remains in the "green," unchanged from its normal levels. The biggest earthquake in this "swarm" - which registered a magnitude of 4.4 – took place on June 15, 2017; three days after the rumblings started. That quake was the biggest in the region since a magnitude 4.8 earthquake struck close to Norris Geyser Basin in March 2014. This magnitude 4.4 earthquake was so powerful that people felt it in Bozeman Montana, about eighty miles away. The swarm consists of one earthquake in the magnitude 4 range, five earthquakes in the magnitude 3 range, 68 earthquakes in the magnitude 2 range, 277 earthquakes in the magnitude 1 range, 508 earthquakes in the magnitude 0 range, and 19 earthquakes with magnitudes of less than zero. An earthquake with a magnitude less than zero is a very small event that can only be detected with the extremely sensitive instruments used in earthquake monitoring.

There is normally a rise in seismic activity before a volcano erupts. Scientists believe there's a 10 percent chance that a "super-volcanic Category 7 eruption" could take place this century, as pointed out by theoretical physicist Michio Kaku. An eruption, Kaku said, is long overdue: The last one occurred 640,000 years ago.

A super-volcanic eruption at Yellowstone would impact the regional ecosystem, and the USA more broadly. Hundreds of cubic miles of ash, rock and lava would be blasted into the atmosphere, and this would likely plunge much of the northern hemisphere into several days of complete darkness. Virtually everything within 100 miles of Yellowstone would be immediately killed, but a much more cruel fate would befall those living in major cities outside of the immediate blast zone such as Salt Lake City, Utah and Denver, Colorado.

Hot volcanic ash, rock and dust would rain down on those cities literally for weeks. In the end, it would be extremely difficult for anyone living in those communities to survive. It has been estimated that 90 percent of all people living within 600 miles of Yellowstone would be killed.

Experts project that such an eruption would dump a layer of volcanic ash that is at least 10 feet deep up to 1,000 miles away, and approximately two-thirds of the USA would suddenly become uninhabitable. The volcanic ash would severely contaminate most of the water supplies, and growing food in the middle of the country would become next to impossible.

The rest of the planet, and this would especially be true for the northern hemisphere, would experience what is known as a "nuclear winter". An extreme period of "global cooling" would take place, and temperatures around the world would fall by up to 20 degrees. Crops would fail all over the planet, and severe famine would sweep the globe.

HEAT STROKE RISK

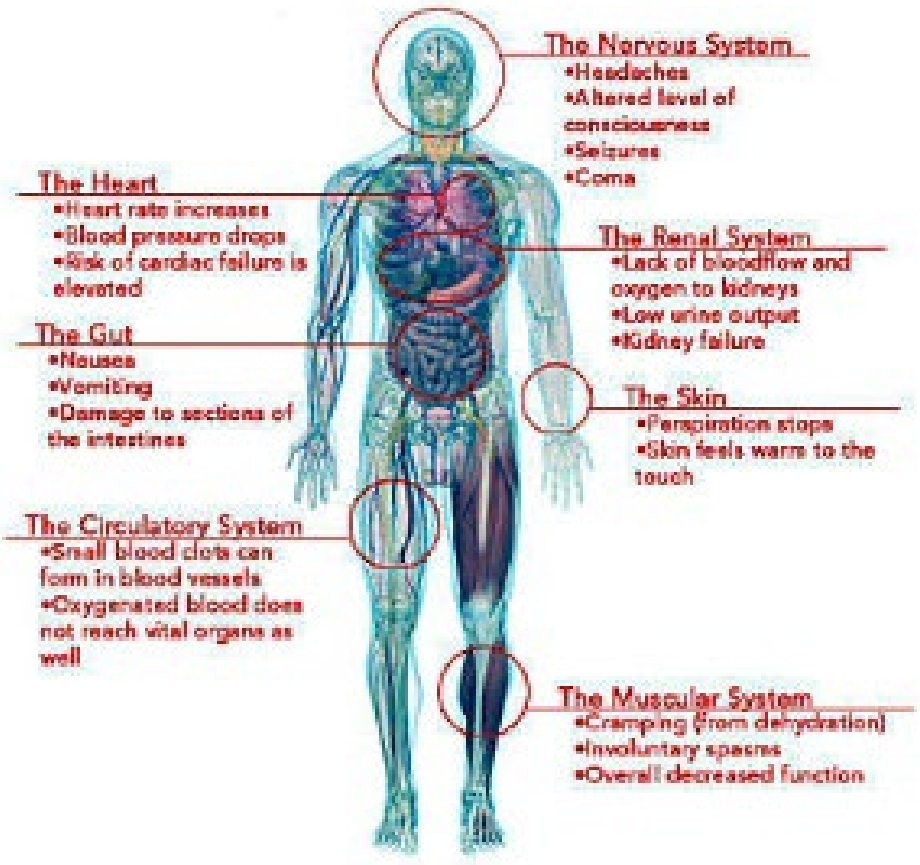


Figure 148. Symptoms and effects of heat stroke. Source: Mayo Clinic.

The human body absorbs heat from the environment, and as the temperature starts to rise, the human body will naturally do a number of things to get rid of that excessive

heat. At higher levels of body temperature, or prolonged exposure, the human body may lose that ability.

The most serious level of temperature dysregulation is called “heat stroke,” and it occurs when the body’s temperature reaches an excess of 104 ºF. During heat stroke, body functions grind to a halt, as the hypothalamus region of the brain shuts down the body’s natural coolant system, perspiration. Without sweat, the body can no longer keep its temperature in check, which causes a devastating chain reaction that can be fatal without timely medical intervention.

From a neurological standpoint, heat stroke causes the brain to swell, leading to headaches and even seizures in more extreme cases. Victims also experience an altered level of consciousness, including confusion, delirium, hallucinations, agitation and even unconsciousness. The cardiovascular system is affected as well. Heat stroke causes blood pressure to drop and the heart to beat faster and more irregularly, heightening the risk for high-output cardiac failure. Small blood clots can also form in blood vessels, preventing healthy circulation and cutting off blood flow to other parts of the body.

As for the renal system, heat stroke decreases urine output and causes a condition known as acute tubular necrosis, in which the kidneys fail to receive enough oxygenated blood to support proper function. If untreated, heat stroke can eventually cause the kidneys to fail. This is the reason why people die during heat waves.

High humidity has an associated risk. When there is an increase in humidity, the human body’s ability to lose heat to the environment through sweating is diminished. Age also plays a big role in the body’s ability to regulate heat. Young children and the elderly are not only more susceptible to high temperatures due to their lower-functioning nervous systems, but they may also have more difficulty removing themselves from a hot situation. For the elderly, if the air conditioner is not working, their ability to go get it fixed could not be possible diminished.

Physical exertion is an important factor. Strenuous exercise heightens the risk of heat stroke, especially if an individual is not used to training in hot weather. People with conditions such as heart or lung disease, obesity or a history of prior heat stroke are more at risk than their healthier counterparts. Other diseases that affect circulation, such as diabetes, can also be problematic. Anyone who suffers from these ailments should be watched closely in hot weather, and if they begin to show signs of heat stroke, medical attention should be rendered immediately.

Certain drugs and medications can also be a contributing factor in a heat stroke situation. Alcohol, stimulants, vasoconstrictors, beta blockers, diuretics, anti-depressants and anti-psychotics detract the body’s ability to cool itself. Individuals going out in the sun should wear loose-fitting, light-weight clothes, drink plenty of fluids, apply sunscreen regularly and listen to their body’s warning signs. If nausea, headaches, fatigue or any other indicators of heat illness present themselves, it’s time to get indoor.

Treatment of heat stroke involves lowering a victim’s body temperature as quickly as possible. First would be to remove individuals from a hot situation, whether that be pulling them inside to a cooler place or getting them out of the sunlight into the shade. Then one tries to regulate better and increase any air convection going past them in anatural wind stream or artificially using a fan.

Heat stroke is a medical emergency. Timely intervention can be the only thing separating life and death in many cases.

POLES SHIFT RISK

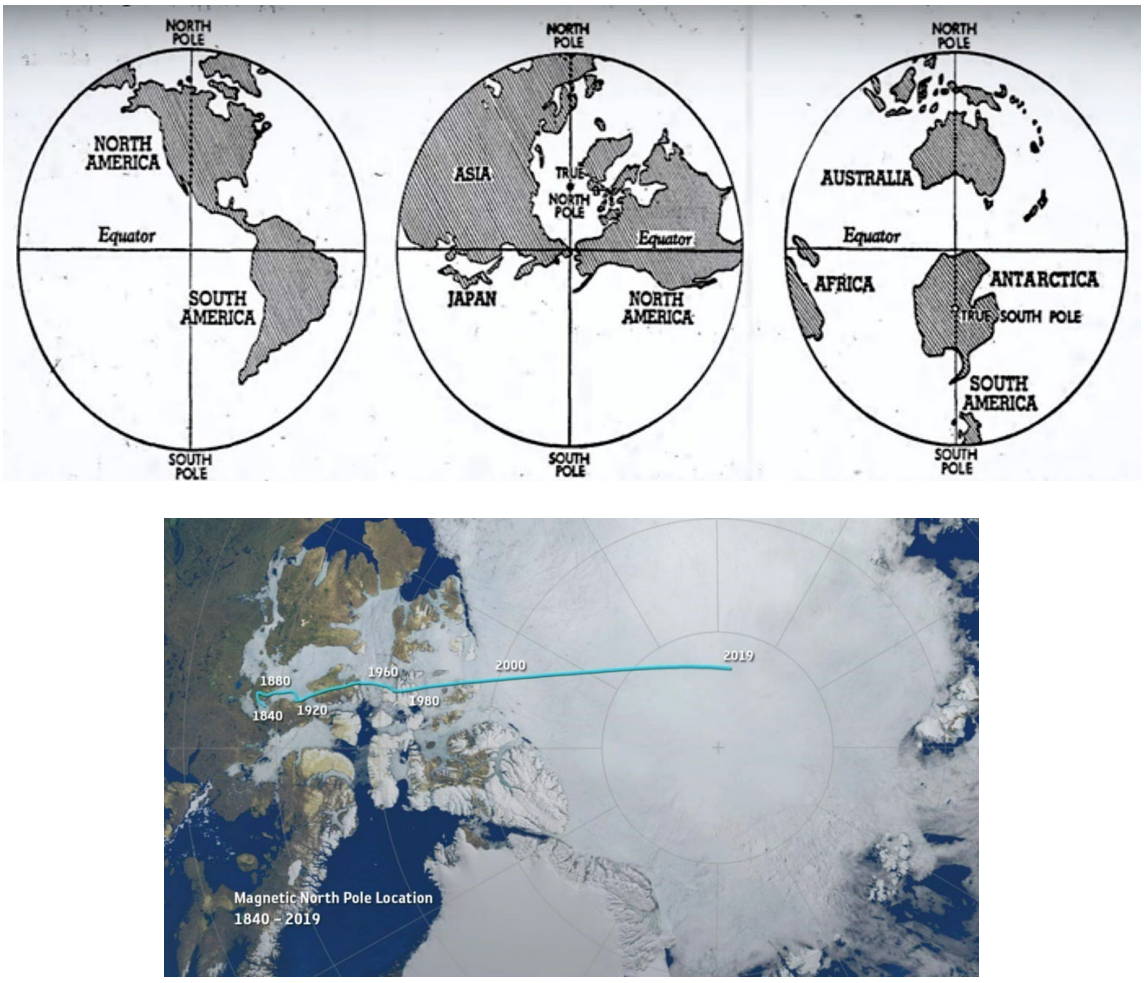


Figure 149. Western hemisphere at present, in a previous epoch of time, and a possible future.

The position of the land masses relative to the north and south poles have remained stable in the last 7,000 years. However in a previous epoch of time, prior to the last rollover, the equator ran along the rocky mountains of the America's continent. A rollover where the Antarctic continent would careen close to the equator would lead to a melting of its vast ice cap, raising the level of the oceans and leading to a cataclysmic flooding of the land masses.

EXTENSIVELY DRUG RESISTANT TUBERCULOSIS XDR-TB RISK

The term "totally drug resistant" tuberculosis is not yet recognized by the World Health Organization (WHO). For now these cases are defined as extensively drug resistant tuberculosis (XDR-TB), according to WHO definitions. In 2006, the first reports of

extensively drug-resistant tuberculosis (XDR-TB), an even more severe form of drug resistant TB than multidrug-resistant TB (MDR-TB), began to appear.

MDR-TB is defined as resistance to isoniazid and rifampicin, with or without resistance to other first-line drugs (FLD). XDR-TB is defined as resistance to at least isoniazid and rifampicin, and to any fluoroquinolone, and to any of the three second-line injectables (amikacin, capreomycin, and kanamycin). Within a year of the first reports of XDR-TB, isolated cases were reported in Europe that had resistance to all first-line anti-TB drugs (FLD) and second-line anti-TB drugs (SLD) that were tested. In 2009, a cohort of 15 patients in Iran was reported which were resistant to all anti-TB drugs tested.

The terms “extremely drug resistant” (“XXDR-TB”) and “totally drug-resistant TB” (“TDR-TB”) were given by the respective authors reporting on this group of patients. Recently, a further 4 patients from India with “totally drug resistant” tuberculosis (“TDR-TB”) were described, with subsequent media reports of a further 8 cases.
Why are these terms not yet recognized by WHO?
Lastly, new drugs are under development, and their effectiveness against these “totally drug resistant” strains has not yet been reported.

For these reasons, the term “totally drug resistant” tuberculosis is not yet recognised by the WHO. For now these cases are defined as extensively drug resistant tuberculosis (XDR-TB), according to WHO definitions.

TB bacilli with different levels of resistance spread in the same way and with the same risk of infection as fully drug susceptible strains. The discovery of patients with MDR or XDR-TB emphasizes the importance of ensuring that all care for tuberculosis, whether in the public or private sector, must conform to international standards in order to prevent the emergence of drug resistance. Almost all countries must, in addition, ensure appropriate diagnosis and treatment of cases of MDR-TB.

Options are available, although they have not been studied in large cohorts. For such cases additional drugs will need to be procured from among the group of agents that are known to have some action against tuberculosis but are not routinely recommended for treatment of MDR-TB. These include clofazimine, linezolid, amoxicillin/clavulanate, thioacetazone, imipenem/cilastatin, clarithromycin and high-dose isoniazid. Efficacy is not assured, however, and both toxicity and cost for some of these compounds are high. Potential purchasers should be aware that international availability of some of these agents is limited at present.

NERVE AGENTS EXPOSURE RISK

Nerve agents work fast and their effects are almost instantaneous: drooling, blurry vision, smell of cut hay or grass, convulsions or seizures. Eventually, death occurs either through asphyxiation or cardiac arrest. Atropine intra-muscular (IM) injection is the only useful treatment.

Liquid nerve agents would affect an area of 100 - 200 meters in radius for weeks or months. Any person who touches an exposed person would also be affected. One needs a level 5 ppe (personal protective equipment) and full decon (decontamination) of the affected area.

The only partially useful antidote is a mark 1 kit- atropine, diazapam, prodoxyaline chloride. These are not effective on VX, tabun, soman and novachuk multiple 7 nerve agents.

The first nerve agents were discovered by accident in the 1930s when researchers were trying to synthesize cheaper and better neo-nicotinoids alternatives to nicotine as an insecticide. German scientists made two organic compounds containing phosphorus that were very effective at killing insect pests. They discovered that, even in minuscule amounts, the substances caused distressing symptoms in humans exposed to them.

The two substances, too toxic to be used as commercial insecticides in agriculture, became known as tabun and sarin. The research was transferred to the Wehrmacht Nazi armed forces, which evaluated them as weapons and began manufacturing them. The sarin plant was not operational by the time the Third Reich collapsed, but fell into the hands of Soviet forces that overran Poland and Germany.

Pesticide research continued after the war and the molecule known as was first made in an Imperial Chemical Industries (ICI) laboratory in the UK in 1952. It again proved too toxic to be used in agriculture and it was passed to the UK's Porton Down Chemical Weapons Research Centre, and subsequently to the USA government, when the UK renounced chemical weapons. Its destructive power became clear on March 13, 1968 when the substance escaped from the army's chemical weapons proving ground and killed over 3,000 sheep grazing 27 miles away in the Skull Valley area of Utah.

Other nerve agents have been developed, but much less is known about them, although they are thought to work in the same way. Unlike street drugs, nerve agents cannot be made in a kitchen or garden shed, on account of their toxicity, even in tiny amounts. Synthesis of nerve agents requires a specialist laboratory, with fume cupboards.

In the 1980s Iraqi forces are suspected to have used sarin during the Iran-Iraq war, notably against Kurdish citizens in Halabja in March 1988 causing an estimated 5,000 deaths.

On March 20, 1995, members of the Japanese Aum Shinrikyo cult used umbrellas with sharpened tips to puncture plastic bags and boxes containing sarin while travelling on the Tokyo subway system. The sarin used was impure causing 13 deaths and several thousand felt sick.

Until recently, the only known human fatality caused by VX occurred when two members of the Aum Shinrikyo cult used VX to assassinate a former member of their sect in Osaka in 1994.

Two women, an Indonesian and a Malaysian, were charged in Malaysia with killing Kim Jong-nam, the half-brother of Kim Jong-un, North Korea's leader, allegedly by smearing VX nerve gas agent in liquid form across his face and into his eyes, thinking it was a prank, in an airport in Kuala Lumpur, Malaysia. He perished within 20 minutes of his exposure.

The former Russian spy Sergei Skripal and his daughter were admitted into a hospital in Salisbury, UK, following suspected exposure to an unknown nerve agent. The pair were found unconscious on a park bench on March 5, 2018.

Nerve agents can be absorbed through inhalation or skin contact. When the Nazis were building their first nerve agent plant, workers wearing protective suits died in agony when nerve agent got through gaps in their suits.

Unlike traditional poisons, nerve agents do not need to be added to food and drink to be effective. They are quite volatile, colorless liquids, except VX, that is said to resemble engine oil. The concentration in the vapor phase at room temperature is lethal.

The symptoms of poisoning come on quickly, and include chest tightening, difficulty in breathing, and very likely asphyxiation. Associated symptoms include vomiting and massive incontinence and diarrhea. Victims of the Tokyo subway attack were reported to be bringing up blood. Kim Jong-nam died in less than 20 minutes.

The nerve agent chemicals work by disrupting the central nervous system. The body uses a molecule called acetylcholine to transmit messages between cells. When an acetylcholine molecule "arrives", it causes an electrical impulse to be sent. The body constantly has to remove those acetylcholine molecules from the receptors, otherwise there would be a dangerous build-up. It uses an enzyme called acetylcholinesterase (AChE) for the task. A nerve agent stops acetylcholinesterase from doing its job.

Exposure to foods such as mushrooms, mussels, clams and fugu fish inadequately prepared or contaminated with algae can generate similar symptoms, even though not necessarily fatal.

Antidotes do exist, one being atropine, but have to be administered quickly, otherwise the effect of the nerve agent cannot be reversed. Some antidotes can be administered as prophylactics to troops at risk about to engage battle. In a civilian situation there is no expectation of encountering these chemicals.

To decontaminate streets and other hard surfaces, water is used to flush it out – making sure to use enough to properly dilute the chemical. This works well for the more volatile sarin, which tends to evaporate easily or slowly get broken down by moisture. Other substances, such as VX, are less volatile and reactive. In this case, bleach and alkali can be used to break the molecules down. In a situation where we do not know which has been used, a mix of water and bleach may be the best approach. Nerve agents are horrendously lethal and chemical warfare is an obscene use of chemicals.

GLYPHOSATE, ROUNDUP HERBICIDE, GENETICALLY MODIFIED ORGANISMS, GMOs RISK

Bacillus thuringiensis or Bt is the bacteria from which the gene coding for the Bt toxin was taken and inserted into corn. B. thuringiensis is nearly 100 percent identical to Bacillus anthracis (anthrax) at the chromosomal level.

They used to spray Bt on crops directly. The Bt toxin produced is deadly to Lepidoptera or moths, as it destroys their intestinal lining when ingested. This was not so bad for people as they could just wash off most of the bacteria, and it is non-toxic when ingested.

The corporate scientists reasoned why not just take the gene itself and put it into corn, as people's guts are millions of times larger than an insect's, it won't be a problem. Then we do not have to spray it with Bt, which does not make much money. They would just use a broad-spectrum herbicide that they already make a lot of money on: "Glyphosate" with the brand name "Roundup".

There were several problems with that. First, in order to isolate the Bt gene and test it, and also add genetic markers to make it easy to work with, they took that gene and put it into the Eschericia coli or E. coli which is present in large numbers in the human

Gastro Intestinal GI tract. Second, people eat a lot of corn. It is the second or third most ingested grain after wheat and rice. So, people get a heavier dose of the Bt toxin than expected, as corn is in almost everything in one form or another such as corn syrup, pop-corn, maltodextrin. Third, nearly all corn these days is GMO. Very little non-GMO corn is produced in the USA. And, GMO crops are routinely treated with Roundup, which contains glyphosate, which has just been implicated as a carcinogen by the World Health Organization WHO. Roundup is an herbicide, but it also kills other things such as gut bacteria, but, not E. coli bacteria that have taken up the Bt toxin DNA from food that people eat, for that DNA came from corn that is also resistant to Roundup, and that DNA was also expressed in E. coli as a genetic marker for study.

Now you have E. coli bacteria in the gut that:

1. Are now present in greater numbers, due to the effects of Roundup killing the other beneficial gut bacteria;
2. Contain the DNA for producing Bt toxin, which they got from corn and which has already been shown to produce Bt toxin in that strain;
3. This bacteria is also immune to the effects of Roundup.

Thus chronic eaters of corn products have Bt-producing bacteria factories in their guts and this Bt toxin destroys the intestinal lining, leading to chronic problems as now complex food molecules can enter the bloodstream directly. These molecules are not natural, which the body determines is a foreign entity that it fights it with antibodies. The body immune system now, when one eats corn, the body attacks itself.

This is the genesis of the “Leaky Gut syndrome”, also known as “Coeliac disease,” and also the cause of many autoimmune disorders, such as lupus, arthritis, and alopecia.

Glyphosate has been found to replace glycine in protein synthesis. The ramifications of this are still being discussed.

DISTILLED WATER RISK

Drinking unfiltered tap water could be hazardous to health because of things like parasites, chlorine, fluoride and dioxins. Many health fanatics are often surprised to hear that drinking distilled water on a regular, daily basis is potentially dangerous. Paavo Airola wrote about the dangers of distilled water in the 1970's when it first became a fad with the health food crowd.

Distillation is the process in which water is boiled, evaporated and the vapor condensed. Distilled water is free of dissolved minerals and has the special property of being able to actively absorb toxic substances from the body and eliminate them. Studies validate the benefits of drinking distilled water when one is seeking to cleanse or detoxify the system for short periods of time of a few weeks at a time.

Fasting using distilled water can be dangerous because of the rapid loss of electrolytes such as sodium, potassium, chloride and trace minerals like magnesium, deficiencies of which can cause heart beat irregularities and high blood pressure. Cooking foods in distilled water pulls the minerals out of them and lowers their nutrient value.

Distilled water is an active absorber and when it comes into contact with air, it absorbs carbon, making it acidic. The more distilled water a person drinks, the higher the body acidity becomes. According to the USA. Environmental Protection Agency, EPA:

"Distilled water, being essentially mineral-free, is very aggressive, in that it tends to dissolve substances with which it is in contact. Notably, carbon dioxide from the air is rapidly absorbed, making the water acidic and even more aggressive. Many metals are dissolved by distilled water."

The most toxic commercial beverages that people consume such as cola beverages and other soft drinks are made from distilled water. Studies have consistently shown that heavy consumers of soft drinks with or without sugar spill huge amounts of calcium, magnesium and other trace minerals into the urine. The more mineral loss, the greater the risk for osteoporosis, osteoarthritis, hypothyroidism, coronary artery disease, high blood pressure and a long list of degenerative diseases generally associated with premature aging.

A growing number of health care practitioners and scientists from around the world have been advocating the theory that aging and disease is the direct result of the accumulation of acid waste products in the body. There is a great deal of scientific documentation that supports such a theory. A poor diet may be partially to blame for the waste accumulation. These and other junk foods can cause the body to become more acidic: meats, sugar, alcohol, fried foods, soft drinks, processed foods, white flour products, and dairy products. Stress, whether mental or physical can lead to acid deposits in the body.

There is a correlation between the consumption of soft water (distilled water is extremely soft) and the incidence of cardiovascular disease. Cells, tissues and organs do not like to be dipped in acid and will do anything to buffer this acidity including the removal of minerals from the skeleton and the manufacture of bicarbonate in the blood. The longer one drinks distilled water, the more likely the development of mineral deficiencies and an acid state. The ideal water for the human body should be slightly alkaline and this requires the presence of minerals like calcium and magnesium. Distilled water tends to be acidic and can only be recommended as a way of drawing poisons out of the body. Once this is accomplished, the continued drinking of distilled water may be a bad idea.

Water filtered through reverse osmosis tends to be neutral and is acceptable for regular use provided minerals are supplemented. Water filtered through a solid charcoal filter is slightly alkaline. Ozonation of this charcoal-filtered water is ideal for daily drinking. Longevity is associated with the regular consumption of hard water that is high in minerals. Disease and early death is more likely to be seen with the long term drinking of distilled water.

CAVE ORGANISMS AND SPELUNKING RISKS

Not all caves are microbial death traps. It depends on where they’re located and what lives inside. Most of the caves are some of the cleanest environments on Earth, and have lower cell numbers than ancient ice found in Antarctica.

However, tropical caves are hotspots for potentially deadly infections. They are home to a surprising abundance of wildlife, from birds and bats to rats, which can carry microbes, including rabies, Marburg virus and obscure fungal pathogens. Caves become lost worlds of venomous spiders, millipedes and scorpions. The ticks that feed on them carry “cave fever”, a rare disease that is also sometimes caught in abandoned buildings. Some caves have Africanized bees, bats, and scorpions.

The walls of limestone caves constantly seep water from above. This is how they form in the first place, as water drips in through cracks, it dissolves the rock underneath to leave a gap. This constant saturation, combined with the limited air and oxygen supply, means the humidity of some caves is close to 100 percent. In caves inhabited by bats, the air is thick with pathogenic fungi, while at the bottom, a sludge of water, mud and animal guano provide a luxurious home for bacteria and parasites.

Histoplasmosis is caused by a fungus found in the droppings of birds and bats, mostly in humid areas. It can usually be treated with a course of antifungal medication, which has to be taken for several months, and possibly up to a year. It kills around one in 20 children and roughly 8 percent of adults who are infected. It is particularly problematic for those who are already weak or immune-compromised.

A microbe that often hides in caves is the corkscrew-shaped bacteria **Leptospira**. It is spread in bodily fluids like urine from rodents and is usually caught after contact with contaminated water, where it may sneak in to the body through cuts on the skin, or through the mouth, nose, eyes, or lungs. It causes Weil's disease, which starts as a mild, flu-like illness. In 5-15 percent of cases it develops into something more serious, with symptoms that include internal hemorrhaging and organ failure. Ultimately it can be fatal. This bacterium has a history of infecting cavers.

Melioidosis is an emerging infection found across the tropics, from Southeast Asia to Northern Australia. It is thought to affect around 165,000 people every year, of which roughly half die. The disease presents a number of problems. It is caused by a bacterium that lives in soil, and can be caught from everyday activities such as rice farming. Diagnosis is notoriously tricky, since the disease can manifest itself as a wide range of symptoms; from coughs to fevers, which are also hallmarks of infection by many other microbes. It is also naturally resistant to a wide range of antibiotics.

Wearing rubber boots can prevent bacteria from getting on the skin as a person walks through water that may contain guano. After a dive, a shower at a rinse station is needed [27].

CARBON DIOXIDE RISK

The effects of CO_2 on adults at good health can be summarized as:
Normal outdoor level: 350 - 450 ppm
Acceptable levels: < 600 ppm
Complaints of stiffness and odors: 600 - 1000 ppm
ASHRAE and OSHA standards: 1000 ppm
General drowsiness: 1000 - 2500 ppm
Adverse health effects may be expected: 2500 - 5000 ppm
Maximum allowed concentration within a 8 hour working period: 5000 - 10000 ppm
Maximum allowed concentration within a 15 minute working period: 30000 ppm

The levels above are quite normal and maximum levels may occasionally happen from time to time. In general - ventilation rates should keep carbon dioxide concentrations below 1000 ppm to create indoor air quality conditions acceptable to most individuals.

Extreme and Dangerous CO_2 Levels
Slightly intoxicating, breathing and pulse rate increase, nausea: 30000 - 40000 ppm
Above plus headaches and sight impairment: 50000 ppm

Unconscious, further exposure death: 100000 ppm

VALLEY FEVER, EARTHQUAKE COCCIDIOIDOMYCOSIS FUNGAL SPORES

In the month following the January 17, 1994 earthquake that shook the San Fernando Valley and much of the rest of the Los Angeles area, at least three dozen people in this part of California have become ill from what doctors say is an unusual outbreak of "valley fever."

The flu-like sickness, which can occasionally be fatal, is caused by a fungus that lives in soil and becomes airborne when dust is kicked up. People contract the disease by inhaling dust containing the fungus spores; victims experience fever, muscular aches, lethargy, itchy patches of red skin and a hacking, painful cough. There have been no deaths, but at least 15 people have been hospitalized:

> "Normally I might see only two or three cases of the fever a year," said Dr. Sherif Henein, a pulmonary specialist from the Thousand Oaks section of Los Angeles. "But just within the past week I've seen about 10. It's a serious outbreak."

Valley fever, whose medical name is coccidioidomycosis, mostly affects residents of rural areas in the Southwest USA, a parched region where the fungus thrives. One of the worst outbreaks of the disease occurred in 1977 in central California's heavily agricultural San Joaquin Valley -- hence the name "valley fever" -- where during a bad drought the fever killed at least 20 people and felled hundreds of others.

Outbreaks have also occurred around construction sites and even at archeological digs. When some students from Queens College in New York fell ill with the fever a few years back while on a dig of Indian ruins in northern California, doctors told them, not entirely with tongue in cheek, that they were victims of the people whose graves they were disturbing.

The fever has an incubation period of several weeks. Doctors treat it with anti-fungus drugs. Health officials say that two-thirds of the people who inhale the fungus never develop symptoms because their immune systems counter the infectious spores. Of the people who do fall ill, many spend the better part of a week in bed, some hospitalized, but only about 1 in 100 die. After one episode with the fever, most victims develop an immunity to it for the rest of their lives.

INFRASOUND AND ULTRASOUND RISK

In the 1960's a Russian-born French researcher named Vladimir Gavreau became interested in infrasonics. By the early 1990s, Russia had developed a 10 Hz VLF modulator capable of targeting individuals over hundreds of meters, causing pain, nausea, and vomiting. It was adjustable up to lethal levels.

Since 1997, the USA DOD has had an interest in creating generators in the infrasonic and ultrasonic ranges of 7 Hz and 20–35 kHz, respectively, which can cause

these effects. Earthquakes generate sounds in the infrasonic range with 7 Hertz known as the cycle of death.

From about 100 to 140 decibels infrasound causes a variety of biological symptoms depending on the frequency and power level. Basically, the higher the power level, the greater the damage. The effects include: fatigue, pressure in the ears, visual blurring, drowsiness, imbalance and disorientation, vibration of internal organs, severe intestinal pain, nausea, and vomiting. Higher power levels can liquefy bowels, and resonate the internal organs causing death. Infrasound can also cause feelings of pressure in the chest, choking, irregular breathing patterns, and respiratory incapacitation, even fracturing of bone. Bees would be most susceptible to ELF in their hives.

According to an "Acoustic Weapons Prospective Assessment" article, which appeared in the volume 9, 2001 issue of "Science and Global Security", infrasound can also produce localized earthquakes. A large room within a building can act as a resonance chamber to upset the foundation causing a miniature earthquake.

CHEMICALLY ENGINEERED MEAT, PINK SLUDGE, RACTOPAMINE, PROPYL GALLATE RISK

Factory-farmed beef in the United States is sometimes one-third fat, which is 15 times worse than the historical ratio. Our contemporaries would not have been able to honestly call it meat, because most beef now is a chemically-enhanced fat delivery system. The situation is made worse when the meat is later soaked in toxic solutions, such as nitrate salts, prior to arrival at grocery stores. The purpose of this is to increase shelf life by making the meats so toxic that fungi and bacteria immediately die from contact with it. Thus, the meat is toxic by design.

PINK SLUDGE RISK

Meats are sprayed with ammonia to "keep the meat fresh," but in fact to kill fecal bacteria spread during the slaughtering process. Ammonia is extremely toxic to humans. The liver removes the ammonia naturally produced by our biological systems, but excess ammonia causes further stress on the liver and can cause liver damage.

Pink Slime is a beef product known as Lean Finely Textured Beef. Ammonium hydroxide is being used to sterilize beef that would not normally be considered safe for human contact or consumption. The byproducts of meat processing; actually waste materials; are put through a high-speed centrifuge, then soaked in an ammonium hydroxide solution, and finally it is ground into a gooey paste. This process produces a pink material that has a slimy texture.

The next phase of its processing is mixing it with real ground beef to create the illusion that it is real meat. Following public pressure, McDonald's restaurants in the USA stopped using the disgusting pink slime inside of their burger patties, but the residual ammonia and other incriminating impurities are still being found in retail ground beef.

Various groups in the meat industry, including Beef Products Inc., refer to this pink slime by its marketing name, "lean finely textured beef". There is very little real beef in this meat-like product, and independent parties generally consider it to be unfit for human consumption. Neither the FDA nor the USDA, require any labeling whenever this artificial

beef product is sold as "ground beef" in USA retailers. Approximately, 70 percent of the ground beef sold in the USA contains this disgusting and substandard beef product, according to an investigation by ABC News.

RACTOPAMINE TOXICITY RISK

On February 11th, 2013, Russia banned meat imports from the USA, because so much of the USA beef, turkey, and pork contains ractopamine. Ractopamine is a dieting chemical that is added to animal feed to make the animals leaner. This chemical can later be detected inside meat products. To place the dangers of this chemical into perspective: the National Institute of Health warn that after direct human ingestion of ractopamine has occurred, emergency medical personnel should first attempt to control the victim's seizures before implementing life support procedures.

The pervasive use of ractopamine exposes another serious problem in the food chain. Namely, that if factory-farmed animals were given exercise, and if they were not constantly being given toxic foods, synthetic growth hormones, genetically-engineered corn, antibiotics, vaccines, and other chemicals that are even worse than ractopamine, then there would not be a fat problem for the ractopamine to eliminate. The policies express the foolishness of using chemicals to compensate for the fact that too many toxic chemicals are already being used.

Ractopamine exposure is known to produce cardiovascular abnormalities in humans and hyperactivity. China and the European Union have banned it, due to concerns about its serious health consequences. It is worth a second mention to emphasize that ractopamine is a substance that even China banned. The United Nation's Codex Alimentarius Commission promotes ractopamine and it gratuitously states that ractopamine has "no impact on human health".

CHEMICAL PRESERVATIVES, PROPYL GALLATE RISK

A new generation of chemicals is being employed that are engineered to stop meats from changing colors when they rot, so that customers will not know. This disturbing trend has actually become normal with USA meat distributors, and all beef sold in regular retailers should be assumed to have these color stabilizing chemicals. An example of these chemicals is propyl gallate, which causes tumors in laboratory test animals. It was never adequately studied before it was embraced by the USDA, but it is believed to cause liver damage, kidney damage, and be a carcinogen.

In the meat section at food stores one may notice that the meat had a rainbow appearance when viewed at certain angles to the lights. This is dismissed by most shoppers, but it is a clear sign that the product is chemically coated. Real meat does not produce rainbows.

Looking closely at the packaging of meat at regular retailers, one may notice text that reads something like: "Enhanced with up to 8 percent marinade". It is always printed tiny in the hope that it goes unnoticed. That so-called "marinade" is not usually a marinade at all, because the FDA allows companies to hide ingredients with a label claiming that they are a marinade, including toxic chemicals like propyl gallate.

The words "enhanced" and "enriched" should be substituted by the phrase "chemically engineered". These words are frequently used to hide things that none of us would willingly consume.

SODIUM NITRATE, HYDROLYZED GELATIN RISK

Processed meats are notorious for having sodium nitrate, a known carcinogen. However, most people assume that fresh meats are completely untouched by the chemical industry. Often this is not the case. Most retail meats are gathered from farms that are separated by vast distances, which typically makes the chemical poisoning of meat a business necessity for the largest food corporations.

Some manufacturers coat their meats with hydrolyzed gelatin. This is made from de-haired pig skins that were dissolved in industrial acids. As disgusting and unhealthy as this may be, a more troubling fact is that these coatings are sometimes made from an undisclosed group of chemicals. No labeling whatsoever is required, nor is there any public disclosure.

"DEATHS OF DESPAIR," OPIOID EPIDEMIC, ALCOHOLISM, SHORTENED LIFE EXPECTANCY IN USA RISK

While most of the world's population can look forward to living longer, white people in the USA without a college degree are living shorter lives due to an epidemic of drug abuse and alcoholism. Nobel economist Sir Angus Deaton says these "deaths of despair" are driven by inequality.

EUGENICS, WORLD DEPOPULATION RISK

Eugenicists believe, in their Utopian Dreams that humans could be "improved" just as livestock can be upgraded through selective breeding. If that goal proved elusive, their numbers would have to be significantly decreased. In animal husbandry, they refer to it as culling the herd. In human history, it is known as genocide.

The Nuremberg trials did find a number of nazi doctors guilty of murder. Seven were hung and another twelve or so were sentenced to life in prison.

According to Jacques Attali, Globalist and Adviser to French President François Mitterand, in 1981:

> "In the future it will be a question of finding a way to reduce the population. We will start with the old, because as soon as it exceeds 60-65 years man lives longer than he produces and costs society dearly, then the weak and then the useless who do nothing for society because there will be more and more of them, and especially the stupid ones.
>
> "Euthanasia targeting these groups; euthanasia will have to be an essential instrument of our future societies, in all cases. We cannot of course execute people or set up camps. We will get rid of them by making them believe it is for their own good…

> "We will find something or cause it, a pandemic that targets certain people, a real economic crisis or not, a virus that will affect the old or the fat, it doesn't matter, the weak will succumb to it, the fearful and the stupid will believe it and ask to be treated.
>
> "We will have taken care to have planned the treatment, a treatment that will be the solution. The selection of idiots will thus be done on its own: they will go to the slaughterhouse on their own.
>
> "Finally (and perhaps especially), since no war can be won unless the peoples waging it believe it just and necessary, and unless the loyalty of citizens and their belief in its values are maintained, the chief weapons of the future will be the instruments of propaganda, communication, and intimidation."

The days of the great depression favored bigotry and ignorance as eugenics laws were applied to two Canadian provinces, and widely spread across Europe and America with 30 USA states applying eugenics laws to sterilize the unfit. Eugenics' successful growth was due in large measure to the fierce financial support of the Rockefeller Foundation and the magazine Nature which had been created in 1865 by T.H. Huxley's X Club. The Rockefeller Foundation went on to fund German eugenics and most specifically the advocate of human improvement Joseph Mengele.

German support in the build up to, and during WWII did not end with finance and industrial might but extended to the governing scientific ideology of the third Reich: Eugenics, which is the ideology of Social Darwinism as developed by Thomas Huxley's X Club associate Herbert Spencer and Darwin's cousin sir Francis Galton decades earlier.

In 1932, New York hosted a Third Eugenics Conference co-sponsored by William Draper Jr , a JP Morgan banker, head of General Motors and leading figure of Dillon Read and Co. and the Harriman family. This conference brought together leading eugenicists from around the world who came to study America's successful application of eugenics laws which had begun in 1907 under the enthusiastic patronage of President Theodore Roosevelt. Hiding behind the respectable veneer of "science" these ideologues discussed the new age of "directed evolution of man" which would soon be made possible under a global scientific dictatorship. Speaking at the conference, leading British Fascist Fairfield Osborn said that eugenics:

> "… aids and encourages the survival and multiplication of the fittest; indirectly, it would check and discourage the multiplication of the unfitted. As to the latter, in the United States alone, it is widely recognized that there are millions of people who are acting as dragnets or sheet anchors on the progress of the ship of state…While some highly competent people are unemployed, the mass of unemployment is among the less competent, who are first selected for suspension, while the few highly competent people are retained because they are still indispensable. In nature, these less-fitted individuals would gradually disappear, but in civilization, we are keeping them in the community in the hopes that in brighter days, they may all find employment. This is only another instance of humane civilization going

directly against the order of nature and encouraging the survival of the un-fittest".

According to Jon Rappoport:

"The article at America's Frontline Doctors' website is headlined: "Aborted Fetal Cells and Vaccines—A Scandal Much Bigger Than Pfizer's Whistleblower Ever Imagined," by Caryn Lipson, October 18, 2021.

I'm going to quote from the article extensively and then add my comments.

"Recently, Pfizer whistleblower Melissa Strickler, a manufacturing quality auditor for the company, exposed some of their internal emails. She was horrified by the information they contained and spoke with Project Veritas about what she had uncovered – the use of fetal cells from aborted babies to test their COVID-19 vaccine. This is some of what top management wrote:"

"'From the perspective of corporate affairs,' [Pfizer Senior Director of Worldwide Research Vanessa] Gelman wrote in one email, 'we want to avoid having the information on fetal cells floating out there … The risk of communicating this right now outweighs any potential benefit we could see, particularly with general members of the public who may take this information and use it in ways we may not want out there'."

"In another email exchange between Advait Badkar, senior director of the Novel Delivery Technologies group within Pfizer's Biotherapeutics Pharmaceutical Sciences organization, Gelman can be seen admitting to Badkar that, 'One or more cell lines with an origin that can be traced back to human fetal tissue has been used in laboratory tests associated with the vaccine program'."

"She warned him that, 'We have been trying as much as possible to not mention the fetal cell lines'."

"What Strickler wasn't aware of is that the information about the fetal cells being used for the COVID-19 vaccine is well-known to scientists and researchers. Papers about the manufacturing techniques for COVID-19 vaccines, which included the use of fetal cells, were published online at least as far back as May 2020; she also didn't know that she had uncovered only a small portion of a large scandal."

"The fetal cells referred to in Pfizer's emails were HEK293T cells, obtained from the kidney cells of a female fetus in 1973. In reality, all the currently authorized COVID-19 vaccines are made using aborted fetal cells, including Moderna's. Moderna also used HEK293T cells in their proof-of-concept tests to see if the genetic instructions contained in these vaccines would be effectively taken up and produce the required spike protein."

"Johnson and Johnson used both the PER.C6 cell line (derived from human embryonic retinal cells, originally from the retinal tissue of an 18-week-old fetus aborted in 1985) and the HEK293T cell line, to produce and assay (respectively) their Janssen adenovirus vaccine."

"AstraZeneca used the HEK293T cells to develop theirs, as did two other companies that have had their vaccines approved, CanSino Biologics and Gamaleya Research Institute (Sputnik V vaccine)."

"The use of aborted fetal cells in vaccine production has been going on for over 50 years, starting in the mid-to late 1970s. Antigens for several childhood vaccines are grown in aborted fetal cell lines MRC-5 and WI-38. These cell lines are found in the vaccines and are included in CDC's vaccine excipient list as well as Johns Hopkins Institute for Vaccine Safety website…"

"Fetal DNA and proteins are also found in the Covid-19 vaccines, at least for the ones which were developed, not just tested, in fetal cells. Genetic engineer, Dr. Theresa Deisher, explains that it is impossible to totally separate the antigen from the medium it is grown in…"

"The use of aborted fetal cells raises tremendous ethical, moral, and health concerns."

"Dr. Stanley Plotkin, a renowned vaccinologist, was deposed in January 2018, by attorney Aaron Siri, prior to testifying in a divorce case, where the parents disagreed about vaccination. Plotkin has a very long list of credentials including Emeritus Professor of the University of Pennsylvania, and Adjunct Professor of the Johns Hopkins University. He has received numerous honors and has lectures named for him. He developed the rubella vaccine, is codeveloper of the pentavalent rotavirus vaccine, and has worked extensively on the development and application of other vaccines including anthrax, oral polio, rabies, varicella, and cytomegalovirus. He is now a consultant to vaccine manufacturers, biotechnology companies and non-profit research organizations as principal of Vaxconsult, LLC."

"[Plotkin:] 'Because living tissue is needed for the primary culture, these abortions are often done by the "water bag" method which delivers the fetuses (between 2-4 months gestation) ALIVE. (Limbs, organs, and tissues from aborted fetuses are also a mainstay of modern medical research.) Included in vaccines for measles, mumps, rubella, chicken pox, shingles, rotavirus, adenovirus and rabies are human DNA fragments …'" [emphasis added]

"Not only are the babies delivered alive, horrifically, their organs are often removed when they are still alive. This is how they got the HEK293 kidney cells used in the manufacture of the vaccines and why Pfizer wanted it to remain a secret…"

—end of article excerpt—

Medically eliminate the unwanted.

These murderous crimes of infanticide are part and parcel of the Rockefeller eugenics movement, which took hold early in the 20th century, and involved, at the very least, the US, Germany, Canada, and Sweden.

And then, of course, the Nazi regime vastly expanded medical torture and killing of the unwanted in their concentration camps. The

Nuremburg War Crimes trials, at the end of World War 2, failed to alert the whole world to the essentially MEDICAL basis of many of these crimes.

In other words, the Nazi doctors were not a lone aberration in an otherwise benign world of medical research. The whole modern medical structure was woven with inhuman and sadistic practices.

And still is."

VAPING RISKS

The CDC, state health officials and the Food and Drug Administration investigated 193 potential cases of a lung-related illness possibly linked to vaping. In Illinois, one of those cases was fatal. An adult Illinois resident died after being hospitalized with a severe respiratory illness after vaping. The 193 cases were reported by 22 states. Many of the cases involve teens and young adults. The Wisconsin and Illinois health departments have asked the CDC for assistance to investigate these cases.

In Illinois, 22 people have been hospitalized after experiencing respiratory illnesses following vaping, according to the Illinois Department of Public Health. Reported symptoms include shortness of breath, cough, and fatigue and chest pain. Some also report vomiting, fatigue and diarrhea.

SOCIAL MEDIA EXPOSURE RISK

Older generations; Generation X and Baby Boomers have a tendency to fuse into Millennials and Gen Z also known as Zoomers. However, Zoomers are much more digital-media oriented than their Millennial counterparts. One clinical difference was observed between Millennials and Zoomers is that Zoomers are much more prone to mental illness, specifically depression, anxiety, alcoholism and self-harm.

Depression and anxiety are notable for girls, with moderate increases for boys. There has been a 62 percent increase in hospital admissions. Social media have been identified as the cause of depression and anxiety, particularly among girls. It is suggested that it is because they are more sensitive to the perfect lives being lived by glamorous social media influencers; at least the virtual unrealistic lives that they present online.

Moreover, there is a lot of exclusion, trolling and bullying taking place on social media platforms. In addition, there is some evidence that suggests that violent movies and video games can trigger violent thoughts in some people who view them. The National Institute of Mental Health conducted a study detailing the impact that violent media has on those who view it.

ANTI MICROBIAL RESISTANCE (AMR), DRUG RESISTANT SALMONELLA RISK

Anti-Microbial Resistance, AMR, could be killing up to 162,044 people in the USA every year; which would make it the third leading cause of death. The CDC is updating its AMR report in the fall of 2019, but its last report from 2013 shows annual USA deaths were "at least 23,000 people."

AMR is growing for multiple reasons, including a lack of return on investment. The Achaogen company, which had received approval of an important new antibiotic targeting a superbug, had to declare bankruptcy after it only made $1 million in its first 6 months in the market.

The Center for Disease Control and Prevention is "concerned" about a new multidrug-resistant strain of Salmonella that killed 2 and sickened 255 people from June 2018 to March 2019. Experts have sounded the alarm over growing Anti-Microbial Resistance (AMR) in the U.S. and globally.

The CDC is concerned about an increase in human illness from a new strain of multidrug-resistant Salmonella Newport that appears to have spread from cattle in the USA and Mexico. This strain shows either partial or complete resistance to two of the most common antibiotics: azithromycin and ciprofloxacin. In August 2019, for patients with available information, 60 were hospitalized, 4 were admitted to the intensive care unit, and 2 died. Of these. 43 percent reported the illness after travel to Mexico.

The food-borne illness was linked to Mexican-style soft cheese obtained in Mexico and beef obtained in the USA.

RECOMMENDATIONS CONCERNING MEAT RISKS

It is recommended that people only purchase organic meats. Perhaps there will be a time when foods are properly labeled, so that people will be able to make informed choices. Until then, people should only buy range-fed, organic meats. It is also recommended that people have their beef well cooked. The extra cooking will melt away excess fat and it ensures that all parasites are dead. High heat will also destroy some chemical impurities.

The benefits of eating meat are negated when its nutritional value has been corrupted by the chemical industry. Contrary to what is being widely taught, natural beef is not unhealthy, nor is it full of fat. However, when cows are factory-farmed in concrete sheds, in the most repulsive conditions, and they are barely kept alive with pharmaceuticals; then the resultant meat is fatty and unhealthy.

The fat content of beef sold in regular USA retailers is 4 to 5 times higher than beef that was sold during the 1950's. It was common for USA beef in the 1950's to have as little as 2 percent fat, but now the fat content is so high in factory-farmed beef that the USDA allows ground beef to be up to 30 percent fat and 15 percent pink sludge. This implies that ground beef in the USA is sometimes only 55 percent real meat.

E-SCOOTER RISK

E-scooters have caused a 365% surge in hospital admissions, according to a recently published UCSF Study. There were nearly 40,000 electric scooter injuries in the USA between 2014 and 2018, according to a study published in the journal JAMA Surgery.

In 2014, there were 4,582 injuries, and by 2018, that annual figure stood at 14,651, that is a 222 per cent surge over the four-year period. The number of hospital admissions from accidents also skyrocketed to almost 3,300, a surge of 365 per cent, over the same period. The survey, conducted by researchers at UC San Francisco, analyzed data taken

from the National Electronic Injury Surveillance System, a project led by the US Consumer Product Safety Commission to monitor the safety of consumer products.

Figure 150. E-scooter broken pole accident.

SEPSIS RISK

Sepsis is an "extreme" immune response to an infection, according to the Centers for Disease Control and Prevention (CDC). It happens when an existing infection — such as a skin, lung or urinary tract infection — triggers a "chain reaction" in the body that leads to widespread inflammation. This inflammation can lead to blood clots and leaky blood vessels, which in turn cause poor blood flow, according to the National Institutes of Health. In severe cases, sepsis can lead to organ failure and life-threatening drops in blood pressure.

The number of deaths from sepsis worldwide is much higher than previously thought, with an estimated 20 percent of people dying from the life-threatening condition. A study, published on January 16, 2020 in the journal The Lancet, estimated that in 2017, 49 million people developed sepsis and 11 million died from the illness. It is more than the number of deaths from cancer, which kills an estimated 9.6 million people each year, according to the World Health Organization.

More than half of the sepsis cases in 2017 occurred among children, many of whom were newborns. Sepsis deaths are much higher than previously estimated, especially as the condition is both preventable and treatable. A renewed focus on sepsis prevention among newborns and tackling antimicrobial resistance, an important driver of the condition are needed.

Many previous estimates of sepsis cases and deaths looked at only middle- and high-income countries, and considered only individuals who were admitted to the hospital. The new study used data from millions of deaths and medical records around the world to estimate sepsis cases and deaths across 195 countries. Some of the most common underlying causes of sepsis in the study were diarrheal disease, respiratory infections and maternal disorders, such as infections after childbirth.

Many cases of sepsis, particularly in developing countries, could be prevented with increased access to vaccines, improved sanitation and adequate nutrition for children and mothers. High-income countries also need to do a better job at preventing hospital-acquired infections as well as chronic diseases that can make people more susceptible to infections.

LED LIGHT EMITTING DIODES RISK

Energy-saving LED technology has been in the limelight as the best way to reduce the electricity demands of residential and commercial lighting. However, exposure to LED lights can cause irreparable damage to the retinas of the human eye. The light from LEDs, or light-emitting diodes, comes primarily from the short-wave, high-energy blue and violet end of the visible light spectrum. Prolonged, continuous exposure to this light from computer monitors, mobile phones and television screens or indoor and outdoor lights may be enough to damage retinas.

Eyes are not designed to look directly at light; they are designed to see with light. Sánchez-Ramos said. A 2012 study published in the journal Photochemistry and Photobiology found that LED radiation caused significant damage to human retinal pigment epithelial cells in vitro.

Compact fluorescent light bulbs, or CFLs, have been criticized for the mercury they contain and for the high levels of ultraviolet (UV) radiation they can emit. Modern-day humans have their eyes open for roughly 6,000 hours a year, and are exposed to artificial light for the majority of that time. Wearing good-quality sunglasses with UV filters, and eating a diet rich in vitamin A to protect the eyes from retinal damage are recommended.

DESERT LOCUSTS RISK

Desert locusts, or “Schistocerca gregaria,” are known for their ability to breed every three months and in large numbers. They can also remain airborne for hours and, with some help from the wind, travel as much as 80 miles (130 km) per day. Most years, the insects stay confined to deserts in Africa, the Near East, and Asia. Under the right environmental conditions, they can multiply 400 times every six months and wreak havoc on crops worldwide. According to FAO, previous infestations have extended to as many as 60 countries.

In 2018 a cyclone from the Indian Ocean struck a remote area of the Arabian Peninsula known as the "Empty Quarter." The Empty Quarter would dry out within a short period, killing most of the locust population. In late 2018, a second cyclone struck the same region. The available food supply caused the population to explode for the second time in six months and eventually migrating to the south west into Africa.

In 2020, the East African country of Kenya was affected by the worst desert locust outbreak in over 70 years. The destructive swarms, some as big as three times the size of New York City with an estimated 192 billion insects swarmed through thousands of acres of crops and animal pastures, decimating farmers’ livelihoods in the process. The locusts, which arrived from neighboring Somalia and Ethiopia, spread to other countries, including Uganda, South Sudan, Tanzania, and Congo threatening them with crop failures and starvation as a swarm the size of Manhattan Island can, in a single day, eat the same amount of food as everyone in the states of New York and California combined.

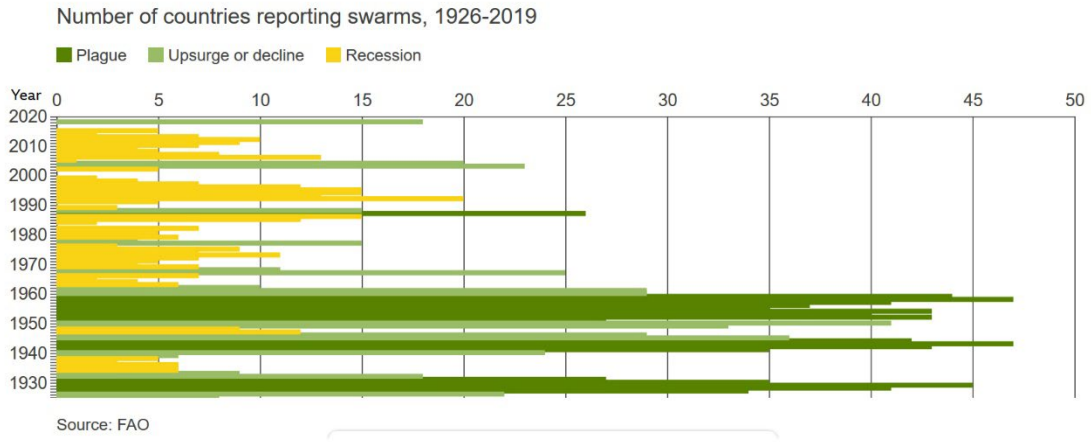


Figure 151. Desert locust clouds infestation, 2020.

SOCIAL DISLOCATIONS RISK

From “The Grapes of Wrath” by John Steinbeck, Chapter 21, 1939:

"Endless streams of people move out on the highways, like ants searching for food. These are agrarian folks, pushed off their land by great machines.

As they flow toward the west's fertile fields, hunger and desperation change them. The people who live in the towns the travelers pour into are frightened. These townspeople do not own the land, but they work and have debts, and they are frightened by the hunger-filled desperation of these nomads, wanderers who would work for any food to fill their families' empty stomachs.

The great owners of the fields buy the canneries as well and underbid the small farmer, forcing him to ruin until he, too, joins the rivers of the hungry. And the great owners think that they can take advantage of these desperate folks, but they do not realize that it is "a thin line between hunger and anger." "

Figure 152. Line for gun purchases from fear of social dislocation during Covid-19 pandemic, March 2020, Los Angeles, California, USA. The Covid-19 pandemic may be the single most global event in human history. It happened almost everywhere, to almost everyone, at about the same time.

Figure 153. Lockdown protest, Australia, August 2021.

Health passport protest, France, August 2021.

No-mask mandate protest, Brazil, August 2021.

The Pulitzer Prize-winning book of the Great Depression chronicles the Dust Bowl migration of the 1930s and tells the story of one Oklahoma farm family, the Joads, driven from their homestead and forced to travel west to the promised land of California.

Thomas Paine wrote in 1776: “These are the times that try men’s souls. The summer soldier and the sunshine patriot will, in this crisis, shrink from the service of their country; but he that stands by it now, deserves the love and thanks of man and woman.”

NUCLEAR EXCHANGE RISK

One can imagine the doomsday scenario of a thermonuclear war involving the launch of 10 hyperkinetic thermonuclear multiple warhead intercontinental ballistic missiles (ICBMs) each in a timespan of a few minutes.

This would result in 50 million dead within the first minute, 80 million dead in the first hour,100 million dead in a week, 150 million dead in a year and 200 million dead in a decade.

MEGADROUGHTS RISK

A megadrought in North America refers to a multi-decade event, that contains periods of very high severity that last longer than anything observed during the 19th or 20th centuries. According to a Science study by Park Williams et. al., from Columbia University in New York, there have been around 40 drought events over the period from 800-2018 in the western USA. Four events meet the criteria for a megadrought in the late 800s, the mid-1100s, the 1200s and the late 1500s.

The megadrought seen in the late 800s is thought to have instigated the downfall of the Mayan civilization. The severe drought in the 16th century may have contributed to the Chichimeca War in Mexico, during which Native Americans and European settlers fought for decades.

This was inferred from the study of tree ring records to reconstruct soil moisture data for the past 1200 years. Supporting evidence such as Medieval tree stumps growing in normally wet river beds, the abandonment of settlements by indigenous civilizations at the peak of the 13th century drought, and evidence from lake deposits indicating wildfire activity was enhanced during these drought periods.

When compared with the worst 19-year drought events in the past to soil moisture records from 2000-2018, the current period is already worse than three of the four megadroughts recorded. The fourth one, which ran from 1575 to 1603 was likely the worst one of all, but the difference with the present event is slight.

The authors say that undoubtedly the current drought situation is a natural event but is being made much worse by climate change. The key event seems to have been the El Niño/La Niña weather phenomenon:

> "We know from, from many lines of evidence that when you have La Niña type conditions in the tropical Pacific Ocean, then the southwestern US and northern Mexico get dry. And that's what we've seen over the last two decades."

In the western USA, temperatures have gone up by 1.2 ^{O}C since 2000. Hotter air holds more moisture and that moisture is being pulled out of the ground. Climate change is responsible for about half of the pace and severity of the current event. The two most

important water reservoirs in the region, Lake Powell and Lake Mead have both shrunk dramatically during the drought. Wildfires across the region are growing in area. At any given year, there is over ten times more forest area burns than we would have expected in a given year, 40 years ago. What has helped to mitigate the impact of the drought has been underground water held in aquifers. This has increasingly been used to bolster supplies for agriculture.

Figure 154. Lake Mead receding shoreline, California, 2020.

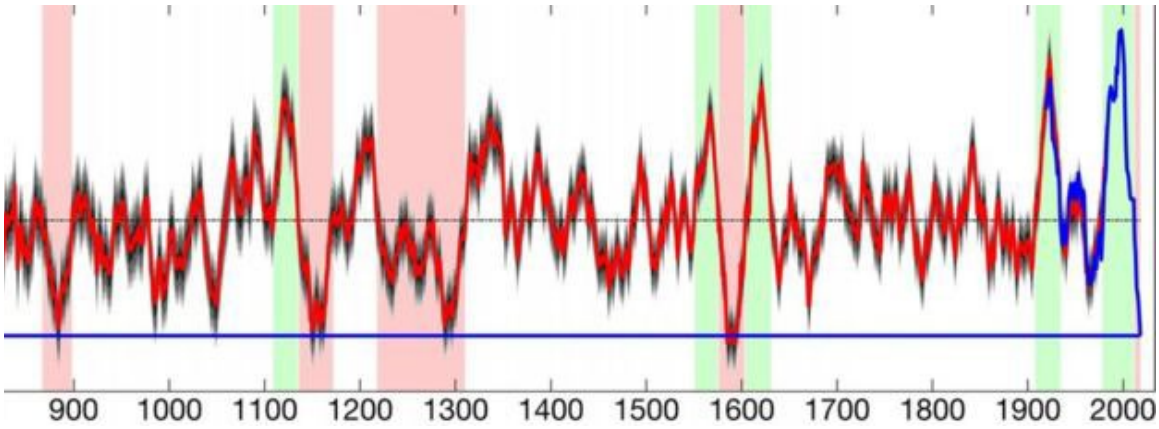


Figure 155. Drought incidence in California, USA.

The drought in the American West and the drive to save water had environmental consequences. It resulted in the death of trees that improved air quality, provided animal habitats and beautified urban areas across California. Urban trees joined about 12.5 million wild trees that died in dry California forests during 2015's drought, according to the USA Forest Service.

UNETHICAL GENE EDITING RISK

A Chinese court in December 2019 sentenced the doctor who claimed to be behind the world's first gene-edited babies to three years in prison for illegal medical practice. He

Jiankui, who shocked the scientific community in 2018 by announcing the birth of twins whose genes had allegedly been altered to confer immunity to HIV, was also fined three million yuan ($430,000). He was sentenced by a court in Shenzhen for "illegally carrying out the human embryo gene-editing intended for reproduction".

Two of his fellow researchers were also sentenced. Zhang Renli was handed a two-year jail term and fined one million yuan while Qin Jinzhou was given 18 months, suspended for two years, and fined 500,000 yuan.

PLASTIC MICROFIBERS RISK

Published in the journal Science an article: "Plastic rain in protected areas of the United States," lead researcher Janice Brahney of Utah State University reports that microplastic fibers are delivered like dust by the wind and rain. Estimate are that more than 1,000 tons of tiny plastic microparticles; roughly the equivalent of 120-300 million plastic water bottles; falls upon national parks and protected wilderness areas in the western USA each year.

Plastics do not decompose, they just break down into smaller and smaller fibers, and that allows them to be transported through the atmosphere, repeatedly being carried through the atmosphere. Overall, the world produced 348 million metric tons of plastic in 2017 and global production shows no sign of slowing down. In the USA, the per capita production of plastic waste is 340 grams per day.

High resilience and longevity make plastics particulates particularly useful in everyday life, but these same properties lead to progressive fragmentation instead of degradation in the environment. These "microplastics" are known to accumulate in wastewaters, rivers, and ultimately the worlds' oceans and they accumulate in the atmosphere.

The pollution, obviously, is not limited to protected areas. If we took the mean deposition rate and extrapolated it out for the whole country, it would be 22,000 tons. Atmospheric transport is an important part of how microplastic pollution is distributed globally, including to remote locations. Plastic microfibers are small enough to accumulate in lung tissue.

THE EXPONENTIAL GROWTH BIAS RISK

A mistake in perception is known as the “exponential growth bias has profound consequences on people’s behavior. People brains appear to be wired to understand linear functions, whereas nature behaves in exponential ways that are hard for the human brain to fathom. A spate of observations shows that people are susceptible to the exponential growth bias.

A familiar way of growth is “linear growth”. If a garden produces three apples every day, you have six after two days, nine after three days, adding a constant number every day. Exponential growth, however, accelerates over time. In bacterial growth the more bacteria are reproducing, the faster the bacterial population grows. Lilies growing in a pond pond that triple each day, the number would be just three on day two, and nine on day three and the number escalates to quickly fill out the pond.

Human tendency to overlook exponential growth has been known for millennia. The brahmin Sissa ibn Dahir was offered by his prince a prize for inventing an early version of the game of chess. He asked for one grain of wheat to be placed on the first square on the board, two for the second square, four for the third square, doubling each time up to the 64th square. This request, if fulfilled, would outstrip all the wheat crop in the land at 18,446,744,073,709,551,615 grains.

In the late 2,000s scientists started to study the bias formally, with research showing that most people intuitively assume that most growth is linear, leading them to vastly underestimate the consequences of exponential growth. The initial studies were primarily concerned with the consequences for bank deposits balances as most savings as well as loans accounts offer compound interest. The bias makes people vulnerable to unfavorable loan terms, where debt escalates over time. A study from 2008 suggests that the bias increases someone's debt-to-income ratio from an average of 23 percent to an average of 54 percent in the UK.

A higher level of education does not prevent people from accepting unfavorable usury terms. Even mathematically educated can be vulnerable, relying on intuition rather than deliberative calculation and thinking. Most people will confidently report understanding exponential growth but then still fall for the bias.

The bias influenced the response to containing infectious diseases in the 2019-2020 pandemic. Epidemiological studies suggest that without intervention the number of new Covid-19 cases exponentially doubled every three to four days, which was the reason that so many scientists advised rapid lockdowns to prevent the pandemic from spiraling out of control. The exponential growth bias was prevalent in people's understanding of the virus's spread, with most people vastly. Susceptibility to the exponential growth bias led to reduced compliance with the World Health Organization's recommendations including mask wearing, handwashing, social distancing, the use of sanitizers and self-isolation. It tragically led to early resumption of schools and university openings placing at risk students, theirs teachers, parents and grand-parents, exposing the most vulnerable among them to a herd culling process.

The graphical representations of the spread of the infection was depicted in the media on a "logarithmic scale", which turns the actual exponential function into a misleading linear function. The exponential growth appears more linear than it really is, reinforcing the exponential growth bias. As a result, within a few months the Covid-19 virus exponentially infected five million people in the USA.

SPECIES EXTINCTION RISK, SIXTH MASS EXTINCTION

Scientists describe a sixth extinction crisis as an existential threat to civilization, along with viral pandemics, climate change and pollution, to which it is tied. They say they have a "moral imperative" to draw attention to the loss of biodiversity, which is ignored by most people. Their research is published in the journal Proceedings of the National Academy of Sciences (PNAS. Prof Gerardo Ceballos of the National University of Mexico in Mexico City, suggests that regional ecosystems are facing collapse:

"We have entered the sixth mass extinction. Based on our research and what we are seeing, the extinction crisis is so bad that whatever we do in the next 10 to 50 years is what will define the future of humanity."

Species are disappearing at more than 100 times the natural rate. Unlike other mass extinctions, caused by volcano eruptions or asteroid collisions, humanity is to blame. Prof Ceballos worked on a study with two other well-known conservation scientists, Stanford University's Prof Paul Erhlich, and Dr Peter Raven of the Missouri Botanical Garden in St Louis, USA. Using data from the International Union for the Conservation of Nature (IUCN) Red List of threatened species and Birdlife (the bird authority for the IUCN), they identified at least 515 species that are on the brink of extinction, with fewer than a thousand individuals left.

The animals are found on every continent save Antarctica, in places highly impacted by humans, primarily in the tropics and subtropics. They include the Golden Lion Tamarin, Ethiopian Wolf, Javan Rhinoceros, Spanish Imperial Eagle, Yellow-eared Parrot, Gharial and Green Poison Frog.

POPULATION EXPLOSION, MALTHUSIAN TRAP, SPECTER, CATASTROPHY RISK

Stanford University biologist Paul Ehrlich in his 1968 book: “The Population Bomb”, predicted a worldwide famine that would kill hundreds of millions. In 2009, he took credit for that not happening because his book warns people of the danger. Ehrlich sought to reduce population growth.

Two hundred years earlier, according to Wikipedia:

“Thomas Robert Malthus FRS, February 13/14, 1766 to December 23, 1834, was an English cleric, scholar, and influential economist in the fields of political economy and demography. In his 1798 book: “An Essay on the Principle of Population,” Thomas Malthus observed that an increase in a nation's food production improved the well-being of the populace, but the improvement was temporary because it led to population growth, which in turn restored the original per capita production level.

In other words, humans had a propensity to utilize abundance for population growth rather than for maintaining a high standard of living, a view that has become known as the "Malthusian trap" or the "Malthusian specter." Populations had a tendency to grow until the lower class suffered hardship, want, and greater susceptibility to famine and disease, a view that is sometimes referred to as a Malthusian catastrophe. Malthus wrote in opposition to the popular view in 18th-century Europe that saw society as improving and in principle as perfectible.

Malthus suggested that population growth is inevitable, whenever conditions improved, thereby precluding real progress towards a utopian society: "The power of population is indefinitely greater than the power in the Earth to produce subsistence for man." As an Anglican cleric, he saw this situation as divinely imposed to teach virtuous behavior. Malthus wrote

that: "The increase of population is necessarily limited by the means of subsistence"; "population does invariably increase when the means of subsistence increase"; and "the superior power of population is repressed by moral restraint, vice and misery."

People that are smitten with Malthusian ideas committed some horrible atrocities in the name of population control and Eugenics. Malthus was a dangerous economist, much so as Karl Marx. Echoes of Malthusian thought regarding the Covid-19 pandemic were heard. Instead of insufficient food supply, the problem is now inevitable viral infections. It could not be stopped, so herd immunity in Sweden and the USA was embraced, where the vulnerable and elderly population susceptible to the virus is left to be culled, much like a herd of animals. Removing older people, some cruel thinking went, does not reduce the labor force and may reduce the dependency ratio, despite human society simultaneously growing the economy and reducing population growth for several generations now and medical progress increasing lifespans.

VACCINES POLYETHYLENE GLYCOL, PEG "HEALTH IMPACT EVENTS" RISK

An unexpected spike in allergic reactions to the Moderna and the Pfizer-BioNTech vaccine for Covid-19 was observed. The MERS vaccine was black boxed as it caused immune system overreaction. The potential culprit causing the allergic reactions to the vaccine is the compound polyethylene glycol, also known as PEG. Antifreeze is ethylene glycol, not polyethylene glycol. Ethylene Glycol and Polyethylene Glycol are made from the same thing. Ethylene Glycol is a specific molecular weight, whereas Polyethylene Glycol is a mixture of the same stock but can be of differing molecular weight. Allergies to the compounds are not rare. It is estimated that up to 70 percent of the population may have a reaction to them.

These "Health Impact Events," possibly anaphylaxis shocks, are explained as:
Unable to perform normal daily activities,
Unable to work,
Required care from doctor or health care professional.

It is reported that 2.79 percent of those injected with the early vaccines suffered side effects: 3,150 out of 112,807.

Usually, it is not the first exposure that causes the allergic reaction, but the second. More reactions are typically seen after the second dose, as the body has had time to recognize that the "sensitization dose" or first dose is a foreign invader.

PEG can be used as an antifreeze but it is used often in the food industry. Cheap wines use PEG to force flavor from inferior grapes by super cooling the batch. You can also use it in fog machines, to moisturize your humidor and a variety of soaps and beauty products. FDA considers it food grade and safe for consumption. Interestingly both the EU and South America ban the use of PEG in their wines. PEG is also used in e-cigarette vaping flavorings and is partially responsible for popcorn lung disease. Miralax laxative, which has PEG as an ingredient in it, was given to children with disastrous effects.

The first time someone gets stung by a bee, they are often fine. The second sting can cause anaphylaxis.

According to the CDC, at least six severe allergic reactions to the vaccine have been reported so far in the USA out of 272,001 doses, while at least two cases of anaphylaxis have also occurred in the UK.

Polyethylene glycol, a polyether compound derived from petroleum with many applications, from industrial manufacturing to medicine, is present in both the Moderna and Pfizer–BioNTech vaccines for SARS-CoV-2 as a PEGylated lipid, which is used as an excipient. Both RNA vaccines consist of Messenger RNA, or mRNA, encased in a bubble of oily molecules called lipids. Proprietary lipid technology is used for each. In both vaccines, the bubbles are coated with a stabilizing molecule of polyethylene glycol.

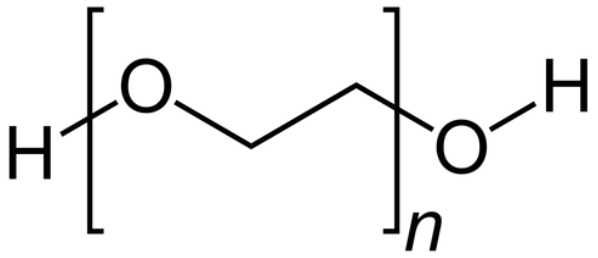


Figure 156. Polyethylene glycol.

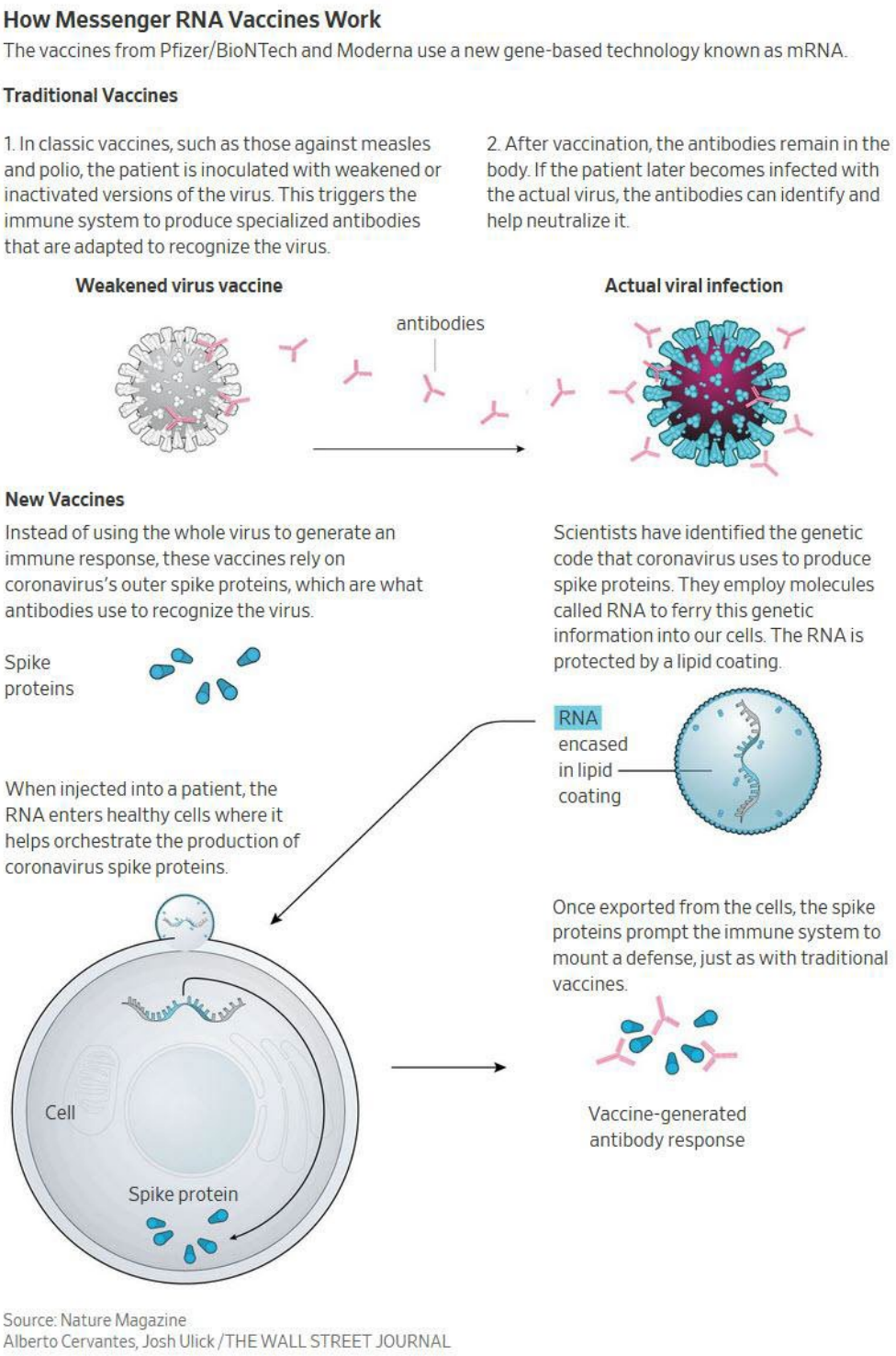


Figure 157. Fast decaying mRNA vaccines use a gene therapy function. A DNA based vaccine like the one produced by Inovio has some potential to be integrated into the host chromosome, where it would exist and generate proteins as long as the cell lives.

The compound is found in other drugs and is known to trigger anaphylaxis on rare occasions. Allergic reactions to the PEG in the Covid-19 vaccines compare to allergic reactions to other PEGs, like those in certain laxatives, that have caused rare allergic reactions in the past. In both the Pfizer-BioNTech and Moderna vaccines, PEG is part of the fatty envelope that surrounds the messenger RNA, the main ingredient in the vaccine. Once the mRNA gets into cells, it teaches them to make a protein that resembles the spike protein found on the surface of the coronavirus. That induces a specific immune response that shores up the body's defenses for when it is exposed to the real virus. The PEG-containing fatty envelope helps ensure the mRNA gets across the cell membrane and into the cells.

The reactions were classic allergic reactions—that is, immune reactions involving an antibody called immunoglobulin E, or IgE, which are part of the adaptive arm of the immune system, which learns to recognize specific intruders. The reactions could also be due to a misfiring of the innate immune system, causing a cascade of reactions in what is known as the body's complement system.

If the affected cells constantly produce antibodies to counteract inert spike proteins, a person may exhibit the symptoms of an autoimmune disorder such as lupus.

People who get the shots should be observed for 15 minutes after vaccination to monitor for possible adverse reactions. People with a history of anaphylaxis should be observed for 30 minutes. Injection of Epinephrine from an EpiPen or adrenaline is a possible treatment.

ETHYLENE OXIDE RISK

It is an ingredient in the covid-19 nasal swabs. It possesses cancer and reproductive hazards. This chemical is a pesticide product registered by the USA Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals.

Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

ANAPHYLAXIS, ANAPHYLACTIC SHOCK RISK

Charles Richet won the Nobel Prize in medicine, back in 1913, for his discovery of anaphylaxis. Phylaxis, a word seldom used, stands in the Greek for protection. Anaphylaxis will thus stand for the opposite. Anaphylaxis, from its Greek etymological source therefore means that state of an organism in which it is rendered hypersensitive, instead of being protected.

According to Charles Richet in his Nobel Prize lecture:

> "To make this plain, we will consider the example of a subject that has received a poison.
>
> Let us suppose the dosage to be moderate and that after a few days the subject is, or at least appears to be, normal. If, at this point, a further injection is given of the same dosage of the same poison, what will happen?

There are three possibilities.

The first and simplest is that there has been no change in the organism and that in receiving the same dosage as one month previously, exactly the same phenomena will result, in exactly the same conditions. Naturally this is what happens most of the time. Specialists and doctors work on this assumption when they repeat the intoxication at one month intervals.

The second possibility is that the subject has become less sensitive. In other words, the preceding intoxication has produced a certain condition of tolerance or non-sensitivity. This will mean that a stronger dose is necessary at the second injection to give the same results. This is the case of (relative) immunization or, as it is sometimes called, of mithridatism. The most remarkable case of this tolerance is to be seen when opium or morphine are used. People who take morphine injections need stronger and stronger doses for the morphine to take effect. Some unhappy morphine addicts get to the point of standing a dose of 20 grams, whereas one decigram is dangerous in a normal subject. It has been known for persons to drink one litre of laudanum per day, while one drop of laudanum produces already some effect.

These two cases, of unchanged sensitivity or stability, and of diminished sensitivity or habituation, have been known since long. Now I have shown that there is a third possibility, frequently to be observed in certain conditions which I have specified: this is of heightened sensitivity. The first injection, instead of protecting the organism, renders it more fragile and more susceptible. This is anaphylaxis.

At the third degree, depression of the nervous system is such that the itching has gone or almost gone. The animal has no strength to vomit, diarrhoea is marked while the fluid passed from the rectum is often almost wholly blood. The nervous symptoms often develop so suddenly and violently that there is no time for colic and diarrhoea. Ataxia follows at once. The animal reels as if drunk, the pupils are dilated, the eyes haggard and after heart-rending cries, the animal falls to the ground, urinating and defecating underneath himself, unconscious, no longer reacting to the excitations and in complete mind-blindness. Breathing is laboured and agonized. The heart beats are so faint as to be barely perceptible: blood pressure hardly reaches the one or two centimeter mercury level. To sum up, all the symptoms point to the central nervous system being the seat of severe and sudden intoxication. This brutal assault of the poison on the nervous system has been called *anaphylactic shock*.

There is a fourth degree of anaphylaxis, it may be said, which is more serious still: when all the symptoms, instead of passing off, worsen so that within a quarter or a half hour the subject is dead."

He ends with some thought provoking conclusions, https://www.nobelprize.org/prizes/medicine/1913/summary/

"Now, in the light of notions of immunity and of anaphylaxis, we can conceive of another personality in juxtaposition to the moral personality and that is the *humoral personality*, which makes us different from other men by the chemical make-up of our humors.

This is an entirely new idea. It was thought up to now, perhaps from lack of after-thought, that with individuals of the same age, race and sex the humors would no doubt be chemically identical. Well, it is not like that at all. Every living being, though presenting the strongest resemblances to others of his species, has his own characteristics so that he is himself and not somebody else. This means that henceforth study of the physiology of the species is no longer enough. Another physiology must be taken up, which is very difficult and barely broached, namely that of the individual.

It may be asked how anaphylaxis fits in to that general law, which admits of no exceptions, that living organisms exist in an optimum state of protection.

It does indeed seem absurd that an organic disposition should make beings more fragile, more susceptible to poisons, for in most cases everything in living beings seems disposed to assure them a greater power of resistance.

But some reflection on the final aim of anaphylaxis will give the answer.

It is in fact important that animal species are of determined chemical entity. If, following the hazard of ingestion or injection, alien proteins were found in the cellular juices as part of our humors, then the chemical make-up of beings would be modified and consequently perverted. Crystalloids dialyse through membranes and are speedily eliminated. In a few days, even in a few hours, they are completely gone. Colloids however, that no dialysis can eliminate, do not disappear once they have penetrated to the blood. They fix on cellules and end up by being integral to them.

Grave danger would thus face the animal species, were they not nicely balanced in their hereditary chemical make-up. If heterogenous substances got fixed into our cellules and definitely intermingled with our humors, that would be the end of the chemical constitution of each animal species, which is the fruit of slow evolution down the generations, and all the progress that has been achieved through selection and heredity would be lost.

It does not matter much that the individual becomes more vulnerable in this regard. There is something more important than the salvation of the person and that is integral preservation of the race.

In other words, to formulate the hypothesis in somewhat abstract terms but clear ones all the same: *the life of the individual is less important than the stability of the species*.

Anaphylaxis, perhaps a sorry matter for the individual, is necessary to the species, often to the detriment of the individual. The individual may perish, it does not matter. The species must at any time keep its organic

integrity intact. Anaphylaxis defends the species against the peril of adulteration.

We are so constituted that we can never receive other proteins into the blood than those that have been modified by digestive juices. Every time alien protein penetrates by effraction, the organism suffers and becomes resistant. This resistance lies in increased sensitivity, a sort of revolt against the second parenteral injection which would be fatal. At the first injection, the organism was taken by surprise and did not resist. At the second injection, the organism manns its defenses and answers by the anaphylactic shock.

Seen in these terms, anaphylaxis is an universal defense mechanism against the penetration of heterogenous substances in the blood, whence they can not be eliminated."

ANTIBODY DEPENDENT ENHANCEMENT, ADE, ANAPHYLAXIS, MESSENGER RNA, mRNA VACCINES

ADE - antibody dependent enhancement went wrong with earlier SARS vaccines. It is is seen naturally with the Dengue Fever virus. After injection and recovery, the virus comes back around the next year, just a little bit mutated. However, the generated antibodies see it and over-react. In fact, because of the antibodies, you get it much worse and you die. So a virus that might have killed 0.1 percent of the population, instead kills 80 percent of the population, exactly most of those who got the vaccine.

Lab animals in the testing of the mRNA vaccines in 2000 were exposed to the virus after vaccination and the virus had mutated so the antibodies of the vaccine produced could not neutralize the mutated virus instead the antibodies enhanced the new mutated virus. They all died.

The seasonal flu vaccine causes 1,000 cases of severe anaphylaxis per year. Anyone suffering severe anaphylaxis will die without immediate emergency care with epinephrine or adrenaline injections. The polio vaccine cripples at least 75 kids every year in the USA.

Figure 9: Common side effects of vaccines

Vaccine	Type	Nature of adverse event	Description	Rate/Doeses
Influenza	Inactivated	Mild	Injection site reactions	10-64 per 100
			Fever in children 1 5 years of age	12 per 100
			Fever in children 1 5 years of age	5 per 100
		Severe	Anaphylaxis	0.7 per million
			Guillain-Barre	1-2 per million
			Oculo-respiratory syndrome (events of moderate severity)	76 per million
	Activated	Mild	Runny nose or nasal congestion	59-63 per 100
			Cough	28 per 100
			Fever in children 1 5 years of age	16-31 per 100
			Decreased activity	16-23 per 100
			Abdominal pain	4 per 100
			Vomiting	10 per 100
			Muscle aches	14 per 100
		Severe	Wheeze in children of 6 - 11months of age	14 per 100
			Anaphylaxis	1 per 500000
BCG	Activated	Mild	Injection site papule (onset 2-4 weeks)	Almost all vaccines
			Mild ulceration (1-2 months)	
			Scar (2-5 months)	
		Severe	Local abscess	
			Keloid	
			Lymphadenitis	NA
			Suppuration (onset 2-6 months)	1 per 1000-10000
			Local abscess	Case reports only
			Keloid	1 per 3,333 - 108
			Lymphadenitis	1 per 230,000 - 640,000
			Suppuration (onset 2-6 months)	1 per 640,000
Diphteria, Pertussis, Tetanus	Accellular and Whole cell vaccines	Mild	Fever	Almost all vaccines
			Redness	
			Pain (moderate to severe)	
			Fussiness	
			Drowsiness	
			Anorexia	
			Vomiting	
		Severe	Persistent screaming	0-3.5 per 100
			Hyporesponsive hypotonic episodes	14-250 per 100000
			Seizures	0-6 per 100000
			Encephalopathy	0.3-5.3 per 100000
			Anaphylaxis	1.3 per million
Hepatitis A	Whole viron based vaccine	Mild	Soreness (children /adult)	14-27/43-56 per 100
			Induration at the injection site	4 per 100
			Injection site erythema and pain (children /adult)	9/24 per 100
			Headache (children/adults)	4/16 per 100
			malaise	7 per 100
			feeding problems	8 per 100
			fatigue, fever, diarrhoea and vomiting	<5 per 100
		Severe	None proven to date	
Hepatitis B		Mild	Pain	3-29 per 100
			Erythema	3 per 100
			Swelling	3 per 100
			Temperature greater than 37.7°C	1-6 in 100
			Headache	3 in 100
		Severe	Anaphylaxis	1.1 per million
Polio	Oral	Severe	Vaccine-associated paralytic polio	1 per 6.4 million doses
			Aseptic meningitis/encephalitis	Case reports only
	Inactivated	Mild	Injection site reactions	0.5-1.5 per 100
			Injection site erythema	3-11 per 100
			Induration	14-29 per 100
			Tenderness	None
Pneumococcal		Mild	Unconjugated vaccine (PPSV)	50 per 100
			Conjugated vaccine (PCV)	10 per 100
			Both vaccines – fever . 39C	< 1 per 100
		Severe	None proven to date	
Typhoid	Ty21a	Mild	Fever	0.3-4.8 per 100
			Vomiting	0.5-2.3 per 100
			Diarrhoea	1.2-3.9 per 100
	ViCPS	Mild	Low grade fever (<39C)	2 per 1
			Local erythema	3-21 per 100
			Soreness	3 per 1
			Swelling	7 per 1
	Vi-TT	Mild	Injection site pain	Data unaailable
			Fever	
	Severe		Case reports	Unconfirmed

Source : WHO.

Figure 158. Common side effects of vaccines.

Unlike other vaccines, messenger RNA, mRNA vaccines work by training the immune system to recognize a threat like a virus and begin producing antibodies to protect itself. USA Pfizer and Germany BioNTech mRNA experimental technology is funded in part by Fosun pharma of China, BioNtech's eastern partner.

The gene therapy mRNA does not create anti-bodies which are part of the definition of vaccines, it produces proteins that bind to the cells lessening the effects of Covid-19, it will not stop you from getting the disease. mRNA is gene therapy not a vaccine. A vaccine

must contain an element of the virus for the body to produce anti bodies against it and thus prevent infection not just its effects once it occurs. mRNA zips opens a person's DNA to create a protein to fight the virus, so it is not strictly a vaccine. It is named a "vaccine" for layman's purposes.

mRNA vaccines undergoing Covid-19 clinical trials, including the Moderna vaccine, rely on a nanoparticle-based "carrier system" containing a synthetic chemical called polyethylene glycol (PEG). PEG is used as an anti-foaming agent in food and drinks. The use of PEG in drugs and vaccines is increasingly controversial due to the well-documented incidence of adverse PEG-related immune reactions, including life-threatening anaphylaxis. Roughly seven in ten Americans may already be sensitized to PEG, which may result in reduced efficacy of the vaccine and an increase in adverse side effects.

But while traditional vaccines often use inactivated doses of the organisms that cause disease, mRNA vaccines are designed to make the body produce those proteins itself. Messenger RNA — a molecule that contains instructions for cells to make DNA — is injected into cells. In the case of COVID-19, mRNA vaccines provide instructions for cells to start producing the 'spike' protein of the new coronavirus, the protein that helps the virus get into cells. On its own, the spike protein is not harmful. But it triggers the immune system to begin a defensive response. You essentially turn your body into its own manufacturing unit.

LNPs (Lipid Nanoparticles) are used in these vaccines. LNPs "encapsulate the mRNA constructs to protect them from degradation and promote cellular uptake" and, additionally, rev up the immune system (a property that vaccine scientists tamely describe as LNPs' "inherent adjuvant properties"). The LNPs are adjuvants, meaning they are designed to cause hyperinflammatory responses in human beings, once injected. This is done in an effort to induce the creation of antibodies that then allow the vaccine manufacturer to claim high "effectiveness" rates, even when those very same adjuvants cause severe adverse reactions. Coronavirus vaccine adjuvants are accused to am alleged 97 percent sterility rate in women who take the vaccine.

According to recent vaccine trials conducted by Moderna, 100% of human subjects in the high-dose vaccine trial group experienced adverse reactions.

SPIKE PROTEINS, S PROTEINS IN GENE THERAPIES RISK

The SARS-CoV-2 has been considered as a respiratory lung disease but it may be primarily a vascular disease. The spike protein, even though short-lived, in the mRNA gene therapy vaccines affect the overall human vascular system explaining the occurrence of embolisms in recipient of these vaccines.

The mRNA vaccines use spike proteins and the Salk Institute in La Jolla, California suggests it is the spike protein that causes more damage than the actual virus because it targets the vascular system, which is everywhere in the human body, including the lungs, heart, brain as well as the reproductive systems in both males and females. The spike protein targets the ACE receptors on vascular cells which then cause the mitochondria in the cells to fragment and induce cell death.

All four of the gene-based "vaccines" encode part or all of the surface spike protein. Spike protein is expressed in variable amounts and at random anatomical locations. Spike

is intrinsically able to initiate blood coagulation. Also, to trigger the "complement cascade", a part of the innate immune system. By causing many cell types, such as those lining every blood vessel, to take up and express that spike protein, those tagged cells appear to our immune system to be infected by SARS-CoV-2. The immune system then attacks those tagged cells. Destroying blood vessel linings amplifies the blood clots and often blocks the smallest blood vessels, in lung, Heart, brain and other organs. Those tissues then begin to die off. Heart attacks, myocarditis, pulmonary embolisms, strokes / brain blood clots, deep vein thrombosis (DVT), disseminated intracellular vascular coagulation (DIC) and so much more events occur. About 70 percent of adverse events following covid-19 vaccination are thromboembolic in underlying pathology.

JOURNAL

Circulation Research

TITLE

SARS-CoV-2 Spike Protein Impairs Endothelial Function via Downregulation of ACE2

AUTHORS

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According to Salk News, https://www.salk.edu/news-release/the-novel-coronavirus-spike-protein-plays-additional-key-role-in-illness/:

> "**The novel coronavirus' spike protein plays additional key role in illness**
> **Salk researchers and collaborators show how the protein damages cells, confirming COVID-19 as a primarily vascular disease.**
>
> LA JOLLA—Scientists have known for a while that SARS-CoV-2's distinctive "spike" proteins help the virus infect its host by latching on to healthy cells. Now, a major new study shows that the virus spike proteins (which behave very differently than those safely encoded by vaccines) also play a key role in the disease itself.
>
> The paper, published on April 30, 2021, in *Circulation Research*, also shows conclusively that COVID-19 is a vascular disease, demonstrating exactly how the SARS-CoV-2 virus damages and attacks the vascular system on a cellular level. The findings help explain COVID-19's wide variety of seemingly unconnected complications, and could open the door for new research into more effective therapies.
>
> "A lot of people think of it as a respiratory disease, but it's really a vascular disease," says Assistant Research Professor Uri Manor, who is co-senior author of the study. "That could explain why some people have

strokes, and why some people have issues in other parts of the body. The commonality between them is that they all have vascular underpinnings."

Salk researchers collaborated with scientists at the University of California San Diego on the paper, including co-first author Jiao Zhang and co-senior author John Shyy, among others.

While the findings themselves aren't entirely a surprise, the paper provides clear confirmation and a detailed explanation of the mechanism through which the protein damages vascular cells for the first time. There's been a growing consensus that SARS-CoV-2 affects the vascular system, but exactly how it did so was not understood. Similarly, scientists studying other coronaviruses have long suspected that the spike protein contributed to damaging vascular endothelial cells, but this is the first time the process has been documented.

In the new study, the researchers created a "pseudovirus" that was surrounded by SARS-CoV-2 classic crown of spike proteins, but did not contain any actual virus. Exposure to this pseudovirus resulted in damage to the lungs and arteries of an animal model—proving that the spike protein alone was enough to cause disease. Tissue samples showed inflammation in endothelial cells lining the pulmonary artery walls.

The team then replicated this process in the lab, exposing healthy endothelial cells (which line arteries) to the spike protein. They showed that the spike protein damaged the cells by binding ACE2. This binding disrupted ACE2's molecular signaling to mitochondria (organelles that generate energy for cells), causing the mitochondria to become damaged and fragmented.

Previous studies have shown a similar effect when cells were exposed to the SARS-CoV-2 virus, but this is the first study to show that the damage occurs when cells are exposed to the spike protein on its own.

"If you remove the replicating capabilities of the virus, it still has a major damaging effect on the vascular cells, simply by virtue of its ability to bind to this ACE2 receptor, the S protein receptor, now famous thanks to COVID," Manor explains. "Further studies with mutant spike proteins will also provide new insight towards the infectivity and severity of mutant SARS CoV-2 viruses."

The researchers next hope to take a closer look at the mechanism by which the disrupted ACE2 protein damages mitochondria and causes them to change shape.

Other authors on the study are Yuyang Lei and Zu-Yi Yuan of Jiaotong University in Xi'an, China; Cara R. Schiavon, Leonardo Andrade, and Gerald S. Shadel of Salk; Ming He, Hui Shen, Yichi Zhang, Yoshitake Cho, Mark Hepokoski, Jason X.-J. Yuan, Atul Malhotra, Jin Zhang of the University of California San Diego; Lili Chen, Qian Yin, Ting Lei, Hongliang Wang and Shengpeng Wang of Xi'an Jiatong University Health Science Center in Xi'an, China.

The research was supported by the National Institutes of Health, the National Natural Science Foundation of China, the Shaanxi Natural Science

Fund, the National Key Research and Development Program, the First Affiliated Hospital of Xi'an Jiaotong University; and Xi'an Jiaotong University.

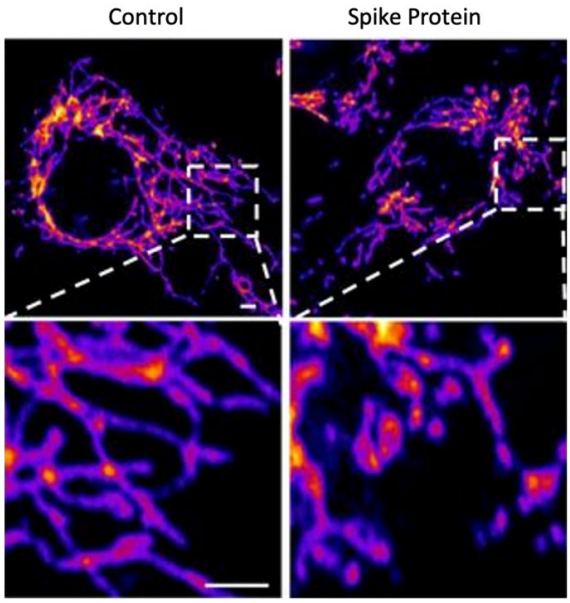


Figure 159. Salk Institute paper in "Circulation Research" about SARS-CoV-2 Spike Proteins. Representative images of vascular endothelial control cells (left) and cells treated with the SARS-CoV-2 Spike protein (right) show that the spike protein causes increased mitochondrial fragmentation in vascular cells. Credit: Salk Institute.

The identified side effects from the gene therapies are:

-Guillain-Barré syndrome
-Acute disseminated encephalomyelitis
-Transverse myelitis
-Encephalitis /myelitis/encephalomyelitis/meningoencephalitis/meningitis/encephalopathy
-Convulsions/seizures
-Stroke
-Narcolepsy and cataplexy
-Anaphylaxis
-Acute myocardial infarction
-Myocarditis/pericarditis
-Autoimmune disease
-Deaths
-Preganacy and birth outcomes
-Other acute demyelinating diseases
-Non-anaphylactic allergic reactions
-Thrombocytopenia

-Disseminated intervascular coagulation
-Venous thromboembolism
-Arthritis and arthralgia/joint pain
-Kawasaki disease
-Multisymptom Inflammatory Syndrome in Children
-Vaccine enhanced disease - antibody dependent enhancement (ADE)

Some doctors have been warning that vaccine-induced antibody dependent enhancement (ADE) may contribute to long-term adverse effects that would begin to manifest themselves 3 -12 months after vaccination. That prediction is based upon animal studies over recent years from SARS-CoV vaccine trials, where the vaccinated animals became extremely sick after being exposed to coronaviruses later, in the wild.

It may be suggested here that the S protein in the mRNA vaccines causes poisoning of the blood, implying a nature of a blood poisoning effect. It has a distinct resemblance to some snake venom effect presenting a clinical representation of blood poisoning. It should be mentioned that Haemotoxic snake venom goes for the bloodstream and vascular system. It can trigger lots of tiny blood clots and then when the venom punches holes in blood vessels causing them to leak, there is nothing left to stem the flow and the patient bleeds to death. Other venoms can increase blood pressure, decrease blood pressure, prevent bleeding, causing thrombosis, or create it. The neurological presentation are also similar to neurologic snake venoms. This may suggest that the methodologies used in producing and using antivenom serum can be adapted to the treatment of the cases of suspected blood poisoning side effects observed in gene therapy vaccine cases.

PROMISES OF THE RNA-ISSANCE mRNA, SELF AMPLIFYING saRNA GENE THERAPIES

The whole field of mRNA is just exploding. It is such a game changer that it raises some very big, exciting questions: could mRNA vaccines provide a cure for cancers, HIV, tropical diseases, and even give us superhuman immunity.

Messenger ribonucleic acid, or mRNA is a single-stranded molecule that carries genetic code from DNA to a cell's protein-making machinery. Without mRNA, your genetic code would not be used, proteins would not be made, and your body would not work. If DNA is the bank card, then mRNA is the card reader.

Once a virus is inside our cells, it releases its own RNA, tricking our hijacked cells into spewing out copies of the virus – in the form of viral proteins – that compromise our immune system. Traditional vaccines work by injecting inactivated virus proteins called antigens, which stimulate the body's immune system to recognize the virus when it reappears. The genius of mRNA vaccines is there is no need to inject the antigen itself. Instead, these vaccines use the genetic sequence or "code" of the antigen translated into mRNA. It is a ghost of the real thing, fooling the body into creating very real antibodies. The artificial mRNA itself then disappears, degraded by the body's natural defenses including enzymes that break it down, leaving us with only the antibodies.

It is safer to produce, more quickly and cheaply, compared with traditional vaccines. You no longer need huge bio-secure labs growing deadly viruses inside millions of chicken eggs. Instead, just one lab can sequence the proteins of the antigen and email it

around the world. With that information a lab could make a million doses of mRNA in a single 100ml test tube.

The theory behind the mRNA vaccine was pioneered by University of Pennsylvania scientists Katalin Karikó and Drew Weissman, who both recently received the 2021 Lasker Award, America's top biomedical research prize. If we are currently witnessing mRNA vaccine 1.0 for Covid-19, then 2.0 will address two further categories of disease, like Sars, but you can apply this technology to other foreign invaders such as HIV. Already before Covid, companies were in development making mRNA vaccines against HIV, Zika, herpes and malarial parasites in the pathogens camp. The other category is autoimmune diseases. The future could involve mRNA "treatments", for example to reduce inflammation.

Little balls of fat, or lipids, are needed to house the mRNA and safely deliver it to the cells without being immediately destroyed by our body. Lipids have been described as the "unsung hero" – without lipid delivery being finally perfected and approved in 2018, there would have been no Covid-19 mRNA vaccines by 2020. Before Covid-19, there were many research studies looking at broader applications of combining this new lipid delivery technique with mRNA, including genetic disorders, cancer immunotherapy, infectious diseases and bacterial infections. As long as you have the antigen and can sequence the protein, theoretically it should work.

Thanks to the combined breakthrough in lipid delivery and mRNA technology, vaccines and treatments in development include Translate Bio's mRNA therapy's for cystic fibrosis and multiple sclerosis; Gritstone Oncology and Gilead Sciences' mRNA vaccine for HIV; Arcturus Therapeutics' therapies for cystic fibrosis and heart disease; and German start-up Ethris, with AstraZeneca, are developing mRNA therapies for severe pulmonary diseases and asthma.

Solutions for tropical diseases are being explored. Moderna are close to phase two out of three in clinical mRNA vaccine trials for both Zika and Chikungunya. Both are described as "neglected", so-called because they effect the poorest populations of the world and do not receive adequate research and funding. The speed and cost of mRNA vaccines could change that paradigm and signal the end of neglected tropical diseases.

Influenza viruses are responsible for an estimated 290,000–650,000 deaths annually worldwide. There are currently five clinical trials for Influenza A, including one in phase two. Some countries may be due an influenza epidemic that could lead to more fatalities than Covid-19.

Several pharmaceutical companies are pursuing mRNA vaccines and treatments for cancer. Cancer cells will often have certain surface markers that the rest of the cells in your body do not have. You can train your immune system to recognize and kill those cells, just like you can train your immune system to recognize and kill a virus., You just figure out what proteins are on the surface of your tumor cells and use that as a vaccine. The idea of patient-specific, individualized medicine has been a tantalizing prospect for years. This could be another door pushed wide open by mRNA. In theory, they take out your tumor, they sequence it, see whatis on the surface of it, and then they make a vaccine specifically for you.

One area of concern for modern medicine is antibiotic resistance. Potentially you could envision actually making a vaccine against a bacterial antigen such as C. difficile or some of those really tricky to treat bacteria.

There is also potential for more general commercial health and wellbeing applications such as lactose intolerance that affects hundreds of millions of people of Asian origin and an estimated 68 percent of the global population could one day be targeted.

People with high levels of the protein PCSK9 tend to have high cholesterol and develop heart disease early. One can reduce the PCSK9 protein level by over 95%. A cocktail of mRNAs that make different proteins selective for your particular need

The question of could mRNA therapeutics give us almost superhuman immunity? Already Covid-19 mRNA vaccines lead some people to produce very high levels of antibodies, able to neutralize several variants of Covid-19 at once. There is the potential to mix various mRNA vaccines together into a single health booster vaccine, which could ward off cancers and viruses at the same time.

Anaphylactic reactions with no deaths have been observed in approximately 2 to 5 people per million vaccinated in the USA: slightly higher, 4.7 per million, with the Pfizer–BioNTech vaccine compared to 2.5 per million vaccinations from the Moderna vaccine. This is 11 times higher than with the flu vaccine. There is good indication now that you do get a really good memory T cell response from the mRNA vaccines

saRNA, or self-amplifying mRNA. It has the same structural components as normal mRNA, except once inside a cell it can make copies of itself. This is really advantageous because it allows you to use a much lower dose, usually about 100 times less saRNA compared to mRNA. mRNA vaccines may have run ahead to combat Covid-19, but saRNA may win out in the end.

"GREAT RESET INITIATIVE" GREAT DIVIDE RISK

In the spirit of "to never let a good crisis go to waste," the World Economic Forum (WEF), gathers yearly at Davos, Switzerland the world's wealthy and powerful elite to discuss and solve humanity's common problems. The problems they discuss never seem to get solved as they consolidate their power and their personal status. It is a great way to meet fellow elites. The WEF sees the coronavirus pandemic as an opportunity to reset capitalism. According to its founder Klaus Schwab:

> "Covid-19 lockdowns may be gradually easing, but anxiety about the world's social and economic prospects is only intensifying. There is good reason to worry: a sharp economic downturn has already begun, and we could be facing the worst depression since the 1930s. But, while this outcome is likely, it is not unavoidable.
>
> To achieve a better outcome, the world must act jointly and swiftly to revamp all aspects of our societies and economies, from education to social contracts and working conditions. Every country, from the United States to China, must participate, and every industry, from oil and gas to tech, must be transformed. In short, we need a "Great Reset" of capitalism."

The WEF calls this effort its "Great Reset Initiative." They argue that capitalism has gone off track and needs some adjustments, and not just minor ones. The current morass of crony capitalism, exploding debt, assets and savings dilution, money printing and lobbying for special government favors is ominous.

Many people on both sides of the wealth gap feel the current "social contract" is not working for them. Income and wealth inequality are very real. But radically revamping all aspects of human societies and economies sounds ominous and suggests a "Great Divide" in favor of those who are self-appointed new kings already nominally running the global economy against the rest of societies. It appears to be an example of wealthy, powerful elites saving their consciences with fake efforts to help the masses, and in the process make themselves even wealthier and more powerful. The unexpected results could be hyperinflation, mass migrations, social unrest and dislocations, revolutions, and civil wars.

The December 2020 issue of The Atlantic magazine published an interview with Peter Turchin, a University of Connecticut professor with unique ideas about human history. Peter Turchin is a zoologist who spent his early career analyzing population dynamics. Why does a particular species of beetle inhabit a certain forest, or why does it disappear from that same forest? He developed some general principles for such things, and wondered if they apply to humans. He moved from studying beetles history to human history.

A recurring pattern that Peter Turchin noticed, is what he calls "elite overproduction." This happens when a society's ruling class grows faster than the number of rulers it needs. For Peter Turchin, "elite" means not just political leaders, but all those managing companies, universities, and other large social institutions as well as those at the top of the economic food chain:

> "One way for a ruling class to grow is biologically—think of Saudi Arabia, where princes and princesses are born faster than royal roles can be created for them. In the United States, elites overproduce themselves through economic and educational upward mobility: More and more people get rich, and more and more get educated. Neither of these sounds bad on its own. Don't we want everyone to be rich and educated? The problems begin when money and Harvard degrees become like royal titles in Saudi Arabia. If lots of people have them, but only some have real power, the ones who don't have power eventually turn on the ones who do…
>
> Elite jobs do not multiply as fast as elites do. There are still only 100 Senate seats, but more people than ever have enough money or degrees to think they should be running the country."
>
> "You have a situation now where there are many more elites fighting for the same position, and some portion of them will convert to counter-elites." The excess elites become counter-elites, who then try to make alliances with the lower classes which usually don't work out."
>
> The final trigger of impending collapse tends to be state insolvency. At some point rising insecurity becomes expensive. The elites have to pacify unhappy citizens with handouts and freebies—and when these run out, they have to police dissent and oppress people. Eventually the state exhausts all short-term solutions, and what was heretofore a coherent civilization disintegrates."

In 2010, the journal Nature published a collection of opinions looking ahead 10 years. A response from Peter Turchin in the February 2010 issue was about “Instability Spikes”:

> “Quantitative historical analysis reveals that complex human societies are affected by recurrent—and predictable—waves of political instability (P. Turchin and S.A. Nefedov, Secular Cycles, Princeton Univ. Press; 2009). In the United States, we have stagnating or declining real wages, a growing gap between rich and poor, overproduction of young graduates with advanced degrees, and exploding public debt. These seemingly disparate social indicators are actually related to each other dynamically. They all experienced turning points during the 1970s. Historically, such developments have served as leading indicators of looming political instability.
>
> Very long 'secular cycles' interact with shorter-term processes. In the United States, 50-year instability spikes occurred around 1870, 1920, and 1970, so another could be due around 2020. We are also entering a dip in the so-called Kondratiev wave, which traces 40-60-year economic growth cycles. This could mean that future recessions will be severe. In addition, the next decade will see a rapid growth in the number of people in their twenties, like the youth bulge that accompanied the turbulence of the 1960s and 1970s. All these cycles look set to peak in the years around 2020.”

Peter Turchin calls the culmination of these cycles the “final stage”, when elites try to pacify the masses with “bread and circuses.” Doing so racks up the debt level and suppresses economic growth.

ESOPHAGEAL SQUAMOUS CELL CARCINOMA, ESCC CANCER RISK

Smoking and heavy drinking cause esophageal squamous cell carcinoma, ESCC. Other factors that contribute to an increase in esophageal squamous cell carcinoma risk included low fruit intake, low vegetable intake, exposure to indoor air pollution by using indoor fuels other than natural gas without chimneys, drinking un-piped water such as untreated water from wells, cisterns and natural sources, poor oral health and opium use.

Esophageal cancer is among the most common forms of cancer and also among the most deadly. According to a study from the National Institute of Health, it is the sixth-leading cause of cancer deaths worldwide.

A study, published by the International Journal of Cancer in 2019, specifically examined the association of preferred tea drinking temperature and the future risk of ESCC growth. Individuals who regularly consumed beverages hotter than 140 degrees Fahrenheit or 60 degrees Celsius increased their risks. Compared to those who drank less than 700 milliliters (about 23 ounces or two regular size mugs), individuals from the study that consumed over 700 milliliters of higher-temperature tea warmer than 140 degrees had "an about 90 percent increase in ESCC risk.

A difference exists in speeds by which people usually swallow solid foods compared to hot beverages. While chewing, solid foods may get colder and reach the esophagus less quickly. Consumption of hot foods can also be directly linked with increased cancer risks.

Chinese researchers from Peking University Health Science Center in Beijing, add that the increased cancer risks for tea drinkers spike when coupled with excessive alcohol consumption and tobacco smoking. The risk of esophageal cancer was five times higher in people who drank very hot tea and also daily drank more than 15 grams of alcohol. Among those who drank piping hot tea each day and also smoked tobacco, that risk doubled compared with nonsmokers who drank tea only occasionally.

A simple behavioral adjustment of letting a drink or food sit for four to five minutes could be all the protection needed.

LIGHTNING STRIKES RISK

Figure 160. Lightning strikes in thunderstorm.

The Earth is struck by lightning nearly 20 million times each year, and bolts of lightning can travel as far as 10 to 12 miles from a thunderstorm, instantly heating the air to 50,000 degrees Fahrenheit. Lightning bolts are usually 1-2 inches in thickness, and reach a propagation speed of 90,000 miles per second.

Lightning is blamed for an average of 43 fatalities in the USA each year, based on data from 1989 to 2018. Lightning occurs due to the buildup of electric charges in the atmosphere. In order to balance out the different charges, lightning is triggered between two clouds or between a cloud and the ground.

Although the odds of being struck are quite low; 1 in 1,222,000 in a given year and 1 in 15,300 in a lifetime, the weather community urges people to take proper precautions to stay safe amid storms, which can frequently trigger lightning, even without turning severe.

Some basic rules apply when it comes to lightning and heavy rain. The consequences of lightning strikes can be serious. Lightning is one of the leading causes of weather-related fatalities. Thunderstorms are fun to watch but watching even from indoors can be dangerous. Windows and doors may contain metal parts which can conduct electricity and present a risk of electrocution.

The odds of being struck by lightning in a given year is less than one in a million, but as the number and magnitude of severe thunderstorms is increasing with the rise of extreme climate change, it is better to be safe than sorry. The Center for Disease Control and Prevention (CDC) reports that the chance of being directly hit by lightning increases if you carry a conductor above shoulder level.

Taking cover under a tree is not a good idea. Trees are likely the tallest object around you and are therefore more likely to be hit by lightning, the charge of which can jump onto you as humans conduct electricity better than trees. You should also refrain from standing in the open. Staying outside in a storm could put your life at risk.

After seeing lightning, start counting to 30. If you hear thunder before you reach 30, you should get indoors. Stay off balconies, porches, and out of open garages, dugouts, or sheds.

Water, like metal, conducts electricity. So, if you are in a pool, lake, or any body of water in a thunderstorm, you put yourself at a high risk of being shocked. Since lightning strikes the tallest object first, it makes sense to get low, but you should never lie down on the ground in a thunderstorm. Even at 100 ft or 30 m away, the electric current from lightning that runs along the top of the ground can still be deadly.

No one wants to endure a storm alone, but it is dangerous to stay in a group. By separating, the CDC reports, you can actually lower the amount of people who are at risk of being hurt by ground currents and side flashes between people. Instead, if no shelter is available, crouch low, with as little of your body touching the ground as possible, and tuck your head down and place your hands over your ears.

If a house gets hit by lightning, the bolt can travel through water pipes and electrify you in the shower. Metal conducts lightning but would not necessarily attract it. Instead of removing belts and watches in a storm, focus on getting inside to safety.

If the power goes out, you do not want to be stuck without a light source. Make sure you always have a flashlight or battery-powered lantern nearby before a storm begins.

Both metal pipes and water can conduct electricity, so running the tap runs the risk of being electrocuted. It is also recommended that you do not use your computer, TV, or other plugged-in electrical appliances, as lightning can travel through electrical systems and connected to an outlet. If you have a corded landline in your home, the CDC says you should not use it during a thunderstorm because an electric current could pass through it and hurt you. Cordless and mobile phones are okay. If the storm is already raging, unplugging devices increases your risk of electrocution. The safest way to contact someone during a storm is to use a smartphone as long as it is not plugged in.

Concrete walls, floors, and buildings tend to have metal wires or bars through them, the CDC warns, so do not stand near or lean on concrete structures when lightning is near.

One myth that the NWS debunked is that a lightning victim can shock others. Human bodies cannot store electricity, so if you come in contact with someone who was hit by lightning, you would not be electrocuted. Make sure they are breathing, elevate their legs slightly, and call for help.

Even if you are almost home, protect yourself when on a bicycle or motorcycle by pulling over and waiting 30 minutes after the last rumble of thunder before resuming your ride. According to the CDC, about two-thirds of the deaths in storms are associated with outdoor recreational activities like sports games. Seeing lightning, hearing thunder, or viewing a potential threat in the sky are all signs to pause the game and take cover.

If you are in a car during a severe lightning storm, pull over, put your flashers on, and refrain from touching anything metal in the car, including the steering wheel, the gear shift, and seat belt buckle.

The bottom of the storm is negatively charged, and it looks for positively charged things to transfer the energy to. If your hair begins to stand on end, it is a good sign that your body's positive charge is at risk of receiving that negative charge. Get down immediately. While it is safe to be in most cars during a thunderstorm, as lightning will only traverse the outside surface, a convertible is not entirely made of metal, so it is not nearly as safe.

Keep tabs on the weather forecasts so you know when a storm is coming. Then you can unplug all your appliances and arrange to have a well-equipped shelter ready for the worst. Keeping with the 30-30 rule, the CDC recommends waiting at least 30 minutes after the last crack of thunder before heading outside again.

SNAKE BITES RISK

Snakes get closer to humans and cause more damage and more deaths than any other venomous animal, including spiders, scorpions and jellyfish. Venomous snakes are found across large swathes of the planet, typically in rural, tropical areas, like sub-Saharan Africa and south-east Asia. But they also live in Australia and North America.

There are 5.4 million people bitten by snakes in the world each year. As a result, 100,000 people die each year from snake bites. About 400,000 people are left disabled or disfigured by the resulting injuries, according to the World Health Organization, WHO. The numbers could be even larger - because many of the worst-affected countries do not keep data on snakebites and research into this problem is scarce. The World Health Organization has added 'snakebite' to its list of neglected tropical diseases.

Snake venom is made up of several hundred proteins which all have a slightly different toxic effect on the human body. One snake's poison may not be like another's, even if they are from the same species. There are two main ways snakes make us suffer - by attacking the circulatory system (ie. the blood) and/or the nervous system.

Haemotoxic venom goes for the bloodstream. It can trigger lots of tiny blood clots and then when the venom punches holes in blood vessels causing them to leak, there is nothing left to stem the flow and the patient bleeds to death. Other venoms can increase blood pressure, decrease blood pressure, prevent bleeding or create it.

Neurotoxic venom tends to act more quickly, attacking the nervous system and stopping nerve signals getting through to the muscles. This means paralysis, starting at the head, moving down the body until, if untreated, the diaphragm is paralyzed and the patient cannot breathe. A classic sign of this is ptosis, when people cannot keep their eyes open.

Around the area of the bite, necrosis can set in. That happens when the venom destroys nearby muscles, tissue and cells. Long-term, this can lead to amputations, the loss of the use of a limb or the need for multiple skin grafts.

Snake venom is produced in glands at the back of the snake's head and it comes out through the tips of its fangs. Anti-venoms are life-saving antidotes to snake bites made by extracting venom from snakes then injecting it diluted into sheep or horses, which builds up antibodies against it. These antibodies are separated from the animal's blood and used to make anti-venom.

Anti-venoms are expensive and only produced in limited quantities. Few ordinary people can afford them and governments and health officials have shown little interest in training medical personnel to diagnose and treat venomous snake bites. Anti-venoms which have been proven to be safe and effective are rare - and one of the best is running out.

Researchers at the Liverpool School of Tropical Medicine are busy collecting venom from deadly snakes in order to develop a new generation anti-venom treatment against the bite of every dangerous snake in sub-Saharan Africa, where snake bites kill about 30,000 people each year.

Experts are still unsure whether a single, universal anti-venom is better than separate anti-venoms which target specific snake species in specific regions.

Snake venom is a white or yellow-colored liquid which is produced in glands behind the snake's eyes and is pumped down a duct to the fangs when it bites down on something or someone. The fangs acts like a hypodermic needle, injecting the venom quickly and efficiently into the unsuspecting victim. Snakes with fangs at the front of their mouths are most dangerous - such as the cobra, puff adder, viper, rattle snake and mamba.

The venom produced by the snake's ancient ancestor was relatively simple. But research suggests that it has diversified over time and now venoms are more complex and more toxic than ever before. Venoms can vary, even within snake species and within the same country, causing different effects on the body and responding differently to the same anti-venom.

Snakes called kraits, which live in south Asia, have a painless bite. They are known for slithering into homes when the inhabitants are asleep, usually on beds on the floor. The victim might be disturbed a little but is likely to go back to sleep, and in the morning, they wake up paralyzed, or not at all. For most other snakes, there is the pain felt from the initial bite, as the fangs sink into the skin, and then the pain created by the venom as it starts to work, causing inflammation, clotting the blood, causing skin cells to self-destruct.

There is no evidence that sucking out venom from a snakebite with the mouth or using any other suction device helps. Experts say it could hasten the venom's passage into the bloodstream. Cutting out the venom is not recommended either because it could make the wound much worse.

In some countries, especially in remote areas where health services are scarce, natural remedies are often used to try to treat the bites but this only delays how long it takes to get to hospital. After a bite, victims should not move the affected limb unless they have to, keep their heart rate as low as possible until they reach hospital and receive the appropriate anti-venom treatment, ideally as quickly as possible.

Figure 161. Snake bites risk. Since snakes lurk on the ground, often camouflaged and unseen, farmers, rural workers and young children can easily disturb them and get bitten.

An estimated 1.2 million people have died from snake bites in India alone in the past 20 years. Nearly half of the victims were between 30 and 69 years old, and a quarter of them were children. Russell's vipers, kraits and cobras were responsible for most deaths. The remaining deaths were caused by at least 12 other species of snakes.

Many of the attacks proved fatal because they happened in areas without swift access to medical care. Half of the deaths occurred in the monsoon season between June and September, when snakes are known to come out. And most victims were bitten in the legs.

Russell's viper, a generally aggressive snake, is widespread across India and South Asia. It feeds on rodents and so is often found near human settlements, both in urban and rural areas. The Indian krait is normally docile during the day, but becomes belligerent at night. It can grow up to 1.75m or 5ft 9in in length. The Indian cobra typically attacks after dark and causes internal bleeding, which requires immediate medical attention.

Between 2001 and 2014, some 70% of the snake bite deaths occurred in eight states - Bihar, Jharkhand, Madhya Pradesh, Odisha, Uttar Pradesh, Andhra Pradesh (including Telangana, a new state) Rajasthan and Gujarat.

The average risk of an Indian dying from snake bite before reaching 70 years is approximately 1 in 250, but in some areas the risk approaches 1 in 100. Farming communities living in villages carried the highest risk to snake bites during the monsoon season.

Snakebite affects the lives of around 4.5 million people worldwide every year, seriously injuring 2.7 million men, women and children, and claiming some 125,000 lives. Globally the greatest burden is experienced in the tropical world; where many nations remain under-developed or suffer from poor governance, political and/or social, conflict, resource scarcity, high disease burdens, or food insecurity. Remarkably snakebite is not a disease without a treatment, but sadly many hundreds of thousands of victims go untreated every year. Snake antivenoms, which were first developed in the 1890’s, offer the potential to save many, many lives, but high costs, poor availability, and in some cases, poor quality

products produced by unscrupulous manufacturers have eroded confidence in antivenom immunotherapy, and many governments simply put the problem in the too-hard basket.

The Global Snakebite Initiative is an internationally active non-profit organization, registered in Australia, and led by snakebite experts who are dedicated to improving access to good quality, robustly tested, safe, effective antivenoms in the world's poorest communities. September 19th is International Snakebite Awareness Day. This is an opportunity to raise the profile of snakebite envenoming in communities throughout the world.

EMP ELECTRO MAGNETIC PULSE RISK

A nuclear outer space detonation at 30 kilometers or higher, will generate a high-altitude electromagnetic pulse (HEMP). No blast, thermal, fallout or effects are experienced in the atmosphere and on the ground. A nuclear detonation at 30 kilometers altitude will generate a HEMP field with a radius on the ground of 600 kilometers, damaging all kinds of electronics, blacking-out electric grids and collapsing other life-sustaining critical infrastructures. Detonated at 400 kilometers altitude, the radius of the HEMP field will be about 2,200 kilometers, large enough to cover most of North America.

Russia developed "Super-EMP" nuclear warheads specialized for HEMP attack. These have low explosive yield of 10 kT of TNT equivalent or less, but very high gamma radiation yield using heavy elements casings such as lead, iron or uranium, which is what generates HEMP. Russian military and technical sources claim thet Super-EMP weapons can generate HEMP electric field gradients of 100,000 volts/meter or higher, exceeding the USA military hardening standard for HEMP of 50,000 volts/meter.

Russian military doctrine, because HEMP attacks electronics, categorizes nuclear HEMP attack as a dimension of Information Warfare, Electronic Warfare and Cyber Warfare, which are modes of warfare operating within the electromagnetic spectrum.

High-altitude nuclear testing at its Novaya Zemlya site would have exposed the Russian cities of Archangel and Murmansk and electric grids on the Kola Peninsula to HEMP effects. Russia being located at a higher northern latitude than most of the USA, on the same latitude as Canada and Alaska, meant greater exposure to geomagnetic storms and their EMP/GMD effects on communications and power grids, an awareness reflected in their military writings. On October 22, 1962, the USSR conducted a high-altitude EMP test; Nuclear Test 184, over part of its own territory, deliberately exposing Kazakhstan's electric grid to HEMP as an experiment. Nuclear Test 184 was part of a series of seven Soviet nuclear HEMP tests conducted over the USSR's own territory, mostly over Kazakhstan, commencing on September 6, 1961, and ending on November 1, 1962. The first two Soviet HEMP nuclear tests, on September 6, 1961, and October 6, 1961, were code-named "Thunderstorm" and "Thunder" reflecting the HEMP mission. The tests were realistic, using military ballistic missiles, mostly the SS-4 medium-range missile, to deliver and detonate the warheads at high-altitude. The HEMP tests used a wide variety of warheads, with yields ranging from merely 1.2 kilotons to 300 kilotons, detonated at greatly varying altitudes, ranging from 22.7 kilometers to 300 kilometers height-of-burst.

The USA conducted high altitude nuclear detonations in the STARFISH PRIME and other nuclear tests over the Pacific Ocean, and experiments conducted over 50 years using EMP simulators and computer modeling.

A Norwegian scientific rocket, launched on January 25, 1995, to explore the aurora borealis, was mistaken by the Russian military as a surprise HEMP attack launched by a USA submarine threatened to initiate a Russian preemptive strike.

Russian General Vladimir Slipchenko in his military textbook Non-Contact Wars describes the combined use of cyber viruses and hacking, physical attacks, non-nuclear EMP weapons, and ultimately nuclear HEMP attack against electric grids and critical infrastructures as a new way of warfare that is the greatest Revolution in Military Affairs (RMA) in history. Slipchenko sees EMP as such a departure from traditional ways and means of warfare that he describes EMP weapons and warfare as "based on new physical principles"—a phrase that has become ubiquitous in Russian literature to describe the military revolution that is EMP:

> "In practically all preceding generations of wars…weapons were employed that acted against targets primarily by kinetic, chemical and thermal energy. In addition to these arms…new ones will also appear…in wars of the future…Weapons based on new physical principles having an electromagnetic effect will see considerable development. They will represent a form of casualty and damage producing effect on targets through the energy of electromagnetic emissions of various wavelengths and levels of power generated by radio frequency and laser weapons and by means of electronic countermeasures using a conventional or high-altitude nuclear burst…Depending on the power of emission, such weapons will be capable of…suppressing practically all classic electronic equipment…causing the melting or evaporation of metal in the printed circuit boards…or causing structural changes of electronic elements…"

A Russian article: "Nuclear war strategy has already planned nuclear explosions at an altitude of 50-100 km to destroy enemy satellites' electronic instruments with electromagnetic pulse" states:

> "There are now about 683 space craft in near-earth orbit. Of these about 150 are Russian and about 400 American. In the estimation of specialists, for every 100 of our 'purely' military espionage artificial earth satellites there are 300 civilian satellites. Clearly, this discrepancy will increase both quantitatively and qualitatively (considering the state of the Russian military-industrial complex). Nuclear war strategy has already planned nuclear explosions at an altitude of 50-100 km to destroy enemy satellites' electronic instruments with an electromagnetic pulse."

Russia deployed its first regiment of SS-19 ICBMs armed with hypersonic Avangard nuclear warheads at the end of December 2019. Hypersonic vehicles fly over most of their trajectory at 50-100 kilometers altitude: the optimum height-of-burst for Super-EMP warheads.

During the Cold War, the USSR developed a secret weapon called the Fractional Orbital Bombardment System (FOBS). The FOBS would disguise a nuclear attack as a peaceful satellite launch, orbiting a nuclear-armed satellite over the South Pole to attack

the USA from the south—from which direction the USA is blind and defenseless as there are no BMEWS radars or anti-missile defenses facing south. The FOBS satellite could deliver a HEMP attack paralyzing USA retaliatory forces and C3I in the first shot of a nuclear war.

Miroslav Gyurosi describes The Soviet Fractional Orbital Bombardment System:

> "The Fractional Orbital Bombardment System (FOBS) as it was known in the West, was a Soviet innovation intended to exploit the limitations of USA BMEW radar coverage. The idea behind FOBS was that a large thermonuclear warhead would be inserted into a steeply inclined low altitude polar orbit, such that it would approach the CONUS from any direction, but primarily from the southern hemisphere, and following a programmed braking maneuver, re-enter from a direction which was not covered by USA BMEW radars."

Russian Super-EMP weapons could degrade USA bombers, ICBMs, SSBNs in port and their strategic C3I, including land-based VLF communications systems, TACAMO aircraft, and other redundant means of strategic command and control used to convey Emergency Action Messages (EAMs) to submarines deployed at sea. Severing their communications links to the National Command Authority would neutralize USA submarines. HEMP could conceivably also be used to attack submarines on patrol at sea directly. A high-yield warhead (1 megaton or more) detonated for HEMP over the ocean would cover an area 2,200 kilometers in radius, a zone nearly as large as North America, with powerful E3 HEMP that would penetrate the ocean depths and possibly damage or destroy the electronics of submarines on patrol. Submarines would be especially vulnerable when deploying their very long antennae—which they need to do precisely when trying to receive EAMS.

It must be noted that the Outer Space Treaty bans orbiting nuclear weapons in space. Moreover, Russia has criticized the USA for "militarizing space" intended to deter the USA from orbiting space-based missile defenses and from improving USA military capabilities in space.

In July 2018, the Department of Homeland Security in the USA revealed that Russian cyber-weapons Dragonfly and Energetic Bear penetrated hundreds of USA electric utilities and could cause a nationwide blackout.

NON-NUCLEAR EMP WEAPONS NNEMP, RADIO FREQUENCY RFW RISK

Non-Nuclear EMP (NNEMP) weapons, are more commonly called Radio-Frequency Weapons (RFWs). Russia developed and deployed NNEMP weapons significantly more powerful and with longer range than any other nation. Russian military and technical sources often describe their NNEMP weapons as having ranges of 10-20 kilometers or more, while Western NNEMP weapons rarely have a range exceeding 1 kilometer in radius.

According to a Sputnik article "Russia's Electromagnetic Weapons Could Be 'More Efficient Than Nuclear Weapons'":

> "Russia is developing radio-electronic weapons, which use powerful UHF impulse capable of destroying all electronic equipment miles away and even changing the course of a war."
>
> "The unique radio-electronic weapons based on new physical principles, which were successfully tested in Russia last fall, use mobile electromagnetic emitters to disable missile warheads and onboard aircraft electronics miles away."
>
> "The electromagnetic bombs developed by Russia can be more effective than nuclear weapons because they are able to neutralize entire armies with just one short electromagnetic impulse."
>
> "Moreover…they can completely take out or seriously damage even off-line weapons like tanks, grounded planes, and missiles in silos."

The USA and other nations are achieving a technological revolution in Non-Nuclear EMP weapons, which are becoming more powerful, more miniaturized and lighter-weight, and deliverable by cruise missiles or drones. The marriage of NNEMP to drones or cruise missiles, preprogrammed or equipped with sensors to follow high-power electric lines and to target control centers and transformers, introduces a major new threat to national power grids.

Small numbers of NNEMP cruise missiles or drones—perhaps only one capable of protracted flight—could inflict a long nationwide blackout. According to a study by the USA Federal Energy Regulatory Commission, disabling just 9 of 2,000 USA EHV transformer substations could cause cascading failures that would crash the North American power grid. The technology for non-nuclear EMP generators and drones is widely available for purchase as civilian equipment which can be weaponized.

Boeing's Counter-electronics High Power Microwave Advanced Missile Project (CHAMP) cruise missile "navigated a pre-programmed flight plan and emitted bursts of high-powered energy, effectively knocking out the target's data and electronic subsystems." The USA Air Force has purchased CHAMP cruise missiles, deployed to Japan, reportedly to prevent North Korean missile attacks by "frying" their missiles, command and control, and power grid electronics.

Russia's nuclear-powered cruise missile, the Burevestnik or Storm Petrel, NATO designation SSC-X-9 Skyfall, under development, makes little sense as yet another missile to deliver nuclear warheads, as advertised. The Storm Petrel's engines, powered by a nuclear reactor, theoretically will give it unlimited range and limitless flying time for crossing oceans and cruising over the USA. The Storm Petrel could be a disguised nuclear-powered version of CHAMP, able to fly much farther and longer and armed with a more potent NNEMP warhead, electrically supercharged by the nuclear reactor.

CREUTZFELDT-JAKOB, MAD COW DISEASE RISK

Creutzfeldt-Jakob Disease [CJD]. CJD is a human prion disease, a fatal and rare degenerative brain disorder that sees patients present with symptoms like failing memory, behavioral changes and difficulties with co-ordination.

Recent studies have shown the proteolytic enzyme keratinase dissolves prions. PubMed documentation reveals persimmon tannins are effective against many diseases as well as snake venom.

One widely known category is Variant CJD, which is linked to eating contaminated meat infected with mad cow disease. CJD also belongs to a wider category of brain disorders like Alzheimer's, Parkinson's and ALS, in which protein in the nervous system become misfolded and aggregated.

MUCORMYCOSIS, MUCOR BLACK FUNGUS, A NIGHTMARE INSIDE A PANDEMIC RISK

A rash of cases involving a rare infection - also called the "black fungus" - among recovering and recovered Covid-19 patients. Mucormycosis is a rare infection caused by exposure to mucor mold which is commonly found in soil, plants, manure, and decaying fruits and vegetables. It is ubiquitous and found in soil and air and even in the nose and mucus of healthy people.

It affects the sinuses, the brain and the lungs and can be life-threatening in diabetic or severely immunocompromised individuals, such as cancer patients or people with HIV/AIDS.

It is thought that a drop in immunity could be triggering cases of mucormycosis, which has an overall mortality rate of 50%, may be being triggered by the use of steroids, a life-saving treatment for severe and critically ill Covid-19 patients. Most of the patients contracted it between 12 to 15 days after recovery from Covid-19. Steroids reduce inflammation in the lungs for Covid-19 and appear to help stop some of the damage that can happen when the body's immune system goes into overdrive to fight off coronavirus. But they also reduce immunity and push up blood sugar levels in both diabetics and non-diabetic Covid-19 patients. Diabetes lowers the body's immune defenses, coronavirus exacerbates it, and then steroids which help fight Covid-19 act like fuel to the fire.

Patients suffering from the fungal infection typically have symptoms of stuffy and bleeding nose; swelling of and pain in the eye; drooping of eyelids; and blurred and finally, loss of vision. There could be black patches of skin around the nose. Most of their patients arrive late, when they are already losing vision, and doctors have to surgically remove the eye to stop the infection from reaching the brain. In some cases, patients have lost their vision in both eyes. And in rare cases, doctors have to surgically remove the jaw-bone in order to stop the disease from spreading.

An anti-fungal intravenous has to be administered every day up to eight weeks is the only drug effective against the disease. One way to stall the possibility of the fungal infection is to make sure that Covid-19 patients – both in treatment and after recovery - were being administered the right dose and duration of steroids. Doctors should take care of the sugar levels after the patients are discharged.

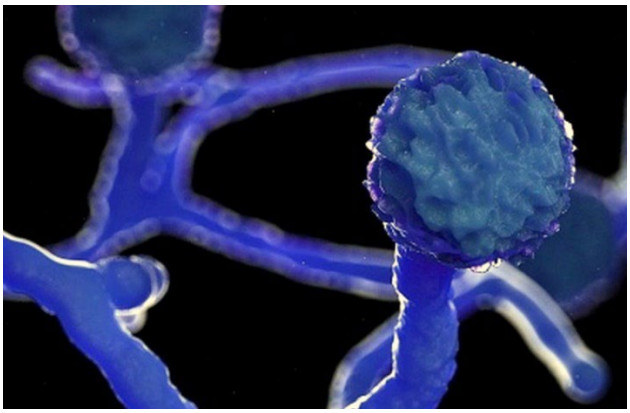


Figure 162. Mucor black fungus.

SPIKE PROTEINS FROM mRNA GENE THERAPIES FERTILITY AND BLOOD TRANSFUSIONS RISK

A prior belief is that "mRNA vaccine shots stay in the arm muscle and do not circulate nanoparticles around the body," much like other vaccines. New research conducted in Japan shows that Lipid Nano Particles (LNPs) containing the mRNA code are widely circulated around the body after vaccination, reaching the brain, spleen, large intestine, heart, liver, lungs and other organs.

Labeled as "Pfizer confidential," the Japanese study is known as a bio-distribution study that uses luciferase enzymes and radioisotope markers to accurately track the distribution of Pfizer's mRNA LNPs across the body. The first section is labeled:

SARS-CoV-2 mRNA Vaccine (BNT162, PF-07302048)
2.6.4 Summary of pharmacokinetic study

The study reveals how mRNA LNPs are distributed across the body, even affecting ovaries and testes, raising huge questions about fertility in those receiving mRNA vaccine shots. Was it a depopulation agenda that included the vaccine?

The following chart shows the mass of LNPs (in micrograms) found in each organ following mRNA vaccination. Notice how it attacks the adrenals.

Sample	Mean total lipid concentration (µg lipid equivalent / g (or mL)) (males and females combined)					
	0.25 h	1 h	2 h	4 h	8 h	24 h
Adipose tissue	0.057	0.100	0.126	0.128	0.093	0.084
Adrenal glands	0.271	1.48	2.72	2.89	6.80	13.8
Bladder	0.041	0.130	0.146	0.167	0.148	0.247
Bone (femur)	0.091	0.195	0.266	0.276	0.340	0.342
Bone marrow (femur)	0.479	0.960	1.24	1.24	1.84	2.49
Brain	0.045	0.100	0.138	0.115	0.073	0.069
Eyes	0.010	0.035	0.052	0.067	0.059	0.091
Heart	0.282	1.03	1.40	0.987	0.790	0.451
Injection site	128	394	311	338	213	195
Kidneys	0.391	1.16	2.05	0.924	0.590	0.426
Large intestine	0.013	0.048	0.093	0.287	0.649	1.10
Liver	0.737	4.63	11.0	16.5	26.5	19.2
Lung	0.492	1.21	1.83	1.50	1.15	1.04

Sample	Total Lipid concentration (µg lipid equivalent / g [or mL]) (males and females combined)					
	0.25 h	1 h	2 h	4 h	8 h	24 h
Lymph node (mandibular)	0.064	0.189	0.290	0.408	0.534	0.554
Lymph node (mesenteric)	0.050	0.146	0.530	0.489	0.689	0.985
Muscle	0.021	0.061	0.084	0.103	0.096	0.095
Ovaries (females)	0.104	1.34	1.64	2.34	3.09	5.24
Pancreas	0.081	0.207	0.414	0.380	0.294	0.358
Pituitary gland	0.339	0.645	0.868	0.854	0.405	0.478
Prostate (males)	0.061	0.091	0.128	0.157	0.150	0.183
Salivary glands	0.084	0.193	0.255	0.220	0.135	0.170
Skin	0.013	0.208	0.159	0.145	0.119	0.157
Small intestine	0.030	0.221	0.476	0.879	1.28	1.30
Spinal cord	0.043	0.097	0.169	0.250	0.106	0.085
Spleen	0.334	2.47	7.73	10.3	22.1	20.1
Stomach	0.017	0.065	0.115	0.144	0.268	0.152
Testes (males)	0.031	0.042	0.079	0.129	0.146	0.304
Thymus	0.088	0.243	0.340	0.335	0.196	0.207
Thyroid	0.155	0.536	0.842	0.851	0.544	0.578
Uterus (females)	0.043	0.203	0.305	0.140	0.287	0.289
Whole blood	1.97	4.37	5.40	3.05	1.31	0.909
Plasma	3.97	8.13	8.90	6.50	2.36	1.78

Dr. Byram W. Bridle, PhD, was interviewed by Alex Pierson of the "On Point" podcast:

> "…the spike protein, on its own, is almost entirely responsible for the damage to the cardiovascular system. If it gets into circulation, indeed, if you inject the purified spike protein into the blood of research animals, they get all kinds of damage to the cardiovascular system, and it can cross the blood-brain barrier, and cause damage to the brain.
>
> They found the spike protein in circulation, so in the blood of 11 of those 13 healthcare workers that had received the vaccine. What this means is, so we have known for a long time that the spike protein is a pathogenic

protein. It is a toxin. It can cause damage in our body if it gets into circulation. Now, we have clear cut evidence that the vaccines that make our bodies or the muscles or the cells in our deltoid muscles, manufacture this protein, not the vaccine itself, plus the protein gets into blood circulation. When in circulation, the spike protein can bind to the receptors that are on our platelets and the cells that line our blood vessels. When that happens, it can do one of two things. It can either cause platelets to clump and that can lead to clotting. That's exactly why we've been seeing clotting disorders associated with these vaccines. It can also lead to bleeding. And of course, the heart's involved, it's a key part of the cardiovascular system. That's why we're seeing heart problems. The protein, it can also cross the blood brain barrier and cause neurological damage. That's why also in the fatal cases of blood clots, many times it's seen in the brain.

In short, the conclusion is we made a big mistake. We didn't realize it until now. We saw the spike protein was a great target antigen. We never knew the spike protein, itself, was a toxin and was a pathogenic protein. So, by vaccinating people, we are inadvertently inoculating them with a toxin, and in some people, this gets into circulation. And when that happens in some people, it can cause damage, especially with the cardiovascular system. I don't have time, but many other legitimate questions about the long-term safety there for this vaccine. For example, with accumulating in the ovaries, one of my questions is, "will we be rendering young people infertile, some of them infertile?"

A new concern pertains to blood transfusions that now pause a double dilemma. For those infected and recovered, the HIV string incorporation into the virus poses a risk of lingering effects since HIV is practically incurable. For those injected with the mRNA gene therapies will they become spike proteins shredders every time they are affected by a variant or a mutation of the corona virus? A reminder to us all is that the truth always comes out in the end.

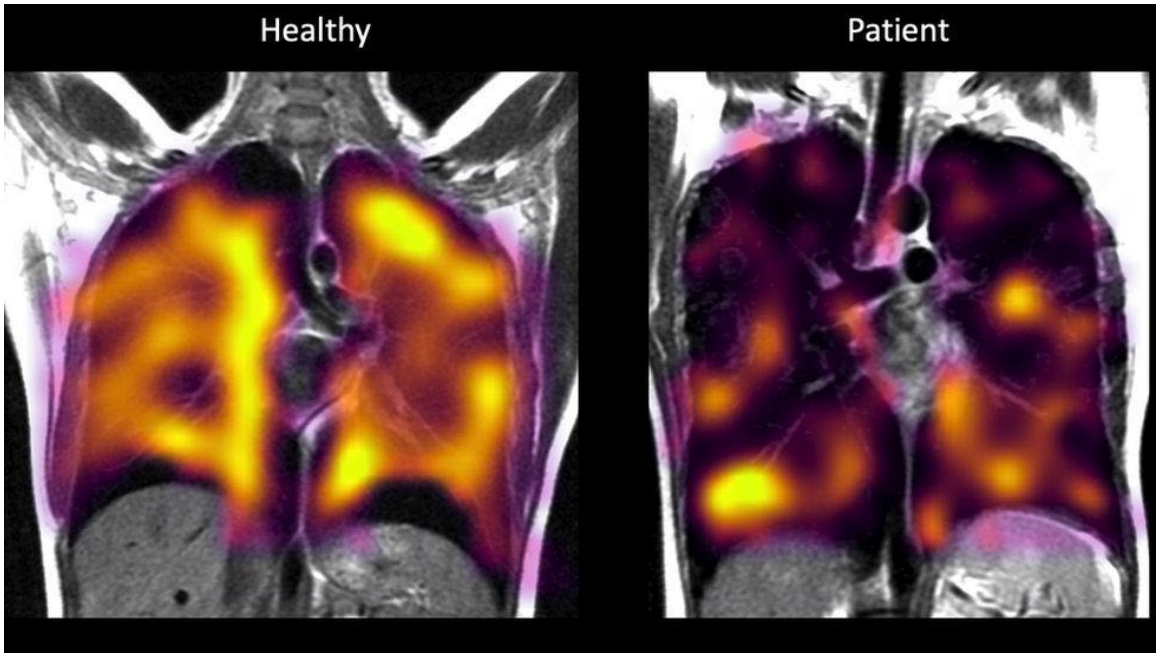
LONG COVID OR POST-ACUTE COVID-19 SYNDROME, SEQUELAE AND "LONG TAIL" MYALGIC ENCEPHALOMYELITIS/CHRONIC FATIGUE SYNDROME ME/CFS RISK

Months after their initial infection, some Covid-19 patients remain suffering from long-term effects. A year on, a third of the covid patients remain unwell, and unable to work. More than half were never admitted to hospital for Covid-19.

Patients relatively young and with no underlying health conditions continue experiencing chronic symptoms. Their stories all followed a recurring pattern, beginning with an apparently mild infection, before a strange constellation of ailments started to emerge. Rather than subsiding, these symptoms continued to persist for weeks and even months after the virus had supposedly left their bodies.

While Covid-19 is primarily thought of as a respiratory disease, the virus is capable of infecting many different tissues around the body. The most common symptom experienced by more than 80% of patients is a deadening fatigue which impairs their life,

making it difficult to complete the simplest of daily tasks. Research studies have found persistent fatigue to be present in at least 62% of long Covid patients. Such cases are now known as long Covid or post-acute Covid-19 syndrome, a post-viral illness which has proven to be more prevalent than anyone initially imagined. The general scientific consensus is that around one in 10 Covid-19 patients will still have symptoms 12 weeks later.



Long covid xenon scan lung damage. Participants inhaled xenon gas during a magnetic resonance imaging (MRI) scan. Source: Oxford University.

Participants in a study at Oxford University inhaled xenon gas during a magnetic resonance imaging (MRI) scan. The gas behaves in a very similar way to oxygen but can be traced visually during scans, so scientists were able to observe how well it moved from the lungs into the blood-stream, a crucial step in transporting oxygen around the body. Researchers found for most people with long Covid, gas transfer was less effective than in healthy controls leading to shortness of breath. People who had been admitted to hospital for Covid had similar abnormalities. Lead researcher and lung specialist Dr Emily Fraser said it was frustrating having people coming into clinic and not being able to explain to them exactly why it was that they were breathless. Often X-rays and CT scans show no abnormalities.

Long Covid as encompassing two very disparate patient groups – those who were admitted to hospital and those who weren't – each with different underlying causes. The former group has proven far more straightforward for doctors to manage. Typically their lungs or heart have been damaged by either the acute viral infection, or the resulting cytokine storm – the severe inflammatory response that can cause a patient's immune system to attack their own tissues. Computerized tomography (CT) and Magnetic Resonance Imaging (MRI) scans swiftly reveal the extent of the damage, while drugs such

as colchicine can be used to dampen down any lingering inflammation in the internal organs.

The non-hospital patients with long-term symptoms have proven far more perplexing. The peak age tends to be between 35 and 49, and they report a mysterious range of symptoms. Some surveys of patients have identified up to 98 different symptoms. The most common include fatigue, brain fog, muscle and joint pain, sleep disturbances, migraines, chest pain, skin rashes, new sensitivities to smells and tastes, and dysautonomia, a normally rare condition which causes an uncomfortable and rapid increase in heartbeat when they attempt any form of activity.

For many long Covid patients who were not admitted to hospital, symptoms come and go in three separate waves. Out of 3,762 long Covid patients, 77% were still experiencing fatigue after six months, 72% were struggling with post-exertional malaise, 55% were suffering from cognitive dysfunction, while 36% of female patients experienced menstrual cycle issues. The pattern begins with a dry cough and fever, followed swiftly by a second wave of new symptoms such as dysautonomia, which peak after two months and then taper off. A month after the initial infection, a third wave of symptoms appears, including skin rashes, muscle pain, new allergies, and brain fog. This wave of symptoms just continues to get gradually worse, peaking at around four months, and then just keeps going.

Some scientists believe almost all infectious outbreaks leave behind a proportion of patients who remain chronically unwell with symptom patterns similar to long Covid. This is known as the "long tail" of epidemics. There are studies showing how infectious organisms can persist in tissue and contribute to disease processes. Those suffering from the condition were sleeping extremely poorly which is a sign of widespread inflammation in the brain.

Scientists in China reported discovering fragments of the Sars virus' genetic material in various brain cells in patients with post-Sars syndrome. There is a direct connection from our nose to the brain, called the olfactory nerve, and this is probably how the virus got directly into the circulation of the brain.

Remnants of pathogens that linger beyond the reach of the immune system in remote pockets of the body, known as reservoirs or anatomical sanctuaries, are at least partially responsible for a whole range of post-infectious syndromes. This includes long Covid, but also a number of mysterious illnesses which have puzzled scientists for decades, such as chronic Lyme disease, and also ME/CFS, a condition which has long been speculated to have infectious origins although some scientists feel there could be a range of potential causes and bears a number of similarities to long Covid. Some viruses are highly neurotrophic, meaning they can burrow into nerves, and hide out there, and there's evidence that Sars-CoV-2 is capable of this. Ebola has already taught scientists a lot about the capacity of viruses to linger in the body, for months and sometimes even years. The body fails to completely clear the virus. Instead, remnants of the viruses' genetic material hide in reservoirs where they induce local inflammation. Periodically the viruses back into the bloodstream, and trigger an immune reaction, along with other symptoms.

Some researchers have speculated that Covid-19 could be triggering the reactivation of viruses that have lain dormant in the body for years or even decades. In some patients, something about Covid stimulates the immune system to attack the body's own tissue, in a similar manner to autoimmune diseases like lupus, rheumatoid arthritis,

and multiple sclerosis. Research groups are trying to identify long Covid patients with autoantibodies, which are antibodies that attack their own proteins, which could be driving some of their symptoms.

An autoimmune response to the initial viral infection could also be linked to another prevailing theory, which might explain some of the odder long Covid symptoms such as the dysautonomia and blood clots. Some scientists perceive Covid-19 as an endothelial disease, where the inflammation generated against the virus ends up damaging the vascular endothelium, a fragile layer which acts as an interface between the blood and the body's tissues. Earlier this year, scientists at the University of Copenhagen proposed that in some Long Covid patients, the body might end up attacking its own vascular structures.

A number of studies have reported reactivation of the herpes zoster virus – most commonly known as the cause of chickenpox – as well as the Epstein-Barr virus, and cytomegalovirus in acute Covid-19 patients. These are all viruses that are known to be retained in the body for life as they can remain inactive inside cells.

Some researchers have speculated that Covid-19 could be triggering the reactivation of viruses that have lain dormant in the body for years or even decades, leading to the development of chronic symptoms. The Sars-CoV-2 virus blunts interferon signaling, and interferons are part of the immune system which keeps viruses in check. If the Epstein-Barr virus is lying dormant in the body, it might then reactivate, and infect a new nerve or new tissue, maybe get into the central nervous system,

Alternative medicines that are being tried range from quercetin – a plant pigment found in green tea, apples, onions and various berries – to niacin, a form of vitamin B with antioxidant properties. Quercetin is a bioflavonoid from red onions, not white onions.

Myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) is a serious, long-term illness that affects many body systems. People with ME/CFS are often not able to do their usual activities. At times, ME/CFS may confine them to bed. People with ME/CFS have severe fatigue and sleep problems.

Memory loss and confusion is often seen in ME/CFS, and scientists researching the illness have come to the conclusion that one of the key underlying causes is neuroinflammation, driven by immune cells in the brain called microglia. In healthy individuals, microglia play a key role in keeping the brain's neurons functioning normally, but they are vulnerable to disruption. Surges of inflammation in the bloodstream, either from an autoimmune reaction triggered by an infection, or the lingering presence of a virus, can cause these cells to pump out their own inflammatory molecules, which then disperse rapidly through the brain.

Many long Covid patients simply get better over the course of time, as their body recovers and heals. Imaging studies conducted by Japanese scientists have revealed chronic neuroinflammation in a number of ME/CFS patients, while similar microglial disruption is thought to occur in a number of psychiatric disorders like depression and schizophrenia. Trials of anti-inflammatory medications for long Covid patients are advocated. Either anti-inflammatories like minocycline – an antibiotic which seems to work for patients with higher levels of inflammation in the blood – or cytokine inhibitors, could be potential treatment options.

About 80% of the ME/CFS patients have small intestinal bacteria overgrowth, otherwise as a leaky gut. Because the gut is a major immune organ, this leads them down a road to autoimmune problems. Some preliminary studies have already suggested that

imbalances in the microbiome of long Covid patients could be contributing towards their persistent inflammatory symptoms. But while more research is likely to be needed before medications like probiotics or anti-inflammatories are recommended for long Covid patients as part of general clinical practice, some individual symptoms are already proving more treatable than others.

Long Covid patients displaying allergic-type reactions tend to respond well to anti-histamines. Autonomic Conditioning Therapy (ACT) which has shown the ability to reduce fatigue symptoms in some long Covid patients and has since been adopted by 53 physical therapy centers across the New York area. ACT begins with range of motion exercises, before progressing to different aerobic exercises which slowly increase in intensity, but never allow the patient to exceed 85% of their maximum heart rate.

Symptoms of long-covid include:

- extreme tiredness
- shortness of breath, heart palpitations, chest pain or tightness
- problems with memory and concentration or "brain fog"
- changes to taste and smell
- joint pain

Surveys have identified tens and even hundreds of other complaints. Probably the largest study so far, by University College London (UCL), identified 200 symptoms affecting 10 organ systems in people with long Covid, at higher levels than in people who were fully recovered.

They include hallucinations, insomnia, hearing and vision changes, short-term memory loss and speech and language issues. Others have reported gastro-intestinal and bladder problems, changes to periods and skin conditions.

How severe these symptoms are varying, but many have been left unable to perform tasks like showering, grocery shopping and remembering words.

One possibility is the infection makes some people's immune systems go into overdrive, attacking not just the virus but their own tissues. That can happen in people who have very strong immune responses.

The virus itself getting into and damaging our cells might explain some symptoms like brain fog and a loss of smell and taste, while damage to blood vessels in particular could lead to heart, lung and brain problems.

From Scientific American by Claire Pomeroy, an infectious disease physician and president of the Lasker Foundation:

> "Consider the numbers we know. At least 34 million Americans (and probably many more) have already contracted COVID. An increasing number of studies find that greater than one fourth of patients have developed some form of long COVID. (In one study from China, three quarters of patients had at least one ongoing symptom six months after hospital discharge, and in another report more than half of infected health care workers had symptoms seven to eight months later.) Initial indications suggest that the likelihood of developing persistent symptoms may not be related to the severity of the initial illness; it is even conceivable that infections that were initially asymptomatic could later cause persistent problems.

> For some, symptoms have now continued for many months with no apparent end in sight, with many survivors fearing that they will simply have to adjust to a "new normal." More and more sufferers have not been able to return to work, even months after their initial illness. While the number of patients with persistent illness remains undetermined this early in the pandemic, estimates suggest that millions of Americans may enter the ranks of the permanently disabled.
>
> The related health care and disability costs are also still unknowable. How many "long haulers" will never be able to return to work? How many will need short-term disability payments? How many will be permanently disabled and become dependent on disability programs? As increasing numbers of younger people become infected, will we see an entire generation of chronically ill? We must actively work to better understand the size and scope of the problem and begin planning now."

What kind of symptoms are we talking about? People who experience long COVID have reported a range of problems—sometimes multiple symptoms at a time—from shortness of breath to joint and muscle pain. Other articles highlight "brain fog," including problems with memory and concentration., difficulty sleeping, heart palpitations, dizziness, and joint pain.

The USA Department of Health and Human Services (HHS) and the Department of Justice jointly released new guidance classifying long COVID as a physical or mental impairment, which means that those affected can qualify for disability benefit programs and discrimination protections under the Americans with Disabilities Act (ADA)."

For every 102,000 people vaccinated, there have been 100 symptomatic "breakthrough" infections. But out of those 100 people, only one died. If you have a vaccination your risk of dying is 1 in 100,000. The odds of being struck by lightning during a normal lifetime is one in 15,300. You are more likely to be struck by lightning in your lifetime than to die from COVID-19 if you have been vaccinated.

Studies show the risks of a serious impact from the vaccine is one in 250,000 with the Johnson & Johnson vaccine, and one in 750,000 with the Pfizer and Moderna vaccines. The vaccines that Americans took as kids had rare side effects. WebMD says 48 million people suffer from food poisoning every year, 128,000 are hospitalized and 3,000 die. The odds of getting sick from eating restaurant food are astronomically higher than getting sick from a vaccine. A growing number of experts think we missed our shot at herd immunity and this virus will become "endemic." That means almost everyone who has not already been infected or vaccinated will eventually get it, and we will slowly develop immunity over years until it becomes a minor annoyance. But meanwhile it can still make you very sick.

The key point is that if you get the virus, there is a 10 % to 20 % chance that you will have "long Covid" symptoms. Possibly through the suspected insertion of four HIV strings in its genome through GOF research. We live with the seasonal flu, which could be a remnant of previous H1N1 of even Spanish Flu pandemics, each year. Life goes on, and we will have to make the same accommodations with Covid-19 and our civilization would survive the great filter of the false logic of GOF research for fame and wealth.

The USA alone had approximately 40 million confirmed Covid-19 cases, a number which grew as the disease reached more unvaccinated people. The latest cases tend to be younger and therefore more likely to be in the workforce. Some studies show as many as 25% develop some degree of long Covid-19. It does not seem related to the severity of their initial disease. Even mild cases can have debilitating symptoms months later.

Long Covid-19 afflicts 10 million working-age Americans. Some will be fully disabled, others mildly annoyed, most somewhere in between, but all will be rendered less productive. Research shows 2 million of these people may go on disability or have their ability to work significantly reduced. GDP is equal to the number of workers times productivity. If we reduce the number of workers by 3 to 4 million, which is well over 2% of the total potential workforce, you also reduce GDP by 2% unless productivity dramatically increases.

FLOODING RISK

A depth of six inches of fast-moving water can knock a person down. One foot of moving water can float and sweep a vehicle away.

Never underestimate the power of flowing water, even in a seemingly shallow pool that could hide a deep pool or a sink hole.

LEAD PAINT RISK

Lead-based paint has not been legal for decades. But it was used for thousands of years and can still be found in old buildings – where stripping the walls can release it into the air. The historian Pliny the Elder noticed in the First Century AD as it was often used to paint ships that its dust is "pernicious". It can accumulate in the body over time, eventually causing irreversible damage to our brains and nervous systems.

People who have been exposed to lead dust through their work have been known to develop chronic kidney impairments, anemia, neuropathy, and fertility issues, and there is a growing awareness among experts that members of the public may be unknowingly putting themselves at risk.

The Italian painter Caravaggio worked with lead paint throughout his career, which scientists suspect i may have turned him mad and eventually killed him.

FORMALDEHYDE RISK

Formaldehyde is colorless chemical that has the distinctive smell of old museums which used the chemical to preserve their specimens, and an impressive track record of serious health consequences. Over the long term, exposure can lead to asthma-like breathing difficulties, skin irritation and is suspected to cause cancer, especially myeloid leukemia.

It is also present in a number of wood products, as part of the resins used to hold them together. This includes some kinds of plywood, particleboard, and engineered wood flooring.

PAINT VOLATILE ORGANIC COMPOUNDS VOCs RISK

Paints have relied on Volatile Organic Compounds (VOCs) to solidify them as they evaporate, the wet paint dries out. It is possible to breathe them in. And though the noxious fumes and unpleasant, the smell this process creates may seem to disappear within a few hours or days. However, the evidence suggests that they remain, gradually oozing into the surrounding air for years.

At high concentrations, they can irritate the lungs and are thought to be involved in the development of respiratory symptoms and certain cancers. They also have environmental effects, including contributing to the formation of smog in the atmosphere.

There is an effort to limit the percentage of certain VOCs in paint and shift towards water-based formulations, which tend to contain lower quantities of these chemicals and are seen as safer. There are still oil-based paints used in the USA, EU and the UK.

WOOD DUST RISK

Wood is considered as an innocuous natural substance, something humans have evolved alongside for millennia. The oldest wooden shelter was built 500,000 years ago. In the USA, wood dust is classified as a Group 1 carcinogen, a substance known to cause cancer in humans. It is a proven culprit of asthma, allergic rhinitis, chronic bronchitis, lung cancer, and nasal cancer. In fact, furniture makers have a 500-fold excess risk of developing the latter.

ASBESTOS, “ROCK WOOL” ASBESTOSIS, MESOTHELIOMA RISK

Asbestos is a fibrous, silicate material. The ancient Greeks used it in cloth, unaware of its lethal properties. Builders used it in the 1940s, 1950s and 1960s, for its strength and potent fireproofing qualities. It was added to a vast array of products, from pipe insulation to roofing, and as a result, it can be extremely difficult to identify. In the past, around 4,000-5,000 products contained it: building materials, roofing shingles, flooring tiles, and heat pipe insulation. It is included in many plastic materials such as bowling balls and ironing board covers.

Figure 163. Asbestos or Rock wool has been mined from rock formations.

Even minute quantities are potentially lethal. Asbestos is a leading cause of several harrowing conditions, including asbestosis, lung cancer and mesothelioma. As little as one day of exposure to both humans and animals have given rise to a small number of cases of mesothelioma. It is a very powerful carcinogen.

The sale of asbestos was widely banned in the 1990s, it lingers on in houses across the globe to this day – often hiding in unexpected places and posing as more innocuous substances. In many cases, asbestos-containing materials look identical to those without it, such as "popcorn" ceilings – texturized coatings that were fashionable in the mid- to late 20th Century as a way of concealing imperfections and muffling sound.

ENGINEERED STONE SILICOSIS RISK

In 2019, scientists documented a trend among workers at factories cutting "engineered stone" in the USA. They became sick with Silicosis, an incurable and potentially fatal disease usually caused by a build-up of silica in the lungs over many years.

The product is made from quartz aggregate held together by a resin-based glue and has been emerging as a popular alternative to natural stone for kitchen countertops – but it contains a significantly higher proportion of crystalline silica than other materials such as granite or sandstone. When sanded, cut, ground, or drilled into, it generates vast quantities of dust, which can penetrate deep in the lungs. On x-rays, the organs are almost opaque.

The immune system generates an inflammatory process. Immune cells and the chemicals they release that may be doing the real damage, eventually leading to scarring, and compromising the organs' ability to function normally.

Power tools can create respirable dust with nanoparticles that are the main concern.

NON-CODING MICRO-RNA (MIRNA), SMALL INTERFERING RNA (SIRNA) AND PIWI-INTERACTING RNA (PIRNA) GENE SILENCER RNAS RISK

From an internet comment:

> "The science and application of RNA is a universe of possibility. Inside the cell, RNA is not only used as an intermediary genetic code for translation to protein. It is of course used to transfer amino acids (tRNA) to growing peptides on ribosomes, which are themselves made of RNA. Then there is the non-coding RNA, both single-stranded and double-stranded.
>
> One particularly powerful function of non-coding RNA is to act as a Gene Silencer. It functions indirectly by either suppressing translation, by homologous sequence binding with mRNA, or by selectively destroying the mRNA by promoting endonuclease activity. RNA can also affect the chromosomal structure and silence transcription directly. RNA can up-regulate as well as down-regulate gene expression. The list of non-coding RNAs include micro-RNA (miRNA), small interfering RNA (siRNA) and piwi-interacting RNA (piRNA). The genes coding for these short (20 - 25 bp) RNA molecules are highly conserved, which speaks to their biological importance. Eukaryotes and prokaryotes produce interfering RNAs.

Basically, if one has a known target genetic sequence, one can develop a non-coding RNA sequence that will bind to complementary mRNA and stop translation, effectively silencing gene expression. Or one could alternatively design another RNA sequence that binds directly and selectively to chromatin, altering its conformation, and therefore altering access to the underlying gene(s), silencing gene expression or perhaps stimulating increased transcription.

RNA interference, as the process is called, can potentially be used to manipulate specific metabolic pathways, by silencing or stimulating genes responsible for the production of crucial catalytic enzymes or regulatory genes that control the same pathways. Let's say I wanted to give someone diabetes, I could design a 'vaccine' for a non-existent virus and include a small interfering RNA molecule that would bind to its complementary mRNA. The result is inhibited insulin production, and a new diabetic added to a pharmaceutical giant's life-long client list. If the effects were not permanent, I could insist that you must take 'booster' shots to 'ensure' protection from the variants of the non-existent virus. Mesh this kind of cold scientific thinking with an emotionless, egocentonic, psychopathic mind and you can see where this can lead.

So to the thoughtful person I ask...What other proprietary RNA can possibly be, or is scheduled to be, lurking within these biotech cocktails euphemistically called 'vaccines'? Who is monitoring this? Who amongst the masses understands this? How many know of the existence of such biotechnology, let alone understand the implications? Everyone understands the danger of nuclear weapons. The words quickly evoke a sense of apocalyptic death and destruction. Little do they know, that molecular biology holds much more potential destructive power and it is effectively hidden from sight and infinitely more difficult to ascribe a source to its consequences.

I think we have crossed a threshold with this technology, a step that is difficult if not impossible to reverse. At this point IMO, modern 'medicine' and biotechnology is the greatest threat to humanity. You have been warned.

Cheers.“

OMICRON COVID-19 VIRUS MUTATION RISK

A consequence of “Big Numbers” is that a virus that is “highly contagious” but not terribly lethal or "mild" such as Omicron Covid-19 still ends up killing far more people than the more severe but less contagious variants, because the number of infected people becomes consequentially large exponentially. This can be shown by the following derivation.

In general, in an initial population N with infectivity r, the number of infected people grows as:

$$\begin{aligned} N_{\text{inf}} &= N + Nr + Nr^2 + Nr^3 + \ldots \\ &= N(1 + r + r^2 + r^3 + \ldots) \end{aligned}$$

That sequence can only be mathematically summed if r < 1.0. For r >1.0, only its progression can be analyzed for different infection cycles.

The lethality Number with a lethality factor ℓ, becomes:

$$N_\ell = \ell N + \ell N r + \ell N r^2 + \ell N r^3 + \ldots$$
$$= N\ell(1 + r + r^2 + r^3 + \ldots)$$

Consider a hypothetical Mutation A that is only mildly contagious with each infected person infecting 1.2 other people, but with high lethality of 1 percent of those infected die within a few months. Also, a severely contagious mutation B where each infected person ends up infecting 2.4 other people, that is "mild" in terms of lethality, killing 0.5 percent of all those infected.

The ratio of deaths due to mutation B to those due to mutation A becomes

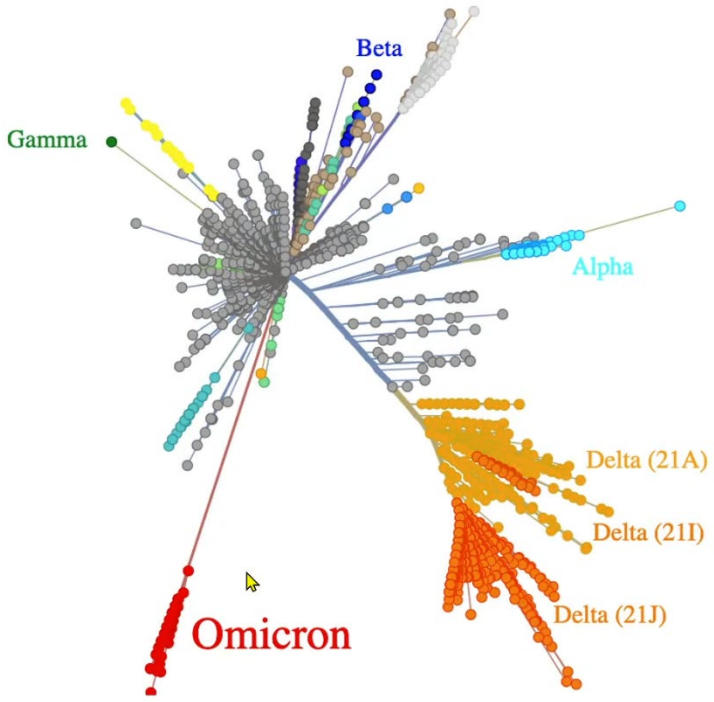
$$R_{B/A} = \frac{\ell_B(1 + r_B + r_B^2 + r_B^3 + \ldots)}{\ell_A(1 + r_A + r_A^2 + r_A^3 + \ldots)}$$

The ratio of deaths is initially 0.5/1.0 =0.50

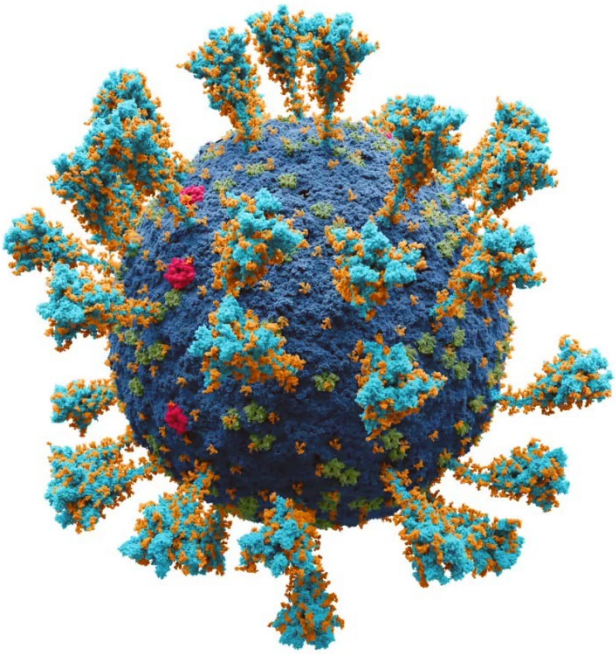
After the first contagion cycle the ratio is: 0.5 x [(1.0 + 2.4) / (1.0 + 1.2)] = 0.5 x (3.4/2.2) = 0.77

After the second contagion cycle the ratio = 0.5 x [(1.0 + 2.4 +2.4^2) / (1.0 + 1.2+ 1.2^2)]
= 0.5 x [(1.0 + 2.4 +5.76) / (1.0 + 1.2+ 1.44)]
= 0.5 x [9.16 / 3.64]
= 1.25

Which is a 25 percent higher deaths ratio for the more infective/less fatal mutation B than the less infective/more fatal mutation A, just at the second contagion cycle. The ratio keeps getting larger at the subsequent infective cycles.



Omicron BA.2 has 80 mutations different from the original Wuhan strain. It may have originated in mice.



Omicron mutation probably initiated in mice in South Africa independent of Wuhan strain which mutated into the Alpha, Beta, Delta, and Gamma strains.

LIPOMAS RISK

Lumps under the skin may be interpreted as an indication of lymph nodes involvement with first stages of leukemia. Such lumps feel hard, like muscle, but shift position when pressed down like cold butter under turkey skin.

An ultra-sound procedure may reveal that merely are lipomas – a benign tumor, made of fat cells, that poses no serious threat to health.

According to research, at least 6 percent of people will experience the condition during their lifetime.

ILLNESS ANXIETY DISORDER, HEALTH ANXIETY, HYPOCHONDRIASIS, NOCEBO EFFECT RISK

For some people the fear of the Covid-10 virus became all-consuming, peaking as they await the results of a test. The pandemic could have also exacerbated anxieties about other conditions. Health anxiety has increased quite considerably during the pandemic, not least because people have had more time to ruminate and reflect on their symptoms.

Our understanding of illness anxiety marks a vast departure from the historical view of the condition, which was once known as "hypochondriasis". People suffering from this disorder were called hypochondriacs and were often belittled and ridiculed as time wasters. Many commentators argued that the worried well simply wanted to add a little drama to their lives. It was regarded as a bit of joke, The assumption was that these people just loved talking about their complaints.

It was in 2013 that the American Psychiatric Association formally adopted the term "illness anxiety disorder" to describe people with disproportionate and debilitating concerns about their health. In the medical literature "health anxiety" is often used as an alternative name. Although hard data is lacking, the wider availability of information online may have increased the prevalence of illness anxiety in the past three decades, compared to the pre-Internet era.

Contrary to the idea that hypochondriacs are simply looking for attention, the origins of someone's illness anxiety are often highly specific. There is often a trigger. It could be that somebody in the family has been ill. Or that they have heard about somebody their own age dying from a disease. In other cases, patients may develop excessive and continued worries about a previous illness such as cancer or heart attack returning, or a current condition such as diabetes worsening.

The condition is characterized by an obsessive checking of symptoms. Many of those afflicted spend hours each day researching potential illnesses online. Every minute of the day, they are checking whether they have got this disease or not. The continual worry results in many more visits to doctors, surgeries and hospital admissions. The repetitive thoughts are persistent and create a lot of distress.

One study of Danish patients found that people with severe illness anxiety used between 41 percent and 78 percent more health care, over a five-year period, than those with low illness anxiety. This comes at a financial cost, and the repeated medical visits may not bring much benefit to the patient, as they become convinced that the analysis was flawed. The patient might think that it was too early to show up on a test, or that the results were muddled in the lab.

The nocebo effect is a situation when anxieties about our health can create the appearance of symptoms; a self-fulfilling prophecy that might seem to confirm our fears. This phenomenon is evident in cases of "white coat syndrome" – in which the stress of visiting a doctor can raise people's blood pressure, so that it appears they are experiencing hypertension. For this reason, some medical providers may provide you with a blood pressure monitor to take measurements at home when you are relaxed.

Our expectations can shape our attention and sensory processing, for example. If you suspect you may have been infected by Covid-19, for example, you may be extra conscious of a tickle in your throat, an ache in your chest or a feeling of breathlessness – and the more you think about it, the worse it will seem. This may be especially likely if someone close to you has had the disease.

Our expectations can even bring about physiological change, such as the release of vasodilating molecules that cause headaches. Scientists call these reactions "nocebo effects" which is a direct contrast to the beneficial "placebo effects". And the discomfort can be just as unpleasant as a symptom with a purely biological cause. This will only increase the anxiety – setting about a vicious cycle.

If left untreated, chronic illness anxiety can take its toll on the body. In a 12-year study of 7,000 participants in Norway, after accounting for other potential risk factors, the researchers found that high levels of illness anxiety increased the risk of coronary heart disease by 70 percent. This is particularly problematic for people who have existing heart disease. Some evidence is that illness anxiety has an effect on the overall mortality rate. If you worry excessively after you have had a cardiac event, you may die earlier than if you don't worry about it.

You might at least hope that excessive health concerns would encourage someone to take better care of their body such as exercising or eating well. Yet people with severe illness anxiety may feel so paralyzed by their stress, that they struggle to take positive action.

As interest in illness anxiety has risen, so has the research into potential interventions. One of the most well-tested interventions is an adapted form of Cognitive Behavioral Therapy (CBT), which helps to break negative thought cycles. One of the biggest challenges is to get the patient to recognize that their anxiety is a problem, rather than a rational appraisal of the perceived risk. During each session, the therapist then works with the patient to identify the triggers of their concerns and to question the thoughts that automatically come to mind, so that they can see their situation a bit more objectively and put the risks in perspective. This might involve taking a more analytical look at the presumed symptoms and the times that they appear.

The therapist will also encourage the patient to break the habit of relentlessly testing themselves for the symptoms. If the fear is cancer, they might ask the patient to go a whole day or week without looking for lumps, for example – and to then note whether their recurrent thoughts of the illness had dropped as a result. The patient will also learn strategies like mindfulness and relaxation techniques to cope proactively with the fears when they do come to mind.

These steps will need to be tailored to the patients' particular situation. Someone who has heightened anxiety of a relapse from a previous illness will need to check on their health, for example, but they can be taught what signs are significant and what can be ignored – rather than panicking over every potential change.

The evidence suggests that cognitive behavioral therapy can be effective. In one study of 444 subjects, tailored CBT significantly reduced patients' illness anxiety over the course of three months. The benefits could still be seen five years later. We cannot dismiss the hypochondriac as a sad malingerer as many people are facing their anxieties alone without receiving the help they need.

4.9 NATURAL VERSUS TECHNOLOGICAL RISKS, DISCUSSION

Technology introduces risks to our modern society. However there are also risks introduced by natural phenomena. Natural risks are sometimes unavoidable, even though modern science is providing us with instruments, techniques, and strategies to predict and anticipate them, hence mitigating or sometimes avoiding their consequences.

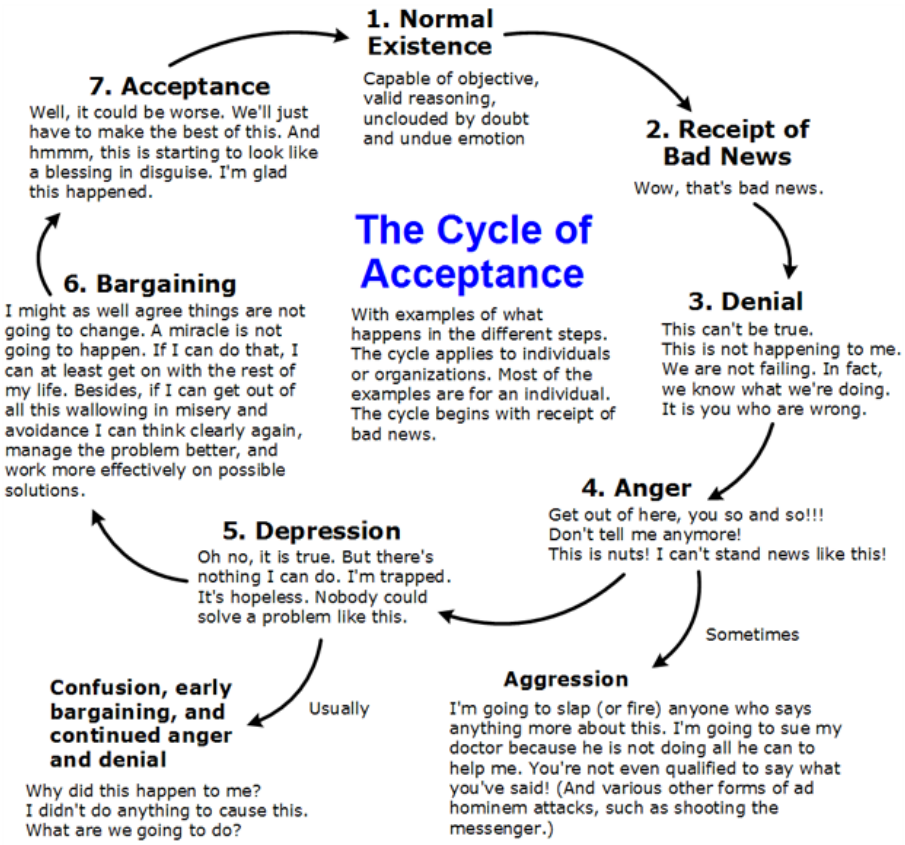


Figure 164. The cycle of eventual acceptance of risk consequences.

The boiling frogs/sleeping sheep cognitive bias

According to Wikipedia: “The Normalcy Bias, or normality bias, is a cognitive bias which leads people to disbelieve or minimize threat warnings. Consequently, individuals underestimate the likelihood of a disaster, when it might affect them, and its potential adverse effects. The normalcy bias causes many people to not adequately prepare for

natural disasters, market crashes, and calamities caused by human error. About 70 percent of people reportedly display normalcy bias during a disaster."

The Availability Cascade. The going along to get along, trust the science/experts cognitive bias

According to Wikipedia: "An availability cascade is a self-reinforcing cycle that explains the development of certain kinds of collective beliefs. A novel idea or insight, usually one that seems to explain a complex process in a simple or straightforward manner, gains rapid currency in the popular discourse by its very simplicity and by its apparent insightfulness. Its rising popularity triggers a chain reaction within the social network: individuals adopt the new insight because other people within the network have adopted it, and on its face it seems plausible. The reason for this increased use and popularity of the new idea involves both the availability of the previously obscure term or idea, and the need of individuals using the term or idea to appear to be current with the stated beliefs and ideas of others, regardless of whether they in fact fully believe in the idea that they are expressing. Their need for social acceptance, and the apparent sophistication of the new insight, overwhelm their critical thinking."

According to the American Cancer Society, in the USA, an estimated 606,520 people would die from cancer in 2020. This equates to 1,660 people dying of cancer each day in 2020. In the 2019 winter, 80,000 people died of the flu in the USA, the highest death toll in 40 years.

Nearly 1.25 million people die in road crashes each year, which on average is 3,287 deaths a day. An additional 20-50 million are injured or disabled. More than half of all road traffic deaths occur among young adults aged 15-44 years.

The introduction of technological risk adds to the natural risks that humans face, but our best insight suggests that these can be introduced only as an individual choice. Placing risks in perspective and as a matter of ethics and morals, larger groups of people should not be subjected to risks by smaller groups that are above the natural risks, involuntarily or unknown to them. As an example, as a result of global warming, island and atoll dwellers on some pacific islands find their land being submerged and are being evacuated. There are also indication that it is at the origin of a massive drought in the Sahel region of Africa and a drying of Lake Chad.

All human endeavors involve certain levels of risk that is sometimes wrongly perceived. For instance it is accepted that the construction and mining professions involve a higher level of risk than the office staff profession.

Risk quantification is governed by the need to distinguish between objective and perceived or subjective risk.

APPENDIX I

POPULAR DEFINITIONS OF "UNCERTAINTY"

According to Ibn Yami, a 13th-century Persian-Tajik poet:

"There are four types of men:

One who knows and knows that he knows. His horse of wisdom will reach the skies.

One who knows, but does not know that he knows. He is fast asleep, so you should wake him up.

One who does not know, but knows that he does not know. His limping mule will eventually get him home.

One who does not know and does not know that he does not know. He will be eternally lost in his hopeless oblivion"

According to Donald Rumsfeld, USA Defense Secretary, 2002:

"There are known knowns; there are things we know that we know.

There are known unknowns; that is to say there are things that, we now know we do not know.

But there are also unknown unknowns – there are things we do not know we do not know."

According to Albert Einstein:

"As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality."

"The most incomprehensible thing about the world is that it is at all comprehensible."

According to economist John Maynard Keynes in the "The General Theory of Employment," 1937:

"By 'uncertain' knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. The game of roulette is not subject, in this sense, to uncertainty; nor is the prospect of a Victory bond being drawn. Or, again, the expectation of life is only slightly uncertain. Even the weather is only moderately uncertain. The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence, or the obsolescence of a new invention, or the position of private wealth owners in the social system in 1970. About these matters there is no scientific basis on which to form any calculable probability whatever."

APPENDIX II

CAUSES OF DEATHS IN THE USA

Nearly 150,000 people die per day worldwide, based on the latest comprehensive research published in 2017. Cardiovascular diseases of the heart and blood vessels are the leading cause of death. The death toll for HIV/AIDS peaked in 2004 and it causes over

2,600 daily deaths on average. Terrorism (72 / day), heat (146 / day) and natural disasters cause very few deaths relative to other causes, yet they attract enormous prevention spending and most media attention.

Abortion is the leading cause of death in humans at 56 million abortions performed across the globe each year or 153,454 worldwide and 1,600 in the USA abortions per day.

The 90,000 deaths by May 2020 attributed to corona virus Covid-19 in the USA, by the method of attribution are less than the third leading cause of death in the USA of 250,000 or so that are killed every year in the USA by medical error and malpractice. Ten percent of USA deaths are due to preventable medical mistakes. The last count by John Hopkins University estimated that death toll at 442,000 Americans per year.

Table I. Leading causes of death, 2010. Data: CDC.

Cause	Number of deaths/year
Heart disease	596,577
Cancer	576,691
Health services error and malpractice	250,000
Chronic lower respiratory diseases	142,943
Stroke, cerebro-vascular diseases	128,932
Accidents, unintentional injuries	126,438
Alzheimer's diseases	84,974
Diabetes	73,831
Influenza and pneumonia	53,826
Nephritis, nephrotic syndrome, and nephrosis	45,591
Intentional self-harm, suicide	39,518

Table II. Global daily deaths per day, 2017.

Cause	Deaths / day
Cardiovascular diseases	48,742
Cancers	26,181
Respiratory diseases, includes Malaria	10,724, Malaria: 5,500
Lower respiratory infections	7,010
Dementia	6,889
Digestive diseases	6,514
Neonatal disorders	4,887
Diarrheal diseases	4,300
Diabetes	3,753
Liver diseases	3,624
Total daily deaths	147,118

China and India see more than 25,000 total deaths per day, due to their large populations. With 34.7 daily deaths per million people each day, Russia has the highest deaths proportional to population thought to be correlated to smoking and alcohol abuse.

Based on current official data by May 2020, there have been approximately 300,000 deaths related to the Covid-2019 virus worldwide. This represents less than 0.005 percent of the 7.5 billion world population.

Many Covid-19 deaths were people who were already sick and stood a good chance of dying. Canada's nursing home crisis: 81 percent of Covid-19 deaths were in long-term care facilities. Care home residents accounted for 48.9 percent of deaths linked to Covid-19 in Sweden. Some healthcare workers believe an institutional reluctance to admit patients to hospitals was costing lives. Care home and nursing staff were prohibited from administering oxygen without a doctor's approval, either as part of acute or palliative (end-of-life) services.

New York governor Andrew Cuomo signed an order requiring old age facilities to take in recovering Covid-19 patients. States that had that happen saw large numbers of old people dying in old age facilities. They locked down the healthy and forced the vulnerable to be exposed. On the other hand, car accidents among the young and crime have been reduced by 70 percent.

Table III. Daily deaths in different countries, 1977. Daily births in China 43,000, in India 49,000 and in the U.S. 11,000. The birth / death ratio is larger than unity.

Mode	Number of deaths / day
China	28,036
India	25,270
USA	7,564
Russia	5,013
Brazil	3,528
Germany	2,528
Italy	1,667
UK	1,597
France	1,508
Spain	1,107
Turkey	1,053
Iran	993
Canada	730
Peru	376
Belgium	285

Table IV. Transportation deaths in the USA, 1977.

Mode	Number of deaths / year
Highway	27,133
Trains	761
Marine	694
Commercial airlines	0

APPENDIX III

CDC SELECT AGENTS AND TOXINS LIST

The following biological agents and toxins have been determined to have the potential to pose a severe threat to both human and animal health, to plant health, or to animal and plant products. An attenuated strain of a select agent or an inactive form of a select toxin may be excluded from the requirements of the Select Agent Regulations. Here is a list of excluded agents and toxins.

HHS and USDA Select Agents and Toxins

7CFR Part 331, 9 CFR Part 121, and 42 CFR Part 73

HHS SELECT AGENTS AND TOXINS

1. Abrin[5]
2. *Bacillus cereus* Biovar *anthracis**
3. Botulinum neurotoxins[*,5]
4. Botulinum neurotoxin producing species of *Clostridium**
5. Conotoxins (Short, paralytic alpha conotoxins containing the following amino acid sequence $X_1CCX_2PACGX_3X_4X_5X_6CX_7$)[1,5]
6. *Coxiella burnetii*
7. Crimean-Congo haemorrhagic fever virus
8. Diacetoxyscirpenol[5]
9. Eastern Equine Encephalitis virus[3,4]
10. Ebola virus*
11. *Francisella tularensis**
12. Lassa fever virus
13. Lujo virus
14. Marburg virus*
15. Monkeypox virus[3]
16. Reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding regions of all eight gene segments (Reconstructed 1918 Influenza virus)
17. Ricin[5]
18. *Rickettsia prowazekii*
19. SARS-associated coronavirus (SARS-CoV)[4]
20. Saxitoxin[5]

- **South American Haemorrhagic Fever viruses:**

21. Chapare
22. Guanarito
23. Junin
24. Machupo
25. Sabia
26. Staphylococcal enterotoxins (subtypes A,B,C,D,E)[5]
27. T-2 toxin[5]
28. Tetrodotoxin[5]

- **Tick-borne encephalitis complex (flavi) viruses:**

29. Far Eastern subtype[4]
30. Siberian subtype[4]
31. Kyasanur Forest disease virus[4]
32. Omsk hemorrhagic fever virus[4]
33. Variola major virus (Smallpox virus)*
34. Variola minor virus (Alastrim)*
35. *Yersinia pestis**

OVERLAP SELECT AGENTS AND TOXINS

36. *Bacillus anthracis**

37. *Bacillus anthracis* Pasteur strain
38. *Brucella abortus*
39. *Brucella melitensis*
40. *Brucella suis*
41. *Burkholderia mallei**
42. *Burkholderia pseudomallei**
43. Hendra virus
44. Nipah virus
45. Rift Valley fever virus
46. Venezuelan equine encephalitis virus[3,4]

USDA SELECT AGENTS AND TOXINS

47. African horse sickness virus
48. African swine fever virus
49. Avian influenza virus[3]
50. Classical swine fever virus[4]
51. Foot-and-mouth disease virus[*,4]
52. Goat pox virus
53. Lumpy skin disease virus
54. *Mycoplasma capricolum*[3]
55. *Mycoplasma mycoides*[3]
56. Newcastle disease virus[2,3]
57. Peste des petits ruminants virus
58. Rinderpest virus*
59. Sheep pox virus
60. Swine vesicular disease virus[4]

USDA PLANT PROTECTION AND QUARANTINE (PPQ) SELECT AGENTS AND TOXINS

61. *Coniothyrium glycines* (formerly *Phoma glycinicola* and *Pyrenochaeta glycines*)
62. *Peronosclerospora philippinensis (Peronosclerospora sacchari)*
63. *Ralstonia solanacearum*
64. *Rathayibacter toxicus*
65. *Sclerophthora rayssiae*
66. *Synchytrium endobioticum*
67. *Xanthomonas oryzae*

*Denotes Tier 1 Agent

[1] C = Cysteine residues are all present as disulfides, with the 1st and 3rd Cysteine, and the 2nd and 4th Cysteine forming specific disulfide bridges; The consensus sequence includes known toxins α-MI and α-GI (shown above) as well as α-GIA, Ac1.1a, α-CnIA, α-CnIB; X1 = any amino acid(s) or Des-X; X2 = Asparagine or Histidine; P = Proline; A = Alanine; G = Glycine; X3 = Arginine or Lysine; X4 = Asparagine, Histidine, Lysine, Arginine, Tyrosine, Phenylalanine or Tryptophan; X5 = Tyrosine, Phenylalanine, or Tryptophan; X6 = Serine, Threonine, Glutamate, Aspartate, Glutamine, or Asparagine; X7 = Any amino acid(s) or Des X and; "Des X" = "an amino acid does not have to be present at this position." For example if a peptide sequence were XCCHPA then the related peptide CCHPA would be designated as Des-X.

[2] A virulent Newcastle disease virus (avian paramyxovirus serotype 1) has an intracerebral pathogenicity index in day-old chicks (Gallus gallus) of 0.7 or greater or has an amino acid sequence at the fusion (F) protein cleavage site that is consistent with virulent strains of Newcastle disease virus. A failure to detect a cleavage site that is consistent with virulent strains does not confirm the absence of a virulent virus.

[3] Select agents that meet any of the following criteria are excluded from the requirements of this part: Any low pathogenic strains of avian influenza virus, South American genotype of eastern equine encephalitis virus, west African clade of Monkeypox viruses, any strain of Newcastle disease virus which does not meet the criteria for virulent Newcastle disease virus, all subspecies Mycoplasma capricolum except subspecies capripneumoniae (contagious caprine pleuropneumonia), all subspecies Mycoplasma mycoides except subspecies mycoides small colony (Mmm SC) (contagious bovine pleuropneumonia), and any subtypes of

Venezuelan equine encephalitis virus except for Subtypes IAB or IC, provided that the individual or entity can verify that the agent is within the exclusion category.
[4] For determining the regulatory status of nucleic acids that are capable of producing infectious forms of select agent viruses, please reference guidance at https://www.selectagents.gov/na-guidance.html.
[5] For determining the regulatory status of Recombinant and/or Synthetic nucleic acids that encode for the toxic form(s) of any select toxins if the nucleic acids (i) can be expressed in vivo or in vitro, or (ii) are in a vector or recombinant host genome and can be expressed in vivo or in vitro; please reference guidance at https://www.selectagents.gov/na-guidance.html.

APPENDIX IV

GAIN OF FUNCTION GOF RISK, THE PRECAUTIONARY PRINCIPLE, NUREMBERG CODE

What is Gain-of-Function Research & Who is at High Risk?

Alliance for Human Research Protection, AHRP, https://ahrp.org/what-is-gain-of-function-research-who-is-at-high-risk/

May 19, 2020

"Gain-of-function" is the euphemism for biological research aimed at increasing the virulence and lethality of pathogens and viruses. GoF research is government funded; its focus is on enhancing the pathogens' ability to infect different species and to increase their deadly impact as airborne pathogens and viruses. Ostensibly, GoF research is conducted for biodefense purposes. These experiments, however, are extremely dangerous. Those deadly science-enhanced pathogens can and do escape into the community where they infect and kill people. What's more, this line of research can be used for biological warfare.

- Rumors that Iraq was preparing to use weaponized anthrax – as a "weapon of mass destruction" – provided the US government with a justification for the 2003 invasion.

In 1992, Meryl Nass, MD, analyzed the characteristics of an anthrax epidemic in Zimbabwe, Rhodesia in 1978-1980, that was claimed to be a natural occurrence. Dr. Nass demonstrated that the pattern of the epidemic, the spread, and weather conditions, could not have occurred due to a natural event; it must, therefore, have been triggered as a bioweapon. She reported her findings in the journal Physicians for Social Responsibility Quarterly, 1992.[1]

Government officials and the recipients of government grants and contracts for "gain-of-function" research argue that these experiments are critical for understanding the subtle changes that can make a bird virus a pandemic threat.

Anthony Fauci.

Anthony Fauci, who has headed the National Institute of Allergy and Infectious Diseases (NIAID) since 1984, has played a major role in promoting and funding gain-of-function research, both in the USA and China. Newsweek reported:

> "He argued that the research was worth the risk it entailed because it enables scientists to make preparations [1] that could be useful if and when a pandemic occurred."

- **Those claims are belied by the empirical evidence.** GoF experiments have neither prevented a pandemic, nor provided useful information about safe and effective pandemic countermeasures. Numerous prominent scientists argue that these experiments deviate from morally justifiable research, and the experimentally altered pathogens have put the entire human species at risk.

However, GoF research is defended by a closed circle of scientists within government and those who are contracted by government to conduct this line of research.

Yoshihiro Kawaoka and Ron Fouchier.

In 2011, controversy erupted when two separate teams of researchers – one headed by Ron Fouchier from the Netherlands, another headed by Yoshihiro Kawaoka from the University of Wisconsin and the University of Tokyo – announced that they had modified the H5N1 avian flu virus so that it jumped from birds to mammals and between mammals.[2],[3]. Both research teams were funded by the NIH – NIAID. They used reverse genetics to build a more lethal virus by combining directed mutations and natural selection, suggesting that this H5N1 variant could be efficiently transmitted between humans.

The UK Independent reported:

> "An increasing number of scientists outside the influenza field have expressed concern over attempts to deliberately increase the human transmissibility of the H5N1 bird-flu virus. This is done by mutating the virus so that it can pass by airborne droplets between laboratory ferrets, the standard "animal model" of human influenza."

Scientists, who are committed to the precautionary principle in medicine, medical research, and in public health policy, eschew GoF experimentation. These critics cite the Nuremberg Code prohibition against conducting experiments that pose a risk to human life. Such experiments

> "should be undertaken only if they provide humanitarian benefits that sufficiently offset the risks and if these benefits are unachievable by safer means."

The risks posed by influenza GoF experiments include frequent documented escapes of deadly pathogens into the community, which have a potential for triggering a pandemic. These risks far outweigh any speculative benefits. What's more, as Dr. Marc Lipsitch of Harvard and Dr. Alison Galvani of Yale argue:

> "the creation and manipulation of potential pandemic pathogens are too risky to justify…there are safer more effective experimental approaches that are both more scientifically informative and more straightforward to translate into improved public health." [PLoS Medicine, 2014][4]

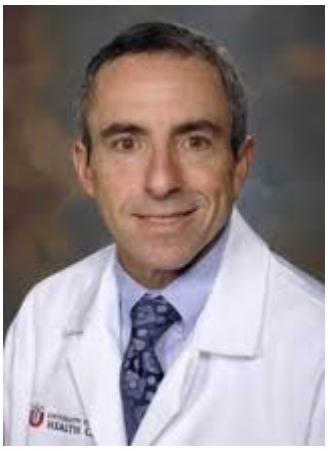
Prof. Mark Lipsitch, PhD.

Dr. Marc Lipsitch, director of the Center for Communicable Disease Dynamics at Harvard School of Public Health stated that recent disease-enhancing experiments

> "have given us modest scientific knowledge and done almost nothing to improve our preparedness for pandemics, and yet [these experiments] risked creating an accidental pandemic."[5]

Alison Galvani, PhD.

Alison Galvani, PhD, Professor of Epidemiology (Microbial Diseases); Director of the Center for Infectious Disease Modeling and Analysis (CIDMA) of Yale University. Dr. Galvani is one of Yale's youngest-ever tenured faculty member. She went to Oxford for her undergraduate degree and did her PhD in theoretical epidemiology with Robert May, the former head of the UK Royal Society. She received a Blavatnik Award from the New York Academy of Sciences . Dr. Galvani is an interdisciplinary scientist who prides herself on challenging dogma.



Andrew Pavia, MD.

The considerable risk of laboratory enhanced transmissibility of influenza viruses was obvious. Dr. Andrew Pavia, Chief, Division of Pediatric Infectious Diseases at the University of Utah stated:

> "A readily transmitted H5N1 virus could be extraordinarily lethal; therefore, the risk for accidental release is significant, and deliberate misuse of the data to create a biological weapon is possible."[6]

The controversy escalated when the National Science Advisory Board for Biosecurity (NSABB) issued its recommendation (December 2011) that the controversial H5N1 reports be published with significant redactions

> "Methodological and other details that could enable replication of the experiments by those who would seek to do harm"

are to be redacted. The research and the NSABB recommendation polarized the scientific community which recognized that the easily transmitted H5N1 laboratory creation could be extraordinarily lethal. This laboratory-engineered virus poses a significant risk for accidental release into the community.[7]

Dr. Michael Osterholm.

Michael Osterholm, director of the Center for Infectious Disease Research and Policy (CIDRAP) at the University of Minnesota and a vocal critic of the decision to publish the H5N1 research, stated that the flu research community has not rigorously weighed the risks and benefits of gain-of-function studies. He stated that proponents of "gain-of-function" research have overstated the benefits, including the potential for developing better vaccines and antiviral drugs, or improving surveillance measures. "We still do H5N1 surveillance in the same way a year later."

Adel A. F. Mahmoud, an infectious disease specialist at Princeton University and the former president of Merck Vaccines is quoted in Science:

> "The scientific justification presented for doing this work is very flimsy, to put it mildly, and the claims that it will lead to anything useful are lightweight… The mutations guided nothing."

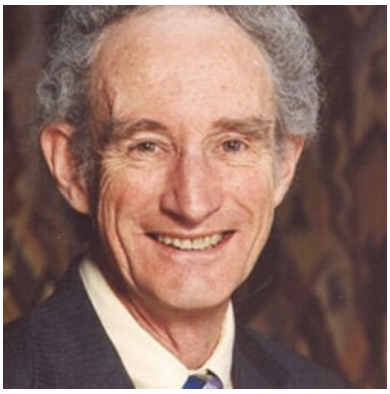
Richard Ebright, PhD.

Richard Ebright, a molecular biologist at Rutgers University in Piscataway, New Jersey, cautioned that the security precautions are "insufficient and amazingly lame." He stated in the journal Science:

> "this work should never have been done"

A New York Times editorial in 2012, dubbed the experiment "An Engineered Doomsday."

> "Now scientists financed by the National Institutes of Health have shown in a laboratory how [an avian influenza virus] could kill tens or hundreds of millions of people if it escaped confinement or was stolen by terrorists. […]
>
> The most frightening research was done by scientists at the Erasmus Medical Center in Rotterdam, who sought to discover how likely it is that the "bird flu" virus, designated A(H5N1), might mutate from a form that seldom infects or spreads among humans into a form highly transmissible by coughing or sneezing. Thus far the virus has infected close to 600 humans and killed more than half of them, a fatality rate that far exceeds the 2 percent rate in the 1918 influenza pandemic that killed as many as 100 million people.
>
> … it looks like the research should never have been undertaken because the potential harm is so catastrophic and the potential benefits from studying the virus so speculative."



Prof. Lord May.

Professor Lord May of Oxford, the former president of the Royal Society and a former chief science adviser to the UK government, is an outspoken critic about this line of research.

> "The work they are doing is absolutely crazy. The whole thing is exceedingly dangerous."
>
> Yes, there is a danger, but it's not arising from the viruses out there in the animals, it's arising from the labs of grossly ambitious people." [5]

He noted China's poor safety track record:

> "The record of containment in labs like this is not reassuring. They are taking it upon themselves to create human-to-human transmission of very dangerous viruses. It's appallingly irresponsible."[Independent, 2013

Prof. Simon Wain-Hobson, PhD.

Professor Simon Wain-Hobson, PhD, an eminent virologist at the Pasteur Institute in Paris is an outspoken critic of viral-engineering, and the risk this research poses. In a column in the journal Nature (2013), Dr. Wain-Hobson noted:

"**Influenza virologists are going down a blind alley and the powers that be are blindly letting them go down that alley."**

He said it is very likely that some or all of "these hybrids could pass easily between humans and possess some or all of the highly lethal characteristics of H5N1 bird-flu." H5N1 GOF work — indeed all virological GOF work — should be suspended until virologists open up and engage in public discussion of their work and the issues it raises. Given that the flu community failed utterly to use the year-long hiatus to good effect, it is clear that an independent risk–benefit assessment of GOF work is needed." Read H5N1 Viral-Engineering Dangers, Nature.pdf

Prof. Wain-Hobson stated: "The virological basis of this work is not strong. It is of no use for vaccine development and the benefit in terms of surveillance for new flu viruses is oversold." He emphasized in Nature News the fact that this chimeric virus "grows remarkably well" in human cells: "if the virus escaped, nobody could predict the trajectory."

Sam Husseni.

As veteran investigative reporter, Sam Husseini, the communications director of the non-profit, Institute for Public Accuracy, who has closely followed this line of research, states there are probably hundreds of high containment biosafety (BSL-3 and BSL-4) laboratories. As of 2017, at least 263 laboratories were registered in the US as level BSL-3 and level BSL-4.

According to a report by the Center for Arms Control and Non-Proliferation, the probability of a flu virus release from a government laboratory into the community could become pandemic requires that "the Precautionary Principle should apply [in proceeding with this line of research]". Numerous pathogen escaped accidents have occurred at BSL-3 and BSL-4 labs.

The journal SCIENCE reported that multiple laboratory accidents at CDC's highest security laboratories released smallpox vials, anthrax samples, H5N1 influenza samples, and H9N2 avian influenza pathogen. The lapses, Science reported, "at the world-renowned infectious disease research agency, are sure to raise questions about safety at other labs studying highly pathogenic agents, including university labs that are **modifying influenza strains to make them more virulent**.:

Dr. Thomas Frieden.

Former CDC director, Dr. Thomas Frieden stated:

> "whatever you think about [such so-called gain-of-function studies],"I think it's clearly the case that these incidents indicate that we need to really ensure that whatever work is done needs to be done safely and securely."

These accidents led the government to temporarily suspend funding for gain-of-function research from 2014 to 2017 for SARS, MERS and avian flu viruses.

Husseini notes that exceptions from suspended funding included laboratories at Harvard University, the University of North Carolina, and the Wuhan Institute of Virology (WIV) laboratory, whose high risk coronavirus research was backed by Anthony Fauci, who awarded the Wuhan laboratory with a $3.7 million contract AFTER the government had suspended funding for avian flu viruses research.

When the "Ban on Making Lethal Viruses [was] Lifted," the review process became even more secretive and opaque. Dr Francis Collins, head of the NIH, announced that there would be no public disclosure about the projects funded by the government. Critics, including microbiologist Richard Ebright of Rutgers University stated the lack of openness is "disturbing and indefensible." He stated that clearer minimum safety standards and a mandate that the benefits 'outweigh' the risks were needed, rather than merely 'justifying' them."

The Washington Post reported that in January 2018, urgent cables from the US Embassy warned that the Wuhan laboratory's operations had serious safety problems. One of the cables specifically warned that **the lab's work on bat coronaviruses and their potential human transmission represented a risk of a new SARS-like pandemic**.[8]

Anthony Fauci appears to have ignored those cables and the Wuhan Institute's requests for assistance. Despite alarms raised about lax safety at the Wuhan laboratory, Fauci provided an additional $3.7 million grant in 2019 for "gain-of-function research for the purpose of understanding how bat coronaviruses could mutate to attack humans"

Currently, a heated disagreement about the origin of the global COVID-19 pandemic is raging because the proponents of GoF research – those who fund and those who receive funds – are desperate to distance the COVID-19 pandemic, and the Chinese laboratory that has engaged in high risk GoF experiments; experiments that put humanity at risk. Read: Is COVID-19 the Result of a US Government- Funded Experiment in China?

Newsweek reported that this phase of the research at the Wuhan laboratory in 2019, was run by Peter Daszak, of EcoHealth Alliance, a so-called nonprofit that has received millions of dollars from the US government during the Obama and Trump administration.

Peter Daszak, president of EcoHealth Alliance with Shi Zheng Li from Wuhan Institute of Virology, WIV.

On May 12th, The Washington Post reported that EcoHealth is a "longtime partner" of the Wuhan Institute of Virology. Given the Post's earlier report about the US Embassy cables warning about major safety hazards at the Wuhan lab, and in light of the Chinese government refusal to allow an independent investigation into the origins of the global pandemic, the Washington Post acknowledged:

> "Theoretically, an accident during such activities could prompt an outbreak. If researchers, for example, had found SARS-CoV-2, the virus that causes covid-19, and cultured the virus in the lab, it could have infected humans as the result of a mishap."

Daszak, who has a multi-million dollar stake in Chinese bat research, dismissed the possibility outright: "I have never heard anything suspicious from this lab. It's a preposterous idea".

Honest scientists recognize and warn about the danger posed by GoF research and the potential for unleashing a lethal pandemic. Documented indisputable evidence confirms continued safety hazards at the high security laboratories from which pathogens regularly escaped into the community.

A report by GM Watch (May 20th) focuses on the hazardous bat and coronavirus experiments at the Wuhan laboratory. Dr Richard Ebright alerted the public about evidence that the Wuhan Institute and US-based researchers were genetically engineering bat viruses to investigate their ability to infect humans. He stated that they experimented with commonly used methods that leave no sign or signature of human manipulation. He cited a scientific paper published in PLoS (2017) by Wuhan scientists, including Shi Zhengli,

the virologist leading the research into bat coronaviruses, who worked in collaboration with Peter Daszak. that funding for the experiment was shared between Chinese and US institutions, including the National Institutes of Health and US Agency for International Development.

> "The researchers report having conducted virus infectivity experiments where genetic material is combined from different varieties of SARS-related coronaviruses to form novel "chimeric" versions. This formed part of their research into what mutations were needed to allow certain bat coronaviruses to bind to the human ACE2 receptor – a key step in the human infectivity of SARS-CoV-2.

The WIV scientists did this, Ebright points out, "using 'seamless ligation' procedures that leave no signatures of human manipulation". This is noteworthy because it is a type of genetic engineering that Andersen and his team excluded from their investigation into whether SARS-CoV-2 could have been engineered – and it was in use at the very lab that is the prime suspect for a lab escape.

> The evidence rebuts claims by journalists and some scientists that the SARS-CoV-2 virus responsible for the current COVID-19 pandemic could not have been genetically engineered because it lacks the "signs" or "signatures" that supposedly would be left behind by genetic engineering techniques."

Dr. Ebright cited a just-published pre-print scientific report by the Wuhan scientists who describe how they "spiked proteins from bat SARS-related CoV (SARSr-CoV), among other coronaviruses, to bind to bat and human ACE2 receptors – in other words, how efficiently they infect humans." He points out that the paper states, "All work with the infectious virus was performed under biosafety level 2 conditions" which is not suitable for such high risk experimentation. This level is suitable for work involving agents of only "moderate potential hazard to personnel and the environment".

Jonathan Latham, PhD.

Dr Jonathan Latham, a virologist, is Executive Director of the Bioscience Resource Project, which conducts independent scientific analysis of genetic engineering and its risks. He is the Editor of Independent Science News. He criticized the research on bat coronaviruses that has been taking place in Wuhan and the US. He argues that these experiments are "providing an evolutionary opportunity" for such viruses "to jump into humans." He emphasized that the experiments were "providing opportunities for contamination events and leakages from labs, which happen on a routine basis".

GM Watch notes:

> "Given that lab accidents are common, including in China where the SARS virus has escaped from high-level containment facilities multiple times, the details emerging about the research activities of the WIV and US scientists again underline the need for a credible independent investigation of the most forensic kind into the origins of the current pandemic. And a broader investigation is also needed into the full range of biological threats arising from various areas of potentially hazardous but laxly regulated biotechnology research."

Inside America's Secretive Biolabs, an investigative report by USA Today May 2015 reveals hundreds of accidents, safety violations and near misses put people at risk.

> "Vials of bioterror bacteria have gone missing. Lab mice infected with deadly viruses have escaped, and wild rodents have been found making nests with research waste. Cattle infected in a university's vaccine experiments were repeatedly sent to slaughter and their meat sold for human consumption. Gear meant to protect lab workers from lethal viruses such as Ebola and bird flu has failed, repeatedly.
>
> A team of reporters who work for the USA TODAY Network of Gannett newspapers and TV stations identified more than 200 of these high-containment lab facilities in all 50 states and the District of Columbia operated by government agencies, universities and private companies. They're scattered across the country from the heart of New York City to a valley in Montana; from an area near Seattle's Space Needle to just a few blocks from Kansas City's Country Club Plaza restaurant and shopping district."

Human Error in High-Biocontainment Labs: A Likely Pandemic Threat, by Lynn Klotz**,** Bulletin of the Atomic Scientists, 2019

> "Incidents causing potential exposures to pathogens occur frequently in the high security laboratories often known by their acronyms, BSL3 (Biosafety Level 3) and BSL4. Lab incidents that lead to undetected or unreported laboratory-acquired infections can lead to the release of a disease into the community outside the lab; lab workers with such infections

will leave work carrying the pathogen with them. If the agent involved were a potential pandemic pathogen, such a community release could lead to a worldwide pandemic with many fatalities. Of greatest concern is a release of a lab-created, mammalian-airborne-transmissible, highly pathogenic avian influenza virus, such as the airborne-transmissible H5N1 viruses created in the laboratories of Ron Fouchier in the Netherlands and Yoshihiro Kawaoka in Madison Wisconsin.

Such releases are fairly likely over time, as there are at least 14 labs (mostly in Asia) now carrying out this research. Whatever release probability the world is gambling with, it is clearly far too high a risk to human lives. Mammal-transmissible bird flu research poses a real danger of a worldwide pandemic that could kill human beings on a vast scale."

Anthony Fauci, the head of the NIAID since 1984, has been in the forefront in supporting highest risk pathogen experiments. Fauci bears grave responsibility for having ignored a continuous series of documented reports — all of which warned of impending catastrophic pandemics, directly caused by experimental. laboratory-created pathogens.
It should be evident to everyone, that as long as irresponsible government officials continue to fund and promote experiments whose aim is to increase the virulence and lethal capacity of biological pathogens and viruses, the risk that those lethal pathogens can, have, and will escape from laboratories, is certain.

- Those accidental escapes pose catastrophic existential risk for the global human community.
- If we want to preserve our existence on the planet, our government must stop funding this line of research.

Partial list of References:

[1] "Anthrax epizootic in Zimbabwe, 1978–1980: Due to Deliberate spread?, Meryl Nass, MD, Physicians for Social Responsibility Quarterly, 1992. See also: The History of the Use of Bacteriological and Chemical Agents during Zimbabwe's Liberation War of 1965-80 by Rhodesian Forces by Ian Martinez, Third World Quarterly, Dec. 2002 Vol. 23, No. 6 (Dec., 2002), pp. 1159-1179
[2] Infectious Diseases. Controversial Studies Give a Deadly Flu Virus Wings, M Enserink, **Science**. 2011

[3] Exclusive: Controversial Experiments that Could Make Bird Flu More Risky Poised to Resume, Jocelyn Kaiser, SCIENCE, 2019
[4] Ethical Alternatives to Experiments with Novel Potential Pandemic Pathogens, Marck Lipsitch and Alison P. Galvani, PLoS
[5] A Federal Ban on Making Lethal Viruses Is Lifted, Donald McNeil, Jr. The New York Times, December 2017
[6] Laboratory Creation of a Highly Transmissible H5N1 Influenza Virus: Balancing Substantial Risks and Real Benefits, Andrew T. Pavia, MD, Annals of Internal Medicine, 2012
[7] Making Viruses in the Lab Deadlier and More Ale to Spread: An Accident Waiting to Happen, Tatyana Novossiolova and Malcolm Dando, Bulletin of Atomic Scientists, 2014
[8] State Department Cables Warned Of Safety Issues At Wuhan Lab Studying Bat Coronaviruses, John Bogin, The Washington Post, April 2020

Posted in Unethical Experiments, Current Medical Atrocities, Government Overreach, Epidemics, Current Controversies and tagged MD, PhD, Francis Collins, Anthony Fauci, Ron Fouchie PhD, Yoshihiro Kawaoka, Marc Lipsitch PhD, Alison galvani PhD, Andrew Pavia MD, Michael Osterholm PhD, Adel Mahmoud PhD, Richard Ebright PhD, Prof. Lord May, Simon Wain-Hobson PhD, Sam Husseini, Thomas Frieden MD, Peter Daszak PhD, EcoHealth Aliance, Wuhan Institute of Virology, Secretive Biolabs, Human Error, Jonathan Latham, GM Watch, Bioscience Resource Project

APPENDIX V

THE NURENBERG CODE

BRITISH MEDICAL JOURNAL No 7070 Volume 313: Page 1448, 7 December 1996.
BMJ_No_7070_Volume_313_The_Nuremberg_Code.pdf (tghn.org)

Introduction
The judgment by the war crimes tribunal at Nuremberg laid down 10 standards to which physicians must conform when carrying out experiments on human subjects in a new code that is now accepted worldwide. This judgment established a new standard of ethical medical behaviour for the post World War II human rights era. Amongst other requirements, this document enunciates the requirement of voluntary informed consent of the human subject. The principle of voluntary informed consent protects the right of the individual to control his own body. This code also recognizes that the risk must be weighed against the expected benefit, and that unnecessary pain and suffering must be avoided. This code recognizes that doctors should avoid actions that injure human patients. The principles established by this code for medical practice now have been extended into general codes of medical ethics.

APPENDIX VI

COVID-19 PROPOSED TREATMENT PROTOCOLS

https://pubmed.ncbi.nlm.nih.gov/33073355/
Review
J Med Virol . 2021 Mar;93(3):1320-1342.
doi: 10.1002/jmv.26610. Epub 2020 Nov 10.

Pathogenesis-directed therapy of 2019 novel coronavirus disease

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Abstract

The 2019 novel coronavirus disease (COVID-19) now is considered a global public health emergency. One of the unprecedented challenges is defining the optimal therapy for those patients with severe pneumonia and systemic manifestations of COVID-19. The optimal therapy should be largely based on the pathogenesis of infections caused by this novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Since the onset of COVID-19, there have been many prepublications and publications reviewing the therapy of COVID-19 as well as many prepublications and publications reviewing the pathogenesis of SARS-CoV-2. However, there have been no comprehensive reviews that link COVID-19 therapies to the pathogenic mechanisms of SARS-CoV-2. To link COVID-19 therapies to pathogenic mechanisms of SARS-CoV-2, we performed a comprehensive search through MEDLINE, PubMed, medRxiv, EMBASE, Scopus, Google Scholar, and Web of Science using the following keywords: COVID-19, SARS-CoV-2, novel 2019 coronavirus, pathology, pathologic, pathogenesis, pathophysiology, coronavirus pneumonia, coronavirus infection, coronavirus pulmonary infection, coronavirus cardiovascular infection, coronavirus gastroenteritis, coronavirus autopsy findings, viral sepsis, endotheliitis, thrombosis, coagulation abnormalities, immunology, humeral immunity, cellular immunity, inflammation, cytokine storm, superantigen, therapy, treatment, therapeutics, immune-based therapeutics, antiviral agents, respiratory therapy, oxygen therapy, anticoagulation therapy, adjuvant therapy, and preventative therapy. Opinions expressed in this review also are based on personal experience as clinicians, authors, peer reviewers, and editors. This narrative review linking COVID-19 therapies with pathogenic mechanisms of SARS-CoV-2 has resulted in six major therapeutic goals for COVID-19 therapy based on the pathogenic mechanisms of SARS-CoV-2. These goals are listed below: 1. The first goal is identifying COVID-19 patients that require both testing and therapy. This is best accomplished with a COVID-19 molecular test from symptomatic patients as well as determining the oxygen saturation in such patients with a pulse oximeter. Whether a symptomatic respiratory illness is COVID-19, influenza, or another respiratory pathogen, an oxygen saturation less than 90% means that the patient requires medical assistance. 2. The second goal is to correct the hypoxia. This goal generally requires hospitalization for oxygen therapy; other respiratory-directed therapies such as prone positioning or mechanical ventilation are often used in the attempt to correct hypoxemia

due to COVID-19. 3. The third goal is to reduce the viral load of SARS-CoV-2. Ideally, there would be an oral antiviral agent available such as seen with the use of oseltamivir phosphate for influenza. This oral antiviral agent should be taken early in the course of SARS-CoV-2 infection. Such an oral agent is not available yet. Currently, two options are available for reducing the viral load of SARS-CoV-2. These are post-Covid-19 plasma with a high neutralizing antibody titer against SARS-CoV-2 or intravenous remdesivir; both options require hospitalization. 4. The fourth goal is to identify and address the hyperinflammation phase often seen in hospitalized COVID-19 patients. Currently, fever with an elevated C-reactive protein is useful for diagnosing this hyperinflammation syndrome. Low-dose dexamethasone therapy currently is the best therapeutic approach. 5. The fifth goal is to identify and address the hypercoagulability phase seen in many hospitalized COVID-19 patients. Patients who would benefit from anticoagulation therapy can be identified by a marked increase in d-dimer and prothrombin time with a decrease in fibrinogen. To correct this disseminated intravascular coagulation-like phase, anticoagulation therapy with low molecular weight heparin is preferred. Anticoagulation therapy with unfractionated heparin is preferred in COVID-19 patients with acute kidney injuries. 6. The last goal is prophylaxis for persons who are not yet infected. Potential supplements include vitamin D and zinc. Although the data for such supplements is not extremely strong, it can be argued that almost 50% of the population worldwide has a vitamin D deficiency. Correcting this deficiency would be beneficial regardless of any impact of COVID-19. Similarly, zinc is an important supplement that is important in one's diet regardless of any effect on SARS-CoV-2. As emerging therapies are found to be more effective against the SARS-CoV-2 pathogenic mechanisms identified, they can be substituted for those therapies presented in this review.

Keywords: SARS-CoV-2 coronavirus; coronavirus; pathogenesis; therapy; treatment.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7410805/
Am J Med. 2021 Jan; 134(1): 16–22.
Published online 2020 Aug 7. doi: 10.1016/j.amjmed.2020.07.003
PMCID: PMC7410805
PMID: 32771461

Pathophysiological Basis and Rationale for Early Outpatient Treatment of SARS-CoV-2 (COVID-19) Infection

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Abstract

Approximately 9 months of the severe acute respiratory syndrome coronavius-2 (SARS-CoV-2 [COVID-19]) spreading across the globe has led to widespread COVID-19 acute hospitalizations and death. The rapidity and highly communicable nature of the SARS-CoV-2 outbreak has hampered the design and execution of definitive randomized, controlled trials of therapy outside of the clinic or hospital. In the absence of clinical trial results, physicians must use what has been learned about the pathophysiology of SARS-CoV-2 infection in determining early outpatient treatment of the illness with the aim of preventing hospitalization or death. This article outlines key pathophysiological principles that relate to the patient with early infection treated at home. Therapeutic approaches based on these principles include 1) reduction of reinoculation, 2) combination antiviral therapy, 3) immunomodulation, 4) antiplatelet/antithrombotic therapy, and 5) administration of oxygen, monitoring, and telemedicine. Future randomized trials testing the principles and agents discussed will undoubtedly refine and clarify their individual roles; however, we emphasize the immediate need for management guidance in the setting of widespread hospital resource consumption, morbidity, and mortality.

Keywords: Ambulatory treatment, Anticoagulant, Anti-inflammatory, Antiviral, COVID-19, Critical care, Epidemiology, Hospitalization, Mortality, SARS-CoV-2

Clinical Significance

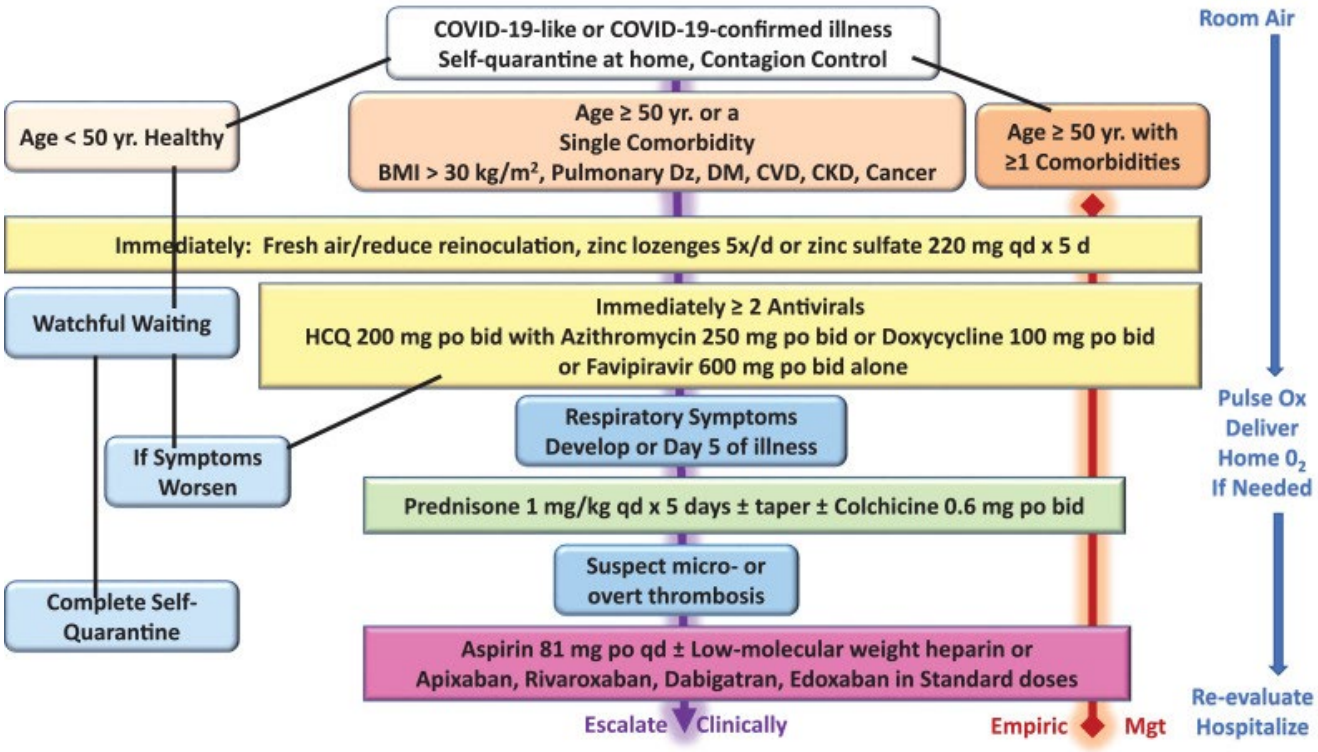
- COVID-19 hospitalizations and death can be reduced with outpatient treatment.
- Principles of COVID-19 outpatient care include: 1) reduction of reinoculation, 2) combination antiviral therapy, 3) immunomodulation, 4) antiplatelet/antithrombotic therapy 5) administration of oxygen, monitoring, and telemedicine.
- Future randomized trials will undoubtedly refine and clarify ambulatory treatment, however we emphasize the immediate need for management guidance in the current crisis of widespread hospital resource consumption, morbidity, and mortality.

The pandemic of severe acute respiratory syndrome coronavius-2 (SARS-CoV-2 [COVID-19]) is rapidly expanding across the world with each country and region developing distinct epidemiologic patterns in terms of frequency, hospitalization, and death. There has been considerable focus on 2 major areas of response to the pandemic: containment of the spread of infection and reducing inpatient mortality. These efforts, although well-justified, have not addressed the ambulatory patient with COVID-19 who is at risk for hospitalization and death. The current epidemiology of rising COVID-19 hospitalizations serves as a strong impetus for an attempt at treatment in the days or weeks before a hospitalization occurs.[1] Most patients who arrive to the hospital by emergency medical services with COVID-19 do not initially require forms of advanced medical care.[2] Once hospitalized, approximately 25% require mechanical ventilation, advanced circulatory support, or renal replacement therapy. Hence, it is conceivable that some, if not a majority, of hospitalizations could be avoided with a treat-at-home first approach with appropriate telemedicine monitoring and access to oxygen and therapeutics.[3]

As in all areas of medicine, the large randomized, placebo-controlled, parallel group clinical trial in appropriate patients at risk with meaningful outcomes is the theoretical gold standard for recommending therapy. These standards are not sufficiently rapid or responsive to the COVID-19 pandemic.[4] One could argue the results of definitive trials were needed at the outset of the pandemic, and certainly are needed now with more than 1 million cases and 500,000 deaths worldwide.[5] Because COVID-19 is highly communicable, many ambulatory clinics do not care for patients in face-to-face visits, and these patients are commonly declined by pharmacies, laboratories, and imaging centers. On May 14, 2020, after about 1 million cases and 90,000 deaths in the United States had already occurred, the National Institutes of Health (NIH) announced it was launching an outpatient trial of hydroxychloroquine (HCQ) and azithromycin in the treatment of COVID-19.[6] A month later, the agency announced it was closing the trial because of the lack of enrollment with only 20 of 2000 patients recruited.[7] No safety concerns were associated with the trial. This effort serves as the best current working example of the lack of feasibility of outpatient trials for COVID-19. It is also a strong signal that future ambulatory trial results are not imminent or likely to report soon enough to have a significant public health impact on clinical outcomes.[8]

If clinical trials are not feasible or will not deliver timely guidance to clinicians or patients, then other scientific information bearing on medication efficacy and safety needs to be examined. Cited in this article are more than a dozen studies of various designs that have examined a range of existing medications. Thus, in the context of present knowledge, given the severity of the outcomes and the relative availability, cost, and toxicity of the therapy, each physician and patient must make a choice: watchful waiting in self-quarantine or empiric treatment with the aim of reducing hospitalization and death. Because COVID-19 expresses a wide spectrum of illness progressing from asymptomatic to symptomatic infection to fulminant adult respiratory distress syndrome and multiorgan system failure, there is a need to individualize therapy according to what has been learned about the pathophysiology of human SARS-CoV-2 infection.[9] It is beyond the scope of this article to review every preclinical and retrospective study of proposed COVID-19 therapy. Hence, the agents proposed are those that have appreciable clinical support and are feasible for administration in the ambulatory setting. SARS-CoV-2 as with many infections may be amenable to therapy early in its course but is probably not responsive to the same treatments very late in the hospitalized and terminal stages of illness.[10]

For the ambulatory patient with recognized early signs and symptoms of COVID-19, often with nasal real-time reverse transcription or oral antigen testing pending, the following 4 principles could be deployed in a layered and escalating manner depending on clinical manifestations of COVID-19-like illness[11] and confirmed infection: 1) reduction of reinoculation, 2) combination antiviral therapy, 3) immunomodulation, and 4) antiplatelet/antithrombotic therapy. Because the results of testing could take up to a week to return, treatment can be started before the results are known. For patients with cardinal features of the syndrome (i. e. fever, body aches, nasal congestion, loss of taste and smell, etc.) and suspected false-negative testing, treatment can be the same as those with confirmed COVID-19.[11] Future randomized trials are expected to confirm, reject, refine, and expand these principles. In this article, they are set forth in emergency response to the growing pandemic as shown in Figure 1 .



Open in a separate window

Figure 1

Treatment algorithm for COVID-19-like and confirmed COVID-19 illness in ambulatory patients at home in self-quarantine. BMI = body mass index; CKD = chronic kidney disease; CVD = cardiovascular disease; DM = diabetes mellitus; Dz = disease; HCQ = hydroxychloroquine; Mgt = management; O_2 = oxygen; Ox = oximetry; Yr = year.

Go to:

Control of Contagion

A major goal of self-quarantine is the control of contagion.[12] Many sources of information suggest the main place of viral transmission occurs in the home.[13] Facial covering for all contacts within the home as well as frequent use of hand sanitizer and hand washing is mandatory. Sterilizing surfaces such as countertops, door handles, phones, and other devices is advised. When possible, other close contacts can move out of the domicile and temporarily stay with others not ill with SARS-CoV-2. Findings from multiple studies indicate that policies concerning control of the spread of SARS-CoV-2 are effective and extension into the home as the most frequent site of viral transfer is paramount.[14]

Go to:

Reduction of Self-Reinoculation

It is well-recognized that COVID-19 exists outside the human body in a bioaerosol of airborne particles and droplets. Because exhaled air in an infected person is considered to be “loaded” with inoculum, each exhalation and inhalation is effectively reinoculation.[15] In patients who are hospitalized, negative pressure is applied to the room air largely to reduce spread outside of the room. We propose that fresh air could reduce reinoculation and potentially reduce the severity of illness and possibly reduce household spread during quarantine. This calls for open windows, fans for aeration, or spending long periods of time outdoors away from others with no face covering to disperse and not reinhale the viral bioaerosol.

Go to:

Combination Antiviral Therapy

Rapid and amplified viral replication is the hallmark of most acute viral infections. By reducing the rate, quantity, or duration of viral replication, the degree of direct viral injury to the respiratory epithelium, vasculature, and organs may be lessened.[16] Additionally, secondary processes that depend on viral stimulation, including the activation of inflammatory cells, cytokines, and coagulation, could potentially be lessened if viral replication is attenuated. Because no form of readily available medication has been designed specifically to inhibit SARS-CoV-2 replication, 2 or more of the nonspecific agents listed here can be entertained. None of the approaches listed have specific regulatory approved advertising labels for their manufacturers; thus all would be appropriately considered acceptable “off-label” use.[17]

Zinc Lozenges and Zinc Sulfate

Zinc is a known inhibitor of coronavirus replication. Clinical trials of zinc lozenges in the common cold have demonstrated modest reductions in the duration and or severity of symptoms.[18] By extension, this readily available nontoxic therapy could be deployed at the first signs of COVID-19.[19] Zinc lozenges can be administered 5 times a day for up to 5 days and extended if needed if symptoms persist. The amount of elemental zinc lozenges is <25% of that in a single 220-mg zinc sulfate daily tablet. This dose of zinc sulfate has been effectively used in combination with antimalarials in early treatment of high-risk outpatients with COVID-19.[20]

Antimalarials

Hydroxychloroquine (HCQ) is an antimalarial/anti-inflammatory drug that impairs endosomal transfer of virions within human cells. HCQ is also a zinc ionophore that conveys zinc intracellularly to block the SARS-CoV-2 RNA-dependent RNA polymerase, which is the core enzyme of the virus replication.[21] The currently completed retrospective studies and randomized trials have generally shown these findings: 1) when started late in the hospital course and for short durations of time, antimalarials appear to be ineffective, 2) when started earlier in the hospital course, for progressively longer durations and in outpatients, antimalarials may reduce the progression of disease, prevent hospitalization,

and are associated with reduced mortality.[22, 23, 24, 25] In a retrospective inpatient study of 2541 patients hospitalized with COVID-19, therapy associated with an adjusted reduction in mortality was HCQ alone (hazard ratio [HR] = 0.34, 95% confidence interval [CI] 0.25-0.46, P <0.001) and HCQ with azithromycin (HR = 0.29, 95% CI 0.22-0.40, P <0.001).[23] HCQ was approved by the US Food and Drug Administration in 1955, has been used by hundreds of millions of people worldwide since then, is sold over the counter in many countries, and has a well-characterized safety profile that should not raise undue alarm.[25, 26] Although asymptomatic QT prolongation is a well-recognized and infrequent (<1%) complication of HCQ, it is possible that in the setting of acute illness symptomatic arrhythmias could develop. Data safety and monitoring boards have not declared safety concerns in any clinical trial published to date. Rare patients with a personal or family history of prolonged QT syndrome and those on additional QT prolonging, contraindicated drugs (eg, dofetilide, sotalol) should be treated with caution and a plan to monitor the QTc in the ambulatory setting. A typical HCQ regimen is 200 mg bid for 5 days and extended to 30 days for continued symptoms. A minimal sufficient dose of HCQ should be used, because in excessive doses the drug can interfere with early immune response to the virus.

Azithromycin

Azithromycin is a commonly used macrolide antibiotic that has antiviral properties mainly attributed to reduced endosomal transfer of virions as well as established anti-inflammatory effects.[27] It has been commonly used in COVID-19 studies initially based on French reports demonstrating markedly reduced durations of viral shedding, fewer hospitalizations, and reduced mortality combination with HCQ as compared to those untreated.[28, 29] In the large inpatient study (n = 2451) discussed previously, those who received azithromycin alone had an adjusted HR for mortality of 1.05, 95% CI 0.68-1.62, and P = 0.83.[23] The combination of HCQ and azithromycin has been used as standard of care in other contexts as a standard of care in more than 300,000 older adults with multiple comorbidities.[30] This agent is well-tolerated and like HCQ can prolong the QTc in <1% of patients. The same safety precautions for HCQ listed previously could be extended to azithromycin with or without HCQ. Azithromycin provides additional coverage of bacterial upper respiratory pathogens that could potentially play a role in concurrent or secondary infection. Thus, this agent can serve as a safety net for patients with COVID-19 against clinical failure of the bacterial component of community-acquired pneumonia.[31, 32] The same safety precautions for HCQ could be extended to azithromycin with or without HCQ. Because both HCQ and azithromycin have small but potentially additive risks of QTc prolongation, patients with known or suspected arrhythmias or taking contraindicated medications or should have more thorough workup (eg, review of baseline electrocardiogram, imaging studies, etc.) before receiving these 2 together. One of many dosing schemes is 250 mg po bid for 5 days and may extend to 30 days for persistent symptoms or evidence of bacterial superinfection.

Doxycycline

Doxycycline is another common antibiotic with multiple intracellular effects that may reduce viral replication, cellular damage, and expression of inflammatory factors.[33, 34] This drug has no effect on cardiac conduction and has the main caveat of gastrointestinal upset

and esophagitis. As with azithromycin, doxycycline has the advantage of offering antibacterial coverage for superimposed bacterial infection in the upper respiratory tract. Doxycycline has a high degree of activity against many common respiratory pathogens including *Streptococcus pneumoniae, Haemophilus influenzae, Moraxella catarrhalis*, anaerobes such as Bacteroides and anaerobic/microaerophilic streptococci and atypical agents like Legionella, *Mycoplasma pneumoniae*, and *Chlamydia pneumoniae*.[34] One of many dosing schemes is 200 mg po followed by 100 mg po bid for 5 days and may extend to 30 days for persistent symptoms or evidence of bacterial superinfection. Doxycycline may be useful with HCQ for patients in whom the HCQ-azithromycin combination is not desired.

Favipiravir

Favipiravir, an oral selective inhibitor of RNA-dependent RNA polymerase, is approved for ambulatory use in COVID-19 in Russia, India, and other countries outside of the United States.[35] It has been previously used for treatment of some life-threatening infections such as Ebola virus, Lassa virus, and rabies. Its therapeutic efficacy has been proven in these diseases.[36] Like, the antimalarials and antibiotics, favipiravir has no large-scale randomized trials completed at this time, given the short time frame of the pandemic. A dose administration could be 1600 mg po bid on day 1, following by 600 mg po bid for 14 days.[37]

Go to:

Immunomodulators

The manifestations of COVID-19 that prompt hospitalization and that may well lead to multiorgan system failure are attributed to a cytokine storm. The characteristic profile of a patient acutely ill with COVID-19 includes leukocytosis with a relative neutropenia. These patients have higher serum level of cytokines (ie, TNF-α, IFN-γ, IL-1β, IL-2, IL-4, IL-6, and IL-10) and C-reactive protein than control individuals. Among patients with COVID-19, serum IL-6 and IL-10 levels appear even more elevated in the critically ill.[38] As with any acute inflammatory state, early treatment with immunomodulators is expected to impart greater benefit. In COVID-19, some of the first respiratory findings are nasal congestion, cough, and wheezing. These features are due to excess inflammation and cytokine activation. Early use of corticosteroids is a rational intervention for patients with COVID-19 with these features as they would be in acute asthma or reactive airways disease.[39] , [40] The RECOVERY trial randomized 6425 hospitalized patients with COVID-19 in a 2:1 ratio to dexamethasone 6 mg po/IV daily for up to 10 days and found dexamethasone reduced mortality (HR = 0.65, 95% CI 0.51-0.82, P <0.001).[41] One potential dosing scheme for outpatients starting on day 5 or the onset of respiratory symptoms is prednisone 1 mg/kg given daily for 5 days with or without a subsequent taper.

Colchicine

Colchicine is a nonsteroidal antimitotic drug that blocks metaphase by binding to the ends of microtubules to prevent the elongation of the microtubule polymer. This agent has proven useful in gout and idiopathic recurrent pericarditis. The GRECCO-19 randomized open-label trial in 105 hospitalized patients with COVID-19 found that colchicine was associated with a reduction in d-dimer levels and improved clinical outcomes.[42] The clinical primary end point (2-point change in World Health Organization ordinal scale) occurred in 14.0% in the control group (7 of 50 patients) and 1.8% in the colchicine group (1 of 55 patients) (odds ratio, 0.11; 95% CI, 0.01-0.96; $P = 0.02$).[43] Because the short-term safety profile is well understood, it is reasonable to consider this agent along with corticosteroids in an attempt to reduce the effects of cytokine storm. A dosing scheme of 1.2 mg po, followed by 0.6 mg po bid for 3 weeks can be considered.

Go to:

Antiplatelet Agents and Antithrombotics

Multiple studies have described increased rates of pathological macro- and micro-thrombosis.[44, 45] Patients with COVID-19 have described chest heaviness associated with desaturation that suggests the possibility of pulmonary thrombosis.[46] Multiple reports have described elevated d-dimer levels in acutely ill patients with COVID-19, which has been consistently associated with increased risk of deep venous thrombosis and pulmonary embolism.[47, 48, 49] Necropsy studies have described pulmonary microthrombosis in COVID-19.[50] These observations support the notion that endothelial injury and thrombosis play a role oxygen desaturation, a cardinal reason for hospitalization and supportive care.[47] Based on this pathophysiologic rationale, aspirin 81 mg daily can be administered as an initial antiplatelet and anti-inflammatory agent.[51, 52] Ambulatory patients can be additionally treated with subcutaneous low-molecular-weight heparin or with short-acting novel anticoagulant drugs in dosing schemes similar to those use in outpatient thromboprophylaxis. In a retrospective study of 2773 inpatients with COVID-19, 28% received anticoagulant therapy within 2 days of admission, and despite being used in more severe cases, anticoagulant administration was associated with a reduction in mortality (HR = 0.86 per day of therapy, 95% CI: 0.82-0.89; P <0.001). Additional supportive data on the use anticoagulants reducing mortality has been reported in hospitalized patients with elevated d-dimer levels and higher comorbidity scores.[53] Many acutely ill outpatients also have general indications for venous thromboembolism prophylaxis applicable to COVID-19.[54]

Go to:

Delivery of Oxygen and Monitoring

Because ambulatory centers and clinics have been reticent to have face-to-face visits with patients with COVID-19, telemedicine is a reasonable platform for monitoring. Clinical impressions can be gained with audio and video interviews by the physician with the patient. Supplemental information, including vital signs and symptoms, will be important to guide the physician. A significant component of safe outpatient management

is maintenance of arterial oxygen saturation on room air or prescribed home oxygen under direct supervision by daily telemedicine with escalation to hospitalization for assisted ventilation if needed. Self-proning could be entertained for confident patients with good at-home monitoring.[55]

Many of the measures discussed in this article could be extended to seniors in COVID-19 treatment units in nursing homes and other nonhospital settings. This would leave the purposes of hospitalization to the administration of intravenous fluid and parenteral medication, assisted pressure or mechanical ventilation, and advanced mechanical circulatory support.

Go to:

Summary

Acute COVID-19 has a great range of clinical severity from asymptomatic to fatal. In the absence of clinical trials and guidelines, with hospitalizations and mortality mounting, it is prudent to deploy treatment for COVID-19 based on pathophysiological principles. We have proposed an algorithm based on age and comorbidities that allows for a large proportion to be monitored and treated at home during self-isolation with the aim of reducing the risks of hospitalization and death.

Go to:

Footnotes

Funding: None.
Conflicts of Interest: None.
Authorship: All authors had access to the data and a role in writing this manuscript.

Go to:

References

1. McCullough PA, Eidt J, Rangaswami J. Urgent need for individual mobile phone and institutional reporting of at home, hospitalized, and intensive care unit cases of SARS-CoV-2 (COVID-19) infection. Rev Cardiovasc Med. 2020;21(1):1–7. doi: 10.31083/j.rcm.2020.01.42. [PubMed] [CrossRef] [Google Scholar]
2. Yang BY, Barnard LM, Emert JM. Clinical characteristics of patients with coronavirus disease 2019 (COVID-19) receiving emergency medical services in King County, Washington. JAMA Netw Open. 2020;3(7) doi: 10.1001/jamanetworkopen.2020.14549. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
3. Argenziano MG, Bruce SL, Slater CL. Characterization and clinical course of 1000 patients with coronavirus disease 2019 in New York: retrospective case series. BMJ. 2020;369:m1996. doi: 10.1136/bmj.m1996. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
4. Severe outcomes among patients with coronavirus disease 2019 (COVID-19) — United States, February 12–March 16, 2020. MMWR Morb Mortal Wkly Rep.

2020;69(12):343–346. doi: 10.15585/mmwr.mm6912e2. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
5. WorldoMeter. COVID-19 coronavirus pandemic. Available at: https://www.worldometers.info/coronavirus/. Accessed July 3, 2020.
6. National Institutes of Health. NIH begins clinical trial of hydroxychloroquine and azithromycin to treat COVID-19. Available at:https://www.nih.gov/news-events/news-releases/nih-begins-clinical-trial-hydroxychloroquine-azithromycin-treat-covid-19. Accessed July 3, 2020.
7. National Institute of Allergy and Infectious Diseases. NIH clinical trial evaluating hydroxychloroquine and azithromycin to treat COVID-19 closes early. Available at: https://www.niaid.nih.gov/news-events/bulletin-nih-clinical-trial-evaluating-hydroxychloroquine-and-azithromycin-covid-19. Accessed July 3, 2020.
8. National Institutes of Health/US National Library of Medicine. COVID-19 studies from the World Health Organization database. Available at: https://clinicaltrials.gov/ct2/who_table. Accessed July 3, 2020.
9. Gopalakrishnan A, Mossaid A, Lo KB, Vasudevan V, McCullough PA, Rangaswami J. Fulminant acute kidney injury in a young patient with novel coronavirus 2019. Cardiorenal Med. 2020;10(4):217–222. doi: 10.1159/000508179. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
10. Vaduganathan M, van Meijgaard J, Mehra MR, Joseph J, O'Donnell CJ, Warraich HJ. Prescription fill patterns for commonly used drugs during the COVID-19 pandemic in the United States. JAMA. 2020;323(24):2524–2526. doi: 10.1001/jama.2020.9184. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
11. Centers for Disease Control and Prevention. Available at:https://www.cdc.gov/coronavirus/2019-ncov/covid-data/ccovidview/05152020/covid-like-illness.html. Accessed July 3, 2020.
12. Nussbaumer-Streit B, Mayr V, Dobrescu AI. Quarantine alone or in combination with other public health measures to control COVID-19: a rapid review. Cochrane Database Syst Rev. 2020;4(4) doi: 10.1002/14651858.CD013574. Published 2020 Apr 8. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
13. Xu XK, Liu XF, Wu Y, Ali ST, Du Z, Bosetti P, Lau EHY, Cowling BJ, Wang L. Reconstruction of Transmission Pairs for novel Coronavirus Disease 2019 (COVID-19) in mainland China: Estimation of Super-spreading Events, Serial Interval, and Hazard of Infection. *Clin Infect Dis*. 2020 Jun 18:ciaa790. doi: 10.1093/cid/ciaa790. Epub ahead of print. PMID: 32556265; PMCID: PMC7337632. [PMC free article] [PubMed]
14. Hsiang S, Allen D, Annan-Phan S. The effect of large-scale anti-contagion policies on the COVID-19 pandemic. Nature. 2020;584(7820):262–267. doi: 10.1038/s41586-020-2404-8. [PubMed] [CrossRef] [Google Scholar]
15. Chen LD. Effects of ambient temperature and humidity on droplet lifetime - A perspective of exhalation sneeze droplets with COVID-19 virus transmission. Int J Hyg Environ Health. 2020;229 doi: 10.1016/j.ijheh.2020.113568. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
16. Izzedine H, Jhaveri KD, Perazella MA. COVID-19 therapeutic options for patients with kidney disease. Kidney Int. 2020;97(6):1297–1298. doi: 10.1016/j.kint.2020.03.015. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

17. Shojaei A, Salari P. COVID-19 and off label use of drugs: an ethical viewpoint [published online ahead of print, 2020 May 8]. *Daru*. 2020;1-5. 10.1007/s40199-020-00351-y [PMC free article] [PubMed] [CrossRef]
18. Prasad AS, Fitzgerald JT, Bao B, Beck FW, Chandrasekar PH. Duration of symptoms and plasma cytokine levels in patients with the common cold treated with zinc acetate. A randomized, double-blind, placebo-controlled trial. Ann Intern Med. 2000;133(4):245–252. doi: 10.7326/0003-4819-133-4-200008150-00006. [PubMed] [CrossRef] [Google Scholar]
19. Rahman MT, Idid SZ. Can Zn Be a Critical Element in COVID-19 Treatment? [published online ahead of print, 2020 May 26]. *Biol Trace Elem Res*. 2020;1-9. 10.1007/s12011-020-02194-9 [PMC free article] [PubMed] [CrossRef]
20. Zelenko V.Clinical dx protocol. Available at: https://docs.google.com/document/d/1pjgHlqI-ZuKOziN3txQsN5zz62v3K043pR3DdhEmcos/edit. Accessed July 3, 2020.
21. Te Velthuis AJ, van den Worm SH, Sims AC, Baric RS, Snijder EJ, van Hemert MJ. Zn(2+) inhibits coronavirus and arterivirus RNA polymerase activity in vitro and zinc ionophores block the replication of these viruses in cell culture. PLoS Pathog. 2010;6(11) doi: 10.1371/journal.ppat.1001176. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
22. Rosenberg ES, Dufort EM, Udo T. Association of treatment with hydroxychloroquine or azithromycin with in-hospital mortality in patients with COVID-19 in New York State. JAMA. 2020;323(24):2493–2502. doi: 10.1001/jama.2020.8630. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
23. Arshad S, Kilgore P, Chaudhry ZS. Treatment with hydroxychloroquine, azithromycin, and combination in patients hospitalized with COVID-19. Int J Infect Dis. 2020;97:396–403. doi: 10.1016/j.ijid.2020.06.099. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
24. Mikami T, Miyashita H, Yamada T, et al. Risk Factors for Mortality in Patients with COVID-19 in New York City [published online ahead of print, 2020 Jun 30]. *J Gen Intern Med*. 2020;1-10. 10.1007/s11606-020-05983-z [PMC free article] [PubMed] [CrossRef]
25. Schrezenmeier E, Dörner T. Mechanisms of action of hydroxychloroquine and chloroquine: implications for rheumatology. Nat Rev Rheumatol. 2020;16(3):155–166. doi: 10.1038/s41584-020-0372-x. [PubMed] [CrossRef] [Google Scholar]
26. US Food and Drug Administration. FDA cautions against use of hydroxychloroquine or chloroquine for COVID-19 outside of the hospital setting or a clinical trial due to risk of heart rhythm problems. Available at: https://www.fda.gov/drugs/drug-safety-and-availability/fda-cautions-against-use-hydroxychloroquine-or-chloroquine-covid-19-outside-hospital-setting-or. Accessed July 3 2020.
27. Pani A, Lauriola M, Romandini A, Scaglione F. Macrolides and viral infections: focus on azithromycin in COVID-19 pathology. Int J Antimicrobial Agents. 2020;56(2) doi: 10.1016/j.ijantimicag.2020.106053. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
28. Lagier JC, Million M, Gautret P. Outcomes of 3,737 COVID-19 patients treated with hydroxychloroquine/azithromycin and other regimens in Marseille, France: a

retrospective analysis. Travel Med Infect Dis. 2020;36 doi: 10.1016/j.tmaid.2020.101791. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
29. Million M, Lagier JC, Gautret P. Early treatment of COVID-19 patients with hydroxychloroquine and azithromycin: A retrospective analysis of 1061 cases in Marseille, France. Travel Med Infect Dis. 2020;35 doi: 10.1016/j.tmaid.2020.101738. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
30. Risch HA. Early outpatient treatment of symptomatic, high-risk covid-19 patients that should be ramped-up immediately as key to the pandemic crisis [e-pub ahead of print].*Am J Epidemiol.* Accessed June 29, 2020. 10.1093/aje/kwaa093. [PMC free article] [PubMed] [CrossRef]
31. Eljaaly K, Alshehri S, Aljabri A. Clinical failure with and without empiric atypical bacteria coverage in hospitalized adults with community-acquired pneumonia: a systematic review and meta-analysis. BMC Infect Dis. 2017;17(1):385. doi: 10.1186/s12879-017-2495-5. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
32. Malek AE, Granwehr BP, Kontoyiannis DP. Doxycycline as a potential partner of COVID-19 therapies. IDCases. 2020;21:e00864. doi: 10.1016/j.idcr.2020.e00864. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
33. Sodhi M, Etminan M. therapeutic potential for tetracyclines in the treatment of COVID-19 pharmacotherapy. 2020;40(5):487-488. doi: 10.1002/phar.2395. [PMC free article] [PubMed]
34. Ailani RK, Agastya G, Ailani RK, Mukunda BN, Shekar R. Doxycycline is a cost-effective therapy for hospitalized patients with community-acquired pneumonia. Arch Intern Med. 1999;159(3):266–270. doi: 10.1001/archinte.159.3.266. [PubMed] [CrossRef] [Google Scholar]
35. Coomes EA, Haghbayan H. Favipiravir, an antiviral for COVID-19? J Antimicrob Chemother. 2020;75(7):2013–2014. doi: 10.1093/jac/dkaa171. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
36. Pilkington V, Pepperrell T, Hill A. A review of the safety of favipiravir - a potential treatment in the COVID-19 pandemic? J Virus Erad. 2020;6(2):45–51. [PMC free article] [PubMed] [Google Scholar]
37. Li J, Zhang C, Wu Z, Wang G, Zhao H. The mechanism and clinical outcome of patients with corona virus disease 2019 whose nucleic acid test has changed from negative to positive, and the therapeutic efficacy of favipiravir: a structured summary of a study protocol for a randomised controlled trial. Trials. 2020;21(1):488. doi: 10.1186/s13063-020-04430-y. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
38. Han H, Ma Q, Li C. Profiling serum cytokines in COVID-19 patients reveals IL-6 and IL-10 are disease severity predictors. Emerg Microbes Infect. 2020;9(1):1123–1130. doi: 10.1080/22221751.2020.1770129. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
39. Kolilekas L, Loverdos K, Giannakaki S, et al. Can steroids reverse the severe COVID-19 induced "cytokine storm"? [published online ahead of print, 2020 Jun 12]. *J Med Virol*. 2020. 10.1002/jmv.26165 [PMC free article] [PubMed] [CrossRef]
40. Singh AK, Majumdar S, Singh R, Misra A. Role of corticosteroid in the management of COVID-19: a systemic review and a clinician's perspective. Diabetes Metab Syndr. 2020;14(5):971–978. doi: 10.1016/j.dsx.2020.06.054. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

41. Randomised Evaluation of COVID-19 Therapy (RECOVERY). Dexamethasone results. Available at: https://www.recoverytrial.net/results/dexamethasone-results. Accessed June 29, 2020.
42. Deftereos SG, Giannopoulos G, Vrachatis DA. Effect of colchicine vs standard care on cardiac and inflammatory biomarkers and clinical outcomes in patients hospitalized with coronavirus disease 2019: The GRECCO-19 randomized clinical trial. JAMA Netw Open. 2020;3(6) doi: 10.1001/jamanetworkopen.2020.13136. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
43. World Health Organization. R&D blueprint and COVID-19. Available at:https://www.who.int/blueprint/priority-diseases/key-action/novel-coronavirus/en/. Accessed March 25, 2020.
44. Bösmüller H, Traxler S, Bitzer M, et al. The evolution of pulmonary pathology in fatal COVID-19 disease: an autopsy study with clinical correlation [published online ahead of print, 2020 Jun 30]. *Virchows Arch*. 2020;1-9. 10.1007/s00428-020-02881-x [PMC free article] [PubMed] [CrossRef]
45. McFadyen JD, Stevens H, Peter K. The emerging threat of (micro)thrombosis in COVID-19 and its therapeutic implications. Circ Res. 2020;127(4):571–587. doi: 10.1161/CIRCRESAHA.120.317447. [published online ahead of print, 2020 Jun 26] [PMC free article] [PubMed] [CrossRef] [Google Scholar]
46. Bhandari S, Rankawat G, Bagarhatta M. Clinico-radiological evaluation and correlation of CT chest images with progress of disease in COVID-19 patients. J Assoc Physicians India. 2020;68(7):34–42. [PubMed] [Google Scholar]
47. Chan KH, Slim J, Shaaban HS. Pulmonary Embolism and Increased Levels of d-Dimer in Patients with Coronavirus Disease [published online ahead of print, 2020 Jul 2]. *Emerg Infect Dis*. 2020;26(10):10.3201/eid2610.202127. 10.3201/eid2610.202127 [PMC free article] [PubMed] [CrossRef]
48. Artifoni M, Danic G, Gautier G. Systematic assessment of venous thromboembolism in COVID-19 patients receiving thromboprophylaxis: incidence and role of D-dimer as predictive factors. J Thromb Thrombolysis. 2020;50(1):211–216. doi: 10.1007/s11239-020-02146-z. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
49. Mestre-Gómez B, Lorente-Ramos RM, Rogado J, et al. Incidence of pulmonary embolism in non-critically ill COVID-19 patients. Predicting factors for a challenging diagnosis [published online ahead of print, 2020 Jun 29]. *J Thromb Thrombolysis*. 2020;1-7. 10.1007/s11239-020-02190-9 [PMC free article] [PubMed] [CrossRef]
50. Ackermann M, Verleden SE, Kuehnel M. Pulmonary vascular endothelialitis, thrombosis, and angiogenesis in covid-19. N Engl J Med. 2020;383(2):120–128. doi: 10.1056/NEJMoa2015432. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
51. Turshudzhyan A. Anticoagulation options for coronavirus disease 2019 (COVID-19)-induced coagulopathy. Cureus. 2020;12(5):e8150. doi: 10.7759/cureus.8150. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
52. Glatthaar-Saalmüller B, Mair KH, Saalmüller A. Antiviral activity of aspirin against RNA viruses of the respiratory tract-an in vitro study. Influenza Other Respir Viruses. 2017;11(1):85–92. doi: 10.1111/irv.12421. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
53. Tang N, Bai H, Chen X, Gong J, Li D, Sun Z. Anticoagulant treatment is associated with decreased mortality in severe coronavirus disease 2019 patients with coagulopathy. J

Thromb Haem. 2020;18(5):1094–1099. doi: 10.1111/jth.14817. [PubMed] [CrossRef] [Google Scholar]
54. Moores LK, Tritschler T, Brosnahan S, et al. Prevention, Diagnosis, and Treatment of VTE in Patients With Coronavirus Disease 2019: CHEST Guideline and Expert Panel Report [published online ahead of print, 2020 Jun 2]. *Chest*. 2020;S0012-3692(20)31625-1. 10.1016/j.chest.2020.05.559 [PMC free article] [PubMed] [CrossRef]
55. Westafer LM, Elia T, Medarametla V, Lagu T. A transdisciplinary COVID-19 early respiratory intervention protocol: an implementation story. J Hosp Med. 2020;15(6):372–374. doi: 10.12788/jhm.3456. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

APPENDIX VII

GEORGIA GUIDE STONES, NEW WORLD ORDER, NOW, THE GREAT RESET IMMUNE ESCAPE CONSPIRACY THEORY RISKS

The world population in 1800 was 1 billion and by 1900 it was still well under 2 billion. In the past 20 years it has exponentially grown fivefold to 7.9 billion in 2021. The world population was set to grow still further to about 11 billion by the year 2050. What made this possible was mechanization in the factory and on the farm that boosted output, and improved medicine and living conditions that reduced infant mortality and lengthened lifespans.

Figure 1. Georgia Guide Stones.

The Georgia Guidestones was set up in the state of Georgia in the USA around 1980. This strange monolithic structure has been taken by some to be a kind of an USA counterpart to Stone Henge in the UK, but it may be an ominous warning by the World Economic Forum's New World Order, and its NWO advocates of what they have discussed in their Great Reset, designated as Great Separation, Great Parting of Humanity by their opponents. The ideas are promulgated by globalists such as Klaus Schwab Rothschild. What they view as a sustainable world population is one half billion people. To get to that figure they would have to cull 7.4 billion people, meaning that they suggest reducing the world population by a staggering 93.6 percent. The USA population is assumed to be reduced to 69 million in 2025 with a ranking of 19-th in size, from 316 million in 2013 with a ranking of third in size.

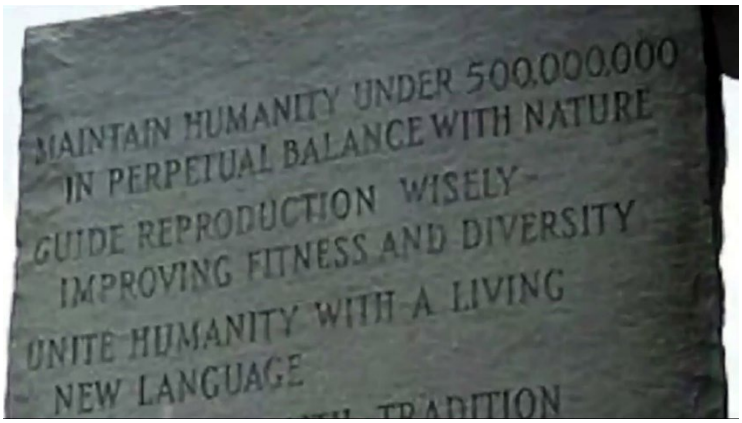


Figure 2. Georgia Guide Stones carvings.

Figure 3. Protesters bombed out the Georgia Guide Stones structure on July 6, 2022, which was later removed by local authorities.

The conspiracy theorists accusation is that the culling would be achieved by the undisclosed use of aluminum as an adjuvant in mRNA genetic therapies causing the generation of prions as disease agents.

Another conspiracy theorist's accusation is that graphene oxide or specifically graphene hydroxide was detected in the mRNA immunization therapies, especially if they are mistakenly injected into a blood vessel rather than in the muscle. Graphene is an especially durable form of carbon which does not exist in nature. When injected into the human body each particle find others within the body and self assembles a new circuitry for electricity.

A separate allegation is that graphene particles are one atom thick and become sharp as razor blades in the environment of the human cell, causing devastating effects throughout, especially when moving quickly as like when blood pumps thru an athlete.

Their presence in vaccine products was reportedly detected through Micro Raman Spectroscopy, even though undisclosed in the reports from the pharmaceutical companies. The graphene hydroxide is a biologically stable indestructible chemical structure that acts as a razor of a large area of 50 nm and very low single layer thickness of 0.1 nm. They turn

the smooth surface of the blood supply system epithelial cells into a rough surface causing vascular anomalous diseases that lead to the sudden or long-term eventual morbidity and demise of the affected individuals.

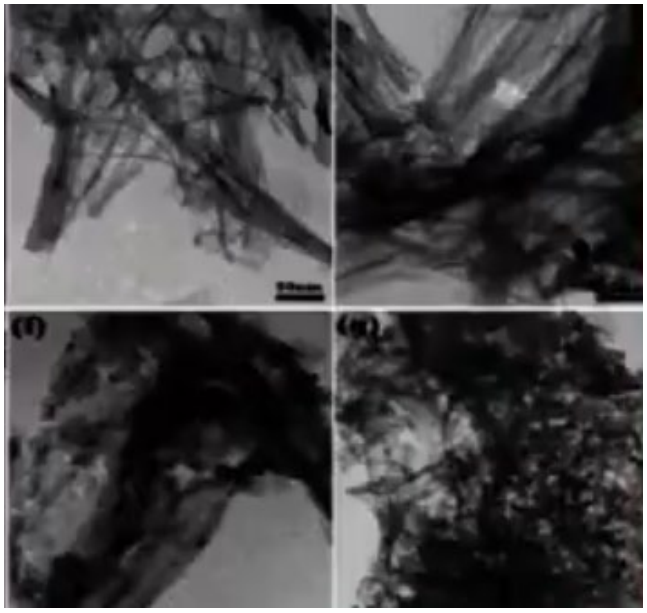
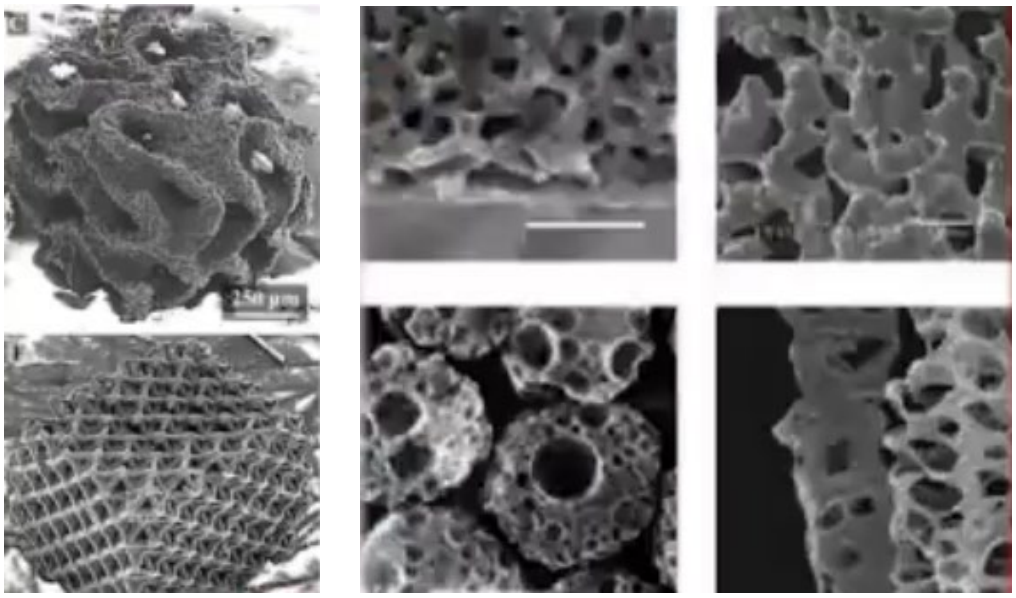


Figure 4. Graphene samples.



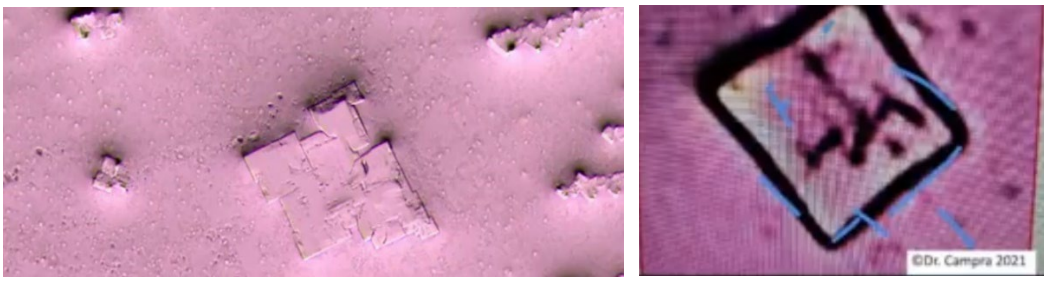


Figure 5. Graphene structures identified through Microscopic Raman Spectra Analysis. Possibly used as encapsulation to the mRNA particles.

Unsubstantiated claims were made that graphene oxide constitutes a wireless nano sensors network sensitive to Generation Five, 5G microwave network signals. Identification by Dr. Pablo Campra, Professor of Chemical Science, University of Almera in Spain of graphene existence was initiated by alleged observed magnetic manifestations at the site of the injections and by susceptibility to 5G microwave Bluetooth signals in some vaccinated individuals, alleging a possible brain-machine interface and the suspicious far-fetched mind control attempt at the realization of the theological Mark of the Beast as forced vaccinations and vaccine passports.

The suspected real purpose of vaccine passports is to bring about a financial reset, replacing our failing fiat currency with digital currency. And because these passports are crucial for the implementation of this new financial system, mandatory vaccination of all citizens, young and old, would be imperative.

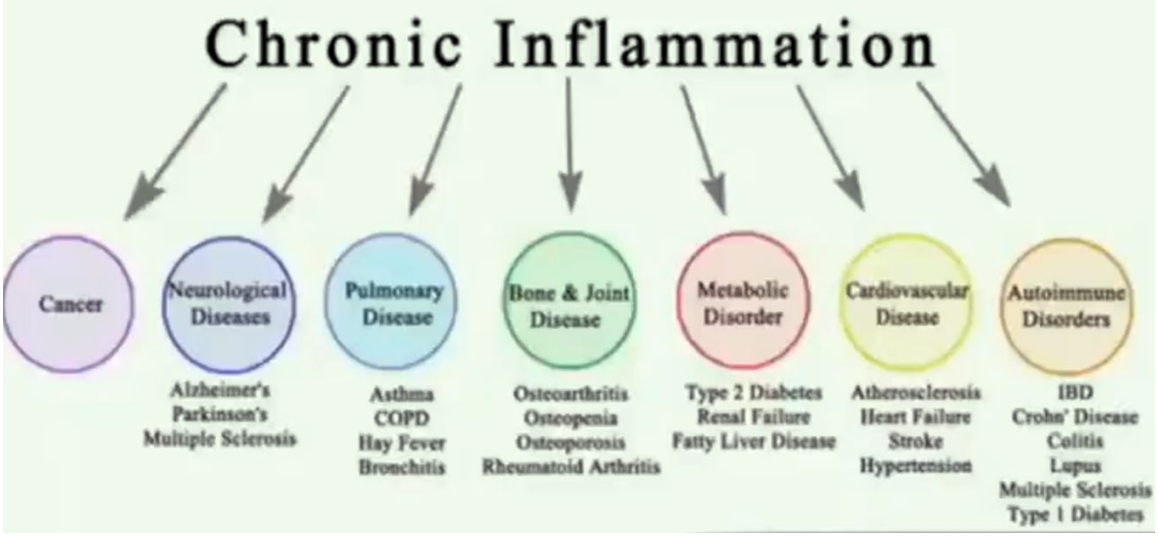


Figure 6. Chronic inflammation resulting from immune system suppression and its possible outcomes.

It is claimed that mRNA Biotics suppress the immune system components basophils, eosinophils, neutrophils, B cells, T cells, Monocytes, and Band cells by 50 percent after the first injection and another 25 percent after the second one for a total of 75 percent. The booster shot causes chronic inflammation requiring continuous booster shots

to fight external attacks on the immune system. The situation becomes analogous to the affliction by the Auto Immune Deficiency Syndrome, AIDS, and Human Immunodeficiency Virus, HIV.

The vaccine developed by BioNTech and Pfizer has a multi-layered response. The first stage involves triggering antibodies, which should stop patients from being reinfected because the antibodies should stop the virus from spreading to healthy cells. If the virus does 'break through, infections should only be mild, since the second layer of protections involves triggering the T-cells, which are immune cells in the body that mobilize to destroy infected cells after an infection has taken hold. No variant has eluded the T-cell response, and it is unlikely that the Omicron strain will achieve what scientists call full "immune escape" - that is, dodge both the antibodies and the T-cell response.

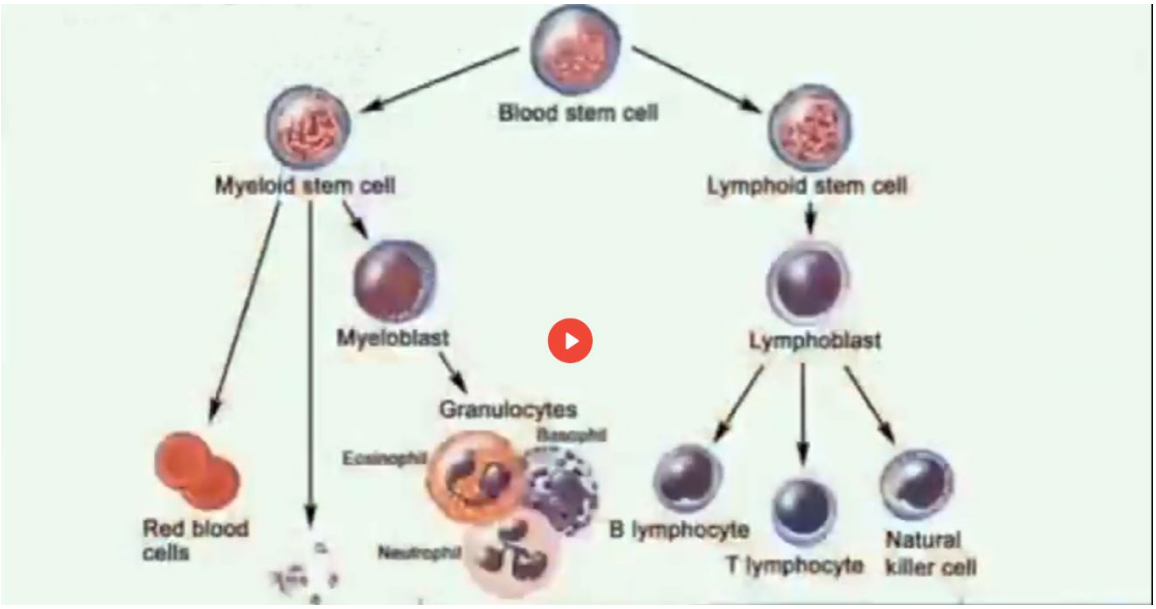


Figure 7. Platelets and White Blood Cells, WBCs eosinophils, basophils, and lymphocytes components of immune system.

The controversial Georgia Guide Stones Rules are not conspiracy theory allegations. They are chiseled in stone in twelve languages including Swahili:

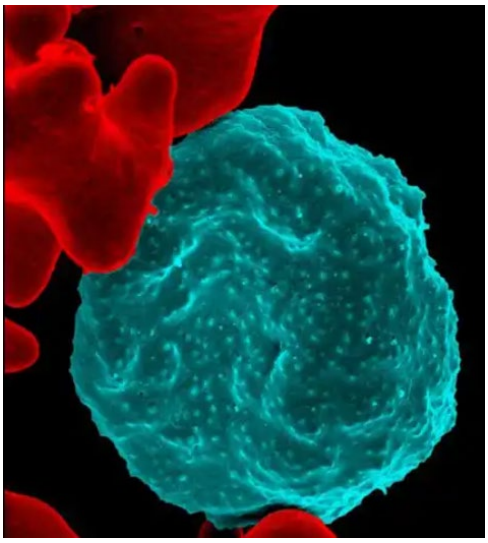
1. Maintain humanity under 500,000,000 in perpetual balance with nature.
2. Guide reproduction wisely; improving fitness and diversity.
3. Unite humanity with a living new language.
4. Rule passion—faith—tradition—and all things with tempered reason.
5. Protect people and nations with fair laws and just courts.
6. Let all nations rule internally resolving external disputes in a world court.
7. Avoid petty laws and useless officials.
8. Balance personal rights with social duties.
9. Prize truth—beauty—love—seeking harmony with the infinite.
10. Be not a cancer on the Earth—Leave room for nature.

APPENDIX VIII

INFECTIVE AGENTS, PATHOGENS MICROGRAPHS

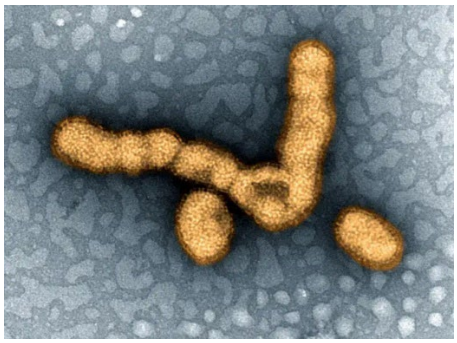
SPOROZOITES

Malaria sporozoites, the infectious form of the malaria parasite that is communicated into people by mosquito bites. Credit: NIAID.

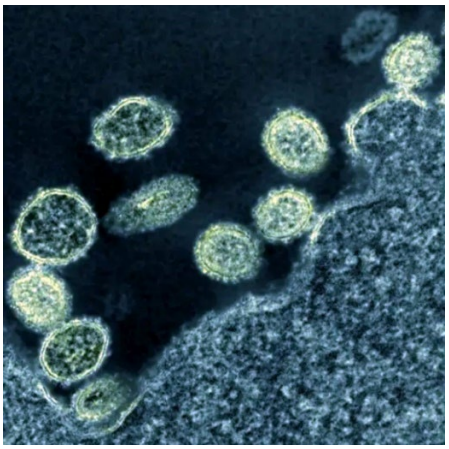


Scanning electron micrograph of red blood cell infected with malaria parasites, which are colorized in blue. The infected cell is in the center of the image area. To the left are uninfected cells with a smooth red surface. Credit: NIAID.

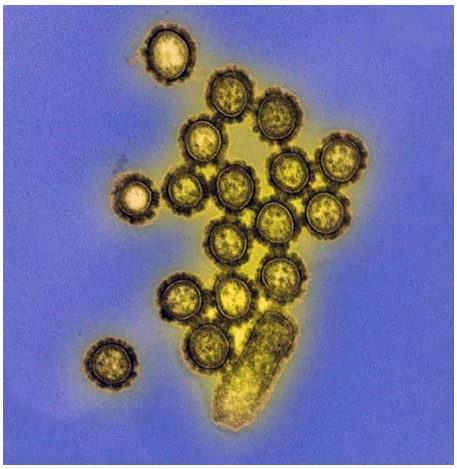
VIRUSES



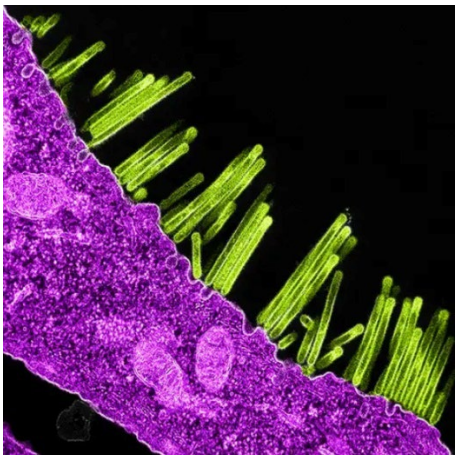
Colorized transmission electron micrograph showing H1N1 influenza virus particles. Credit: NIAID.



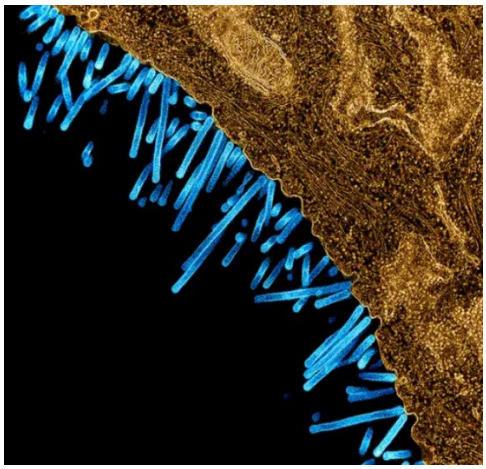
Electron micrograph of 1918/1919 H1N1 Spanish Flu influenza virus particles near a cell. Credit: NIAID.



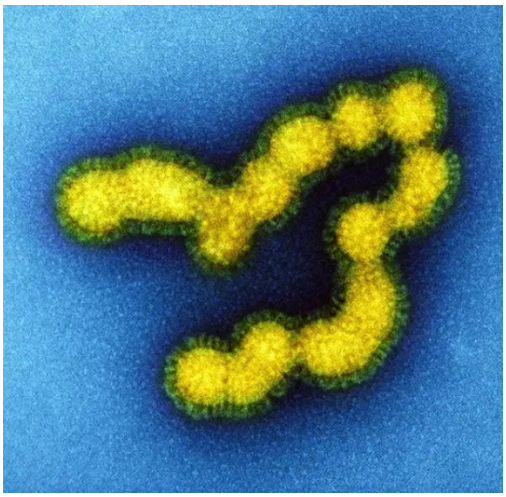
Colorized transmission electron micrograph showing H1N1 influenza virus particles. Surface proteins on the virus particles are shown in black. Credit: NIAID.



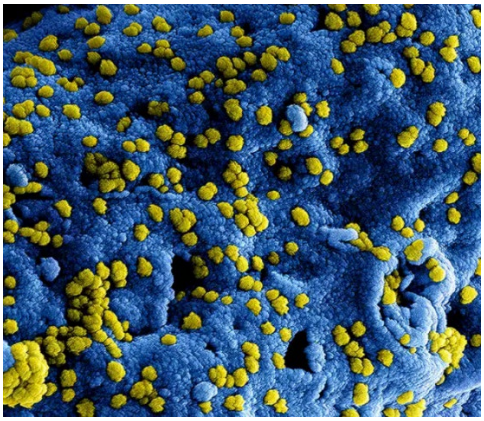
Transmission electron micrograph of SW31 (swine strain) influenza virus particles (green) budding from the surface of a MDCK cell (pink). Image captured and color-enhanced at the NIAID Integrated Research Facility in Fort Detrick, Maryland. Credit: NIAID.



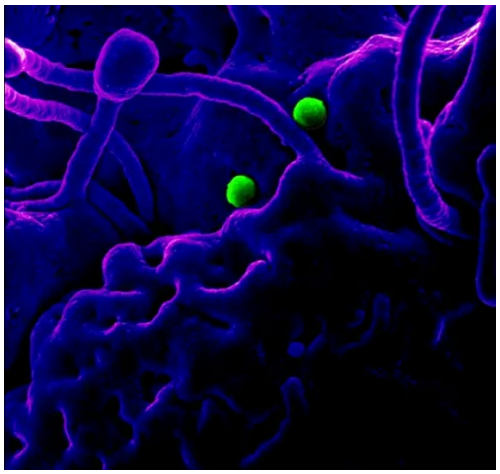
Transmission electron micrograph of SW31 (swine strain) influenza virus particles (blue) attached to and budding from the surface of a MDCK cell (orange). Image captured and color-enhanced at the NIAID Integrated Research Facility in Fort Detrick, Maryland. Credit: NIAID.



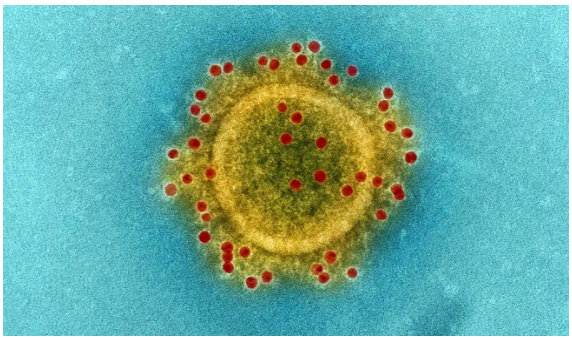
Yransmission electron micrograph of negatively stained SW31 (swine strain) influenza virus particles. Credit: NIAID.



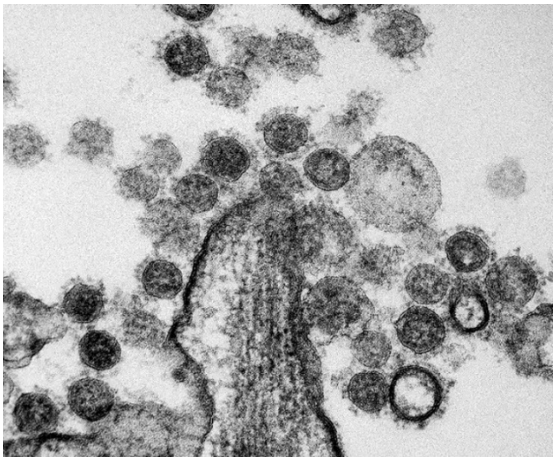
Scanning electron micrograph of Middle East Respiratory Syndrome MERS virus particles attached to the surface of an infected VERO E6 cell. Image captured and color-enhanced at the NIAID Integrated Research Facility in Ft. Detrick, Maryland. Credit NIAID.



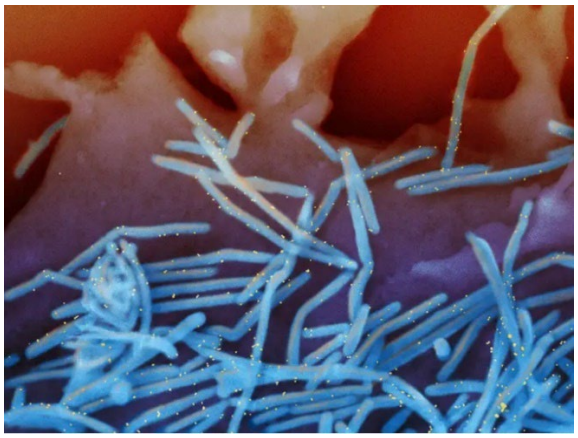
Middle East Respiratory Syndrome MERS-CoV Corona Virus particles on camel epithelial cells. Credit: NIAID in collaboration with Colorado State University.



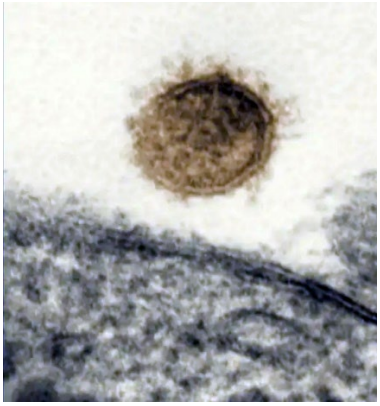
Middle East Respiratory Syndrome MERS Corona virus particle envelope proteins immunolabeled with Rabbit HCoV-EMC/2012 primary antibody and Goat anti-Rabbit 10 nm gold particles. Credit: NIAID.



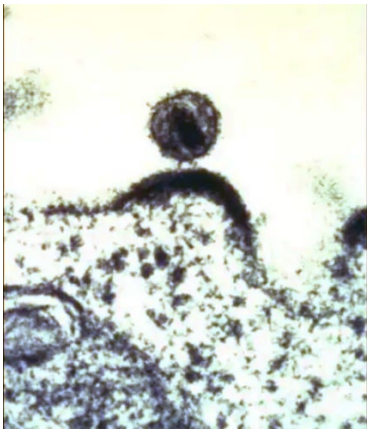
Transmission electron micrograph of Middle East Respiratory Syndrome MERS Corona virus CoV particles found near the periphery of an infected MRC-5 cell. Credit: NIAID.



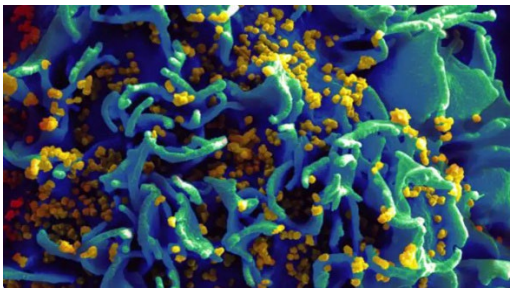
Scanning electron micrograph of human respiratory syncytial virus (RSV) virions blue) and labeled with anti-RSV F protein/gold antibodies (yellow) shedding from the surface of human lung epithelial A549 cells. Credit: NIAID.



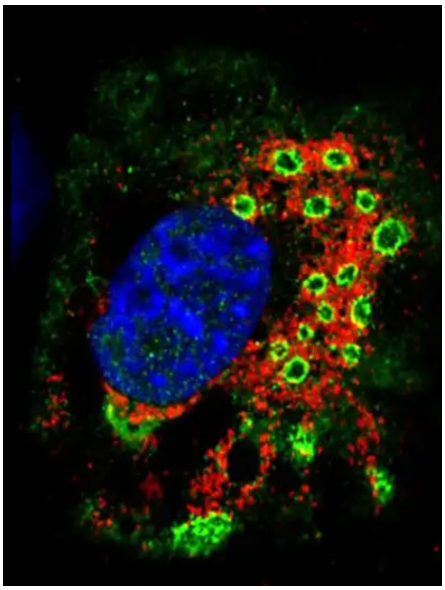
Sin Nombre virus particle shown budding from a Vero cell. Virus causes hantavirus pulmonary syndrome in North America. Credit: NIAID.



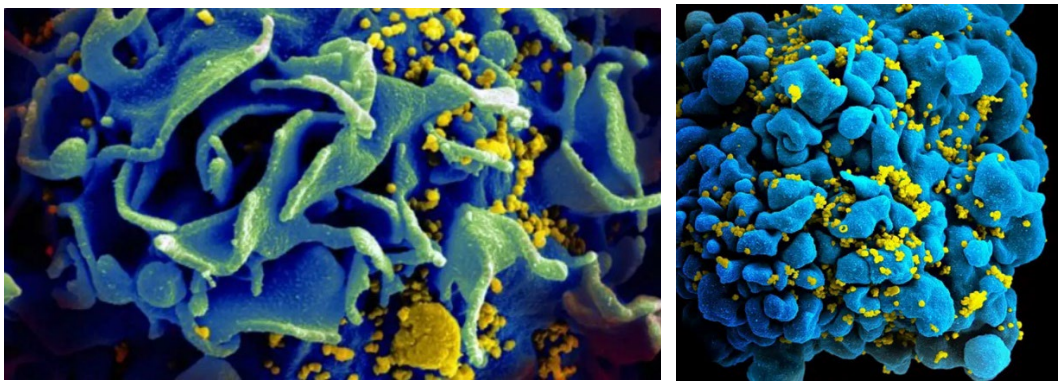
HIV, the virus that causes AIDS, is shown budding out of a human immune cell, which the virus infects and uses to replicate. Credit: NIAID.



Scanning electron micrograph of HIV particles infecting a human H9 T cell, colorized in blue, turquoise, and yellow. Credit: NIAID.

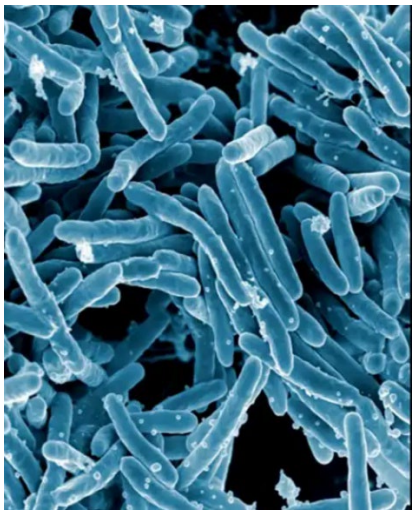


Rotavirus-infected cell revealing numerous viral factories in the cytoplasm. Credit: NIAID.

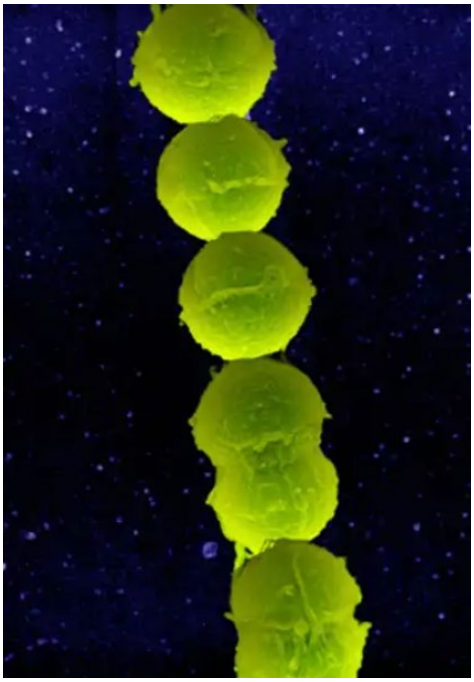


Scanning electron micrographs of HIV-infected T cells. Credit: NIAID.

BACTERIA

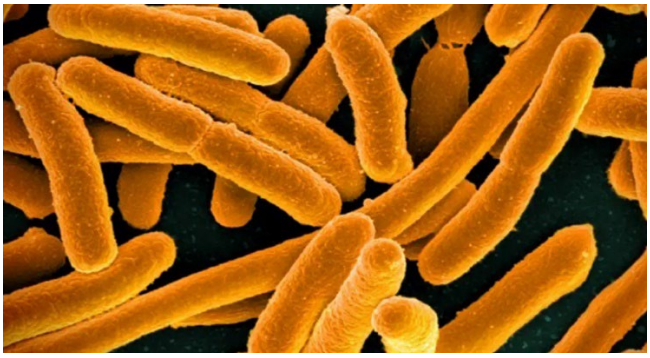


Scanning electron micrograph of Mycobacterium tuberculosis TB bacteria, which cause tuberculosis. Credit: NIAID.

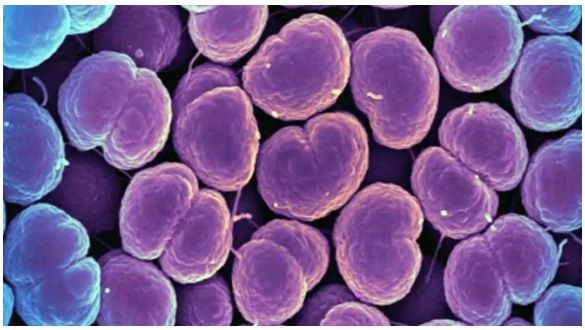


Group B streptococcus bacteria. Credit: NIAID.

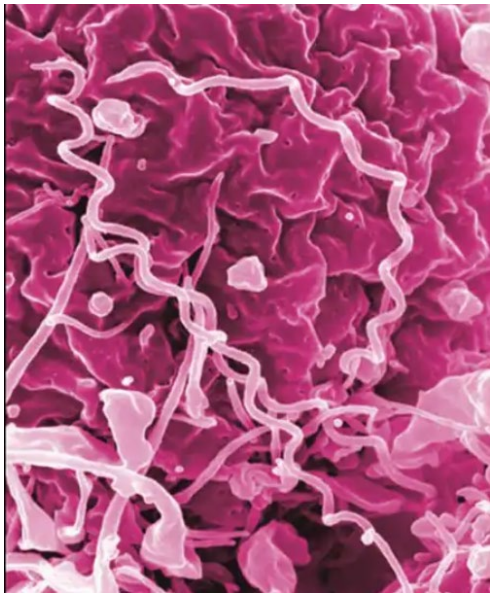
Scanning electron micrograph of Borrelia hermsii, the causative agent of relapsing fever, Lyme Disease, interacting with red blood cells. Borrelia hermsii is a spirochete bacterium that has been implicated as a cause of tick-borne relapsing fever. It is spread by the soft-bodied tick Ornithodoros hermsii. Credit: NIAID.



Scanning electron micrograph of Escherichia Coli, E. Coli, grown in culture and adhered to a cover slop. Credit: NIAID.

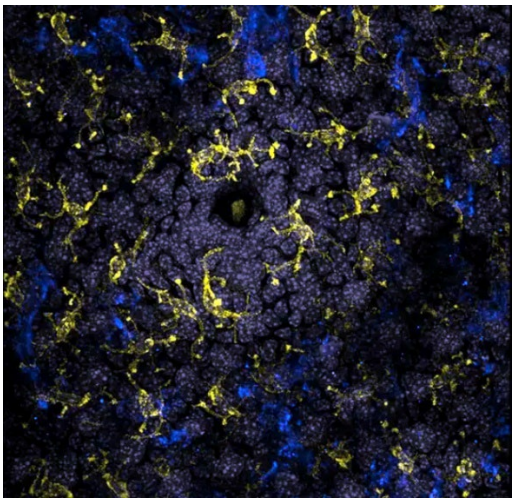


Scanning electron micrograph of Neisseria gonorrhoeae bacteria, which causes gonorrhea. Credit: NIAID.

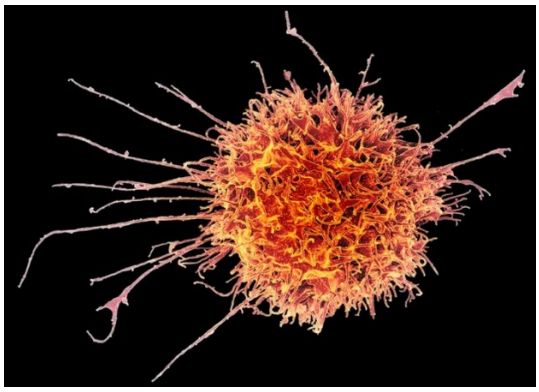


Treponema pallidum bacteria that cause syphilis. Credit: NIAID.

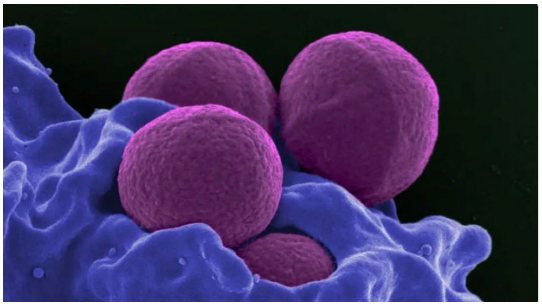
ANTIBODIES, IMMUNE CELLS INTERACTIONS



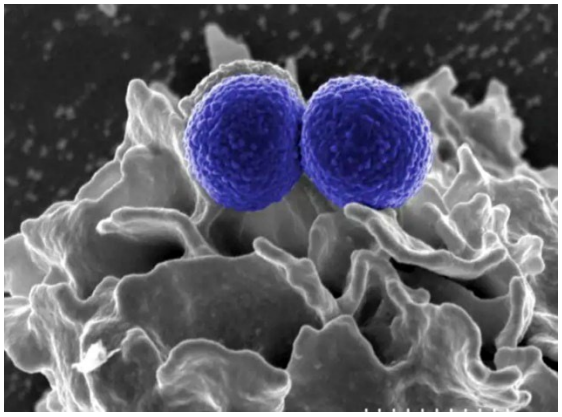
Immune cells surrounding hair follicles in mouse skin. Hair follicles are home to a diverse array of commensal bacteria. Credit: NIAID.



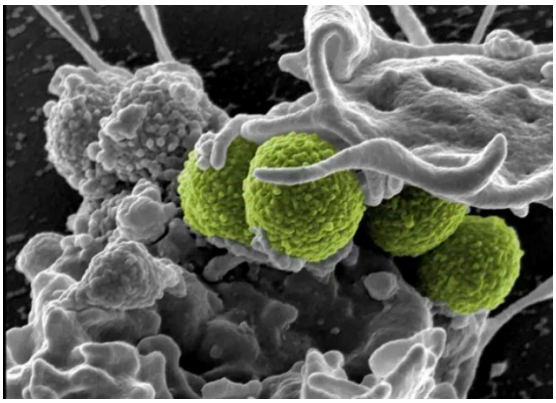
Scanning electron micrograph of a natural killer cell from a human donor. Credit: NIAID.



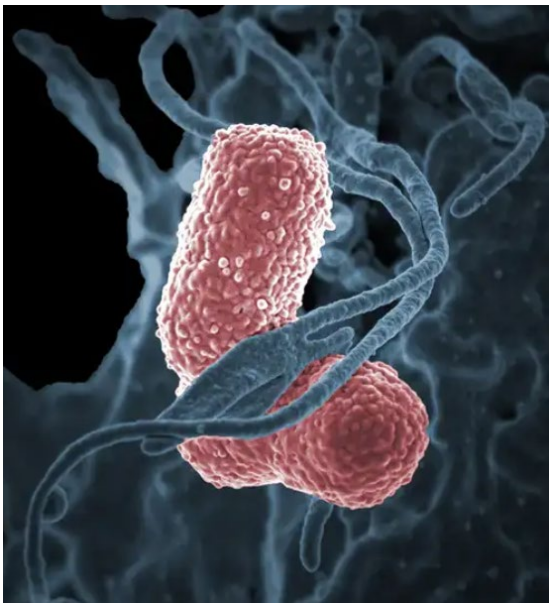
Methicillin-Resistant Staphylococcus Aureus (MRSA). Scanning electron micrograph of a human neutrophil ingesting MRSA (purple). Credit: NIAID.



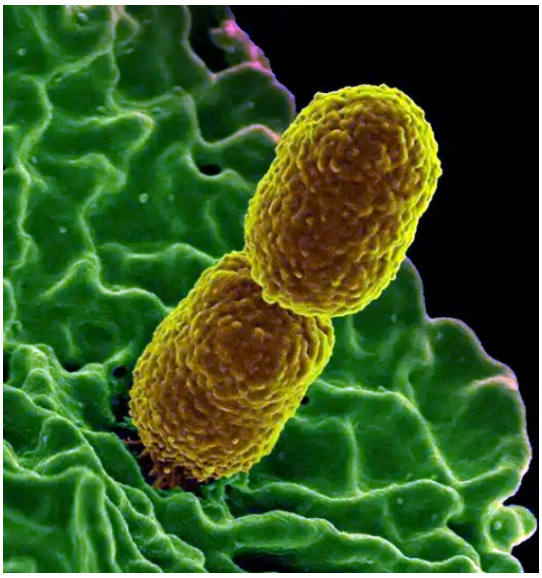
Methicillin-Resistant Staphylococcus Aureus (MRSA) Bacteria. Interaction of MRSA (blue bacteria) with a human white cell. The bacteria shown is strain MRSA252, a leading cause of hospital-associated infections in the USA and UK. Credit: NIAID.



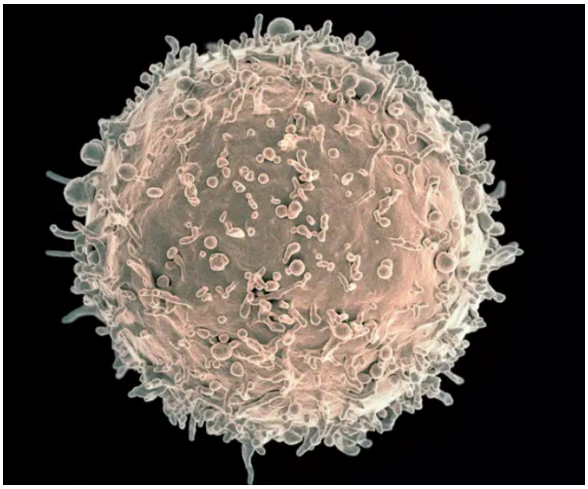
Interaction of MRSA (green bacteria) with a human white cell. The bacteria shown is strain MRSA252, a leading cause of hospital-associated infections in the USA and UK. Credit: NIAID.



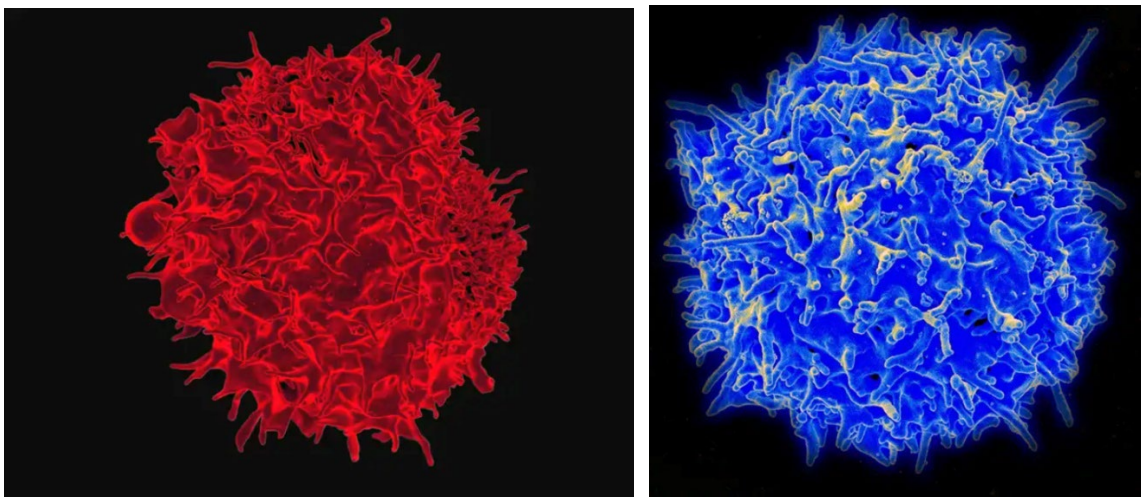
Human neutrophil interacting with Klebsiella pneumoniae (pink), a multidrug–resistant bacterium that causes severe hospital infections. Credit: NIAID.



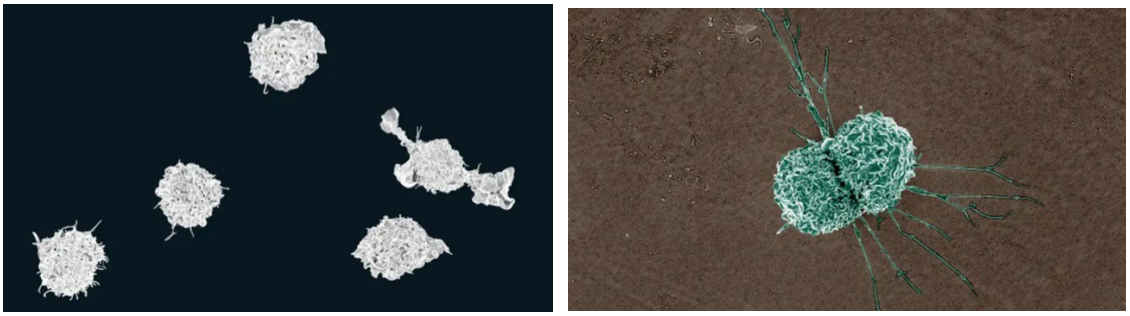
Scanning electron micrograph showing carbapenem-resistant Klebsiella pneumoniae interacting with a human neutrophil. NIAID.

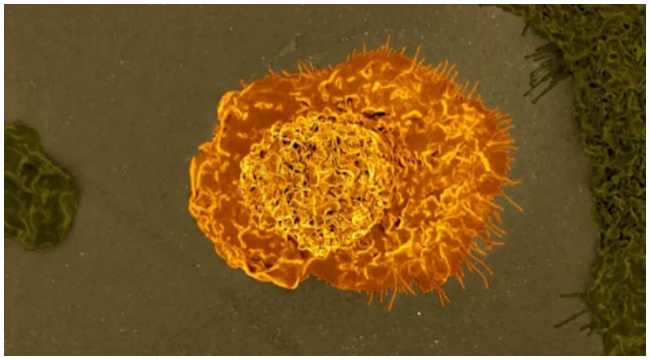


Scanning electron micrograph of a B cell from a human donor. Credit: NIAID.

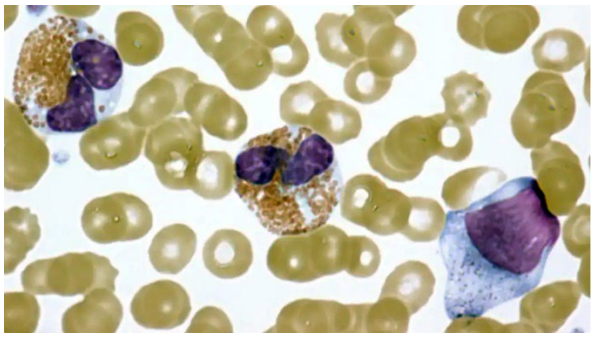


Scanning Electron Microscope, SEM micrograph of T lymphocytes. also called T cells from the immune system of healthy donors. Credit: NIAID.

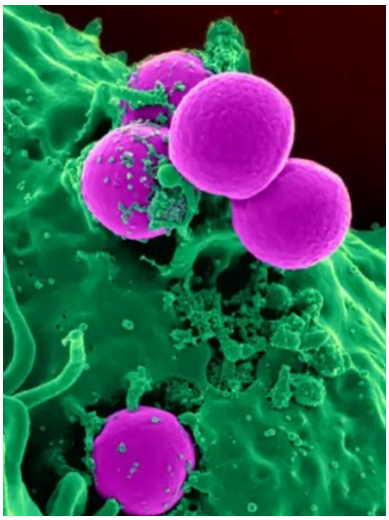




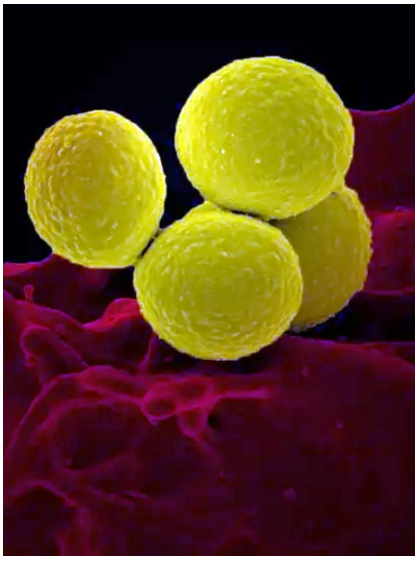
Scanning electron microscope SEM micrograph of macrophages. Credit: NIAID.



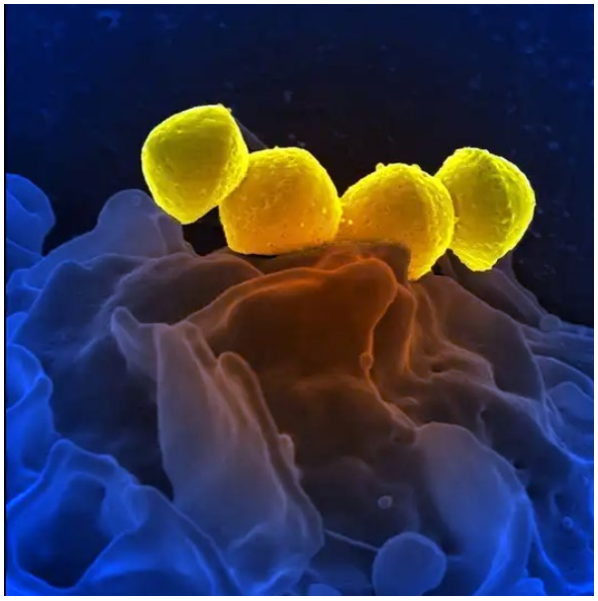
Activated eosinophils in the peripheral blood of a patient with idiopathic hypereosinophilic syndrome showing cytoplasmic clearing, nuclear dysplasia, and the presence of immature forms (100x magnification). Credit: NIAID.



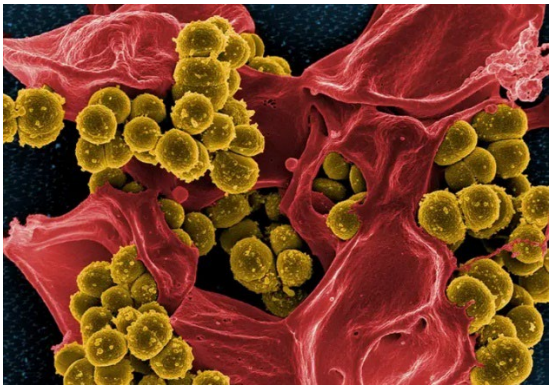
Methicillin-Resistant Staphylococcus Aureus (MRSA) Ingestion by a Neutrophil. The MRSA featured is the USA300 strain. Credit: NIAID.



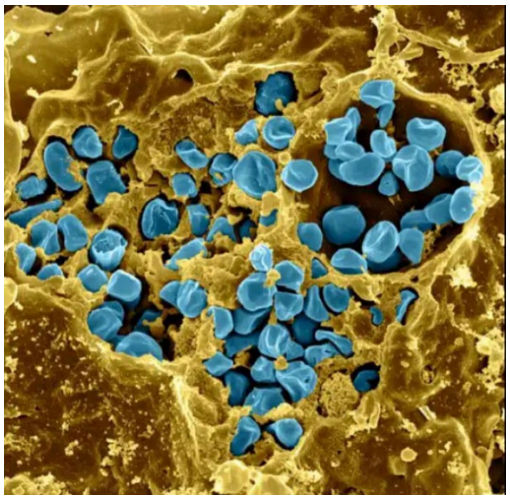
Methicillin-Resistant Staphylococcus Aureus (MRSA). Scanning electron micrograph of a human neutrophil ingesting MRSA (yellow). Credit: NIAID.



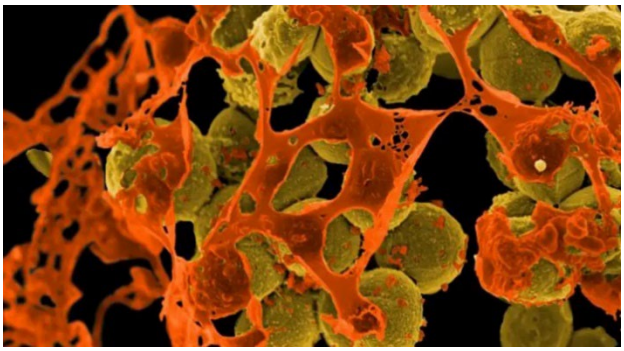
Scanning electron micrograph of Group A Streptococcus (Streptococcus pyogenes) bacteria on primary human neutrophil. Credit: NIAID.



Scanning electron micrograph of methicillin-resistant Staphylococcus aureus and a dead human neutrophil. Credit: NIAID.

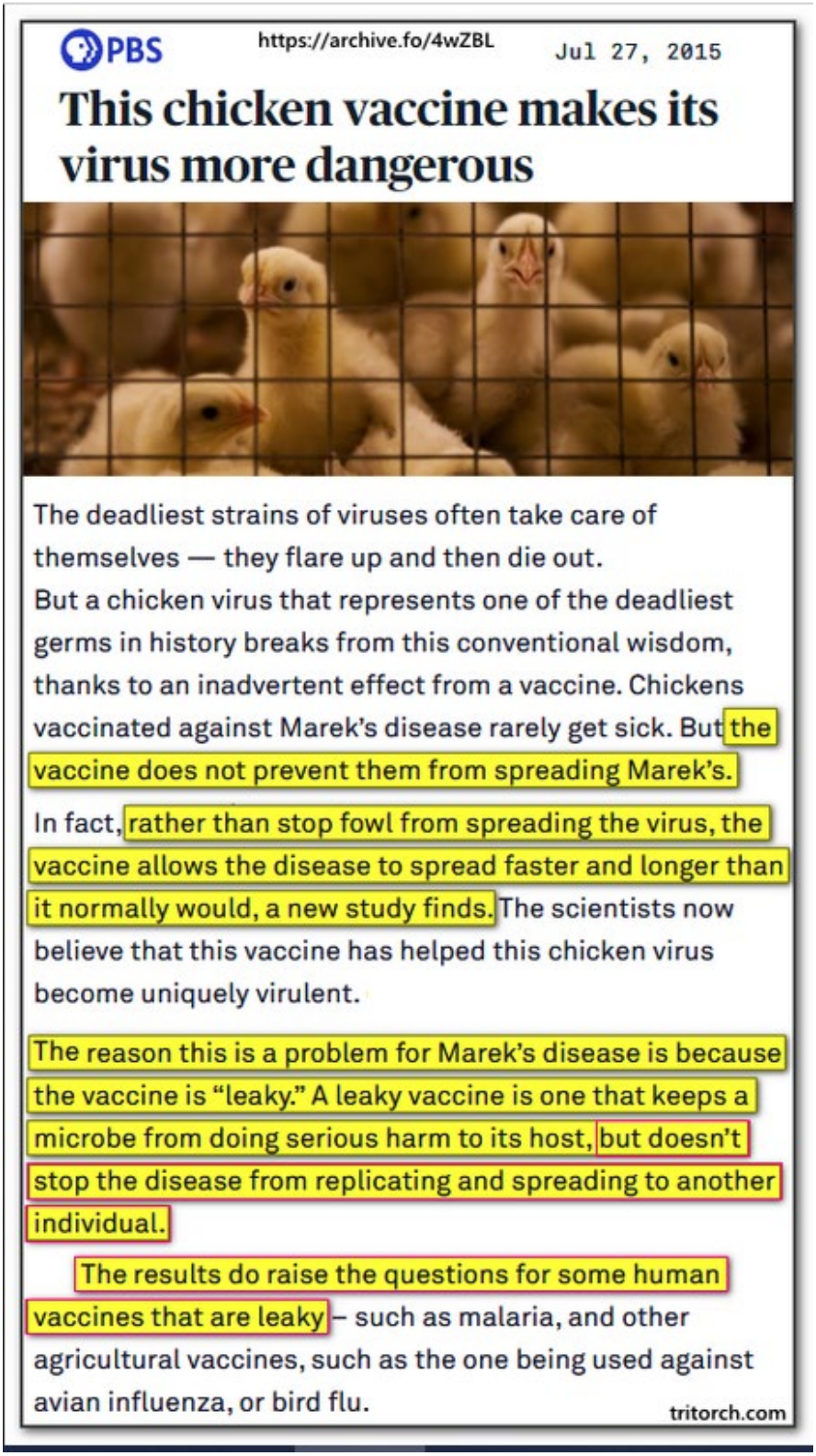


Scanning electron micrograph of a murine macrophage infected with Francisella tularensis strain LVS. Macrophages were dry-fractured by touching the cell surface with cellophane tape after critical point drying to reveal intracellular bacteria. Bacteria (colorized in blue) are located either in the cytosol or within a membrane-bound vacuole. Credit: NIAID.



Scanning electron micrograph of methicillin-resistant Staphylococcus aureus (MRSA, brown) surrounded by cellular debris. MRSA resists treatment with many antibiotics. Credit: NIAID.

Time Magazine Covers: 2003: The Truth About SARS, 2004: Bird Flu, 2005: Avian Flu Death Threat, 2009: Why You'll Be Wearing Masks Again, 2009: H1N1 How Bad Will It Get, 2014: Chasing Ebola, 2016: The Zika Virus, 2017: Warning We Are Not Ready for the Next Pandemic, 2020: Coronavirus, 2021: The Vaccine Revolution.



PBS https://archive.fo/4wZBL Jul 27, 2015

This chicken vaccine makes its virus more dangerous

The deadliest strains of viruses often take care of themselves — they flare up and then die out.

But a chicken virus that represents one of the deadliest germs in history breaks from this conventional wisdom, thanks to an inadvertent effect from a vaccine. Chickens vaccinated against Marek's disease rarely get sick. But the vaccine does not prevent them from spreading Marek's.

In fact, rather than stop fowl from spreading the virus, the vaccine allows the disease to spread faster and longer than it normally would, a new study finds. The scientists now believe that this vaccine has helped this chicken virus become uniquely virulent.

The reason this is a problem for Marek's disease is because the vaccine is "leaky." A leaky vaccine is one that keeps a microbe from doing serious harm to its host, but doesn't stop the disease from replicating and spreading to another individual.

The results do raise the questions for some human vaccines that are leaky – such as malaria, and other agricultural vaccines, such as the one being used against avian influenza, or bird flu.

tritorch.com

Leaky Marek's Disease Chicken vaccine. Rather than stop fowl from spreading the virus, the vaccine allows the disease to spread faster and longer than it normally would. It originates from wild aquatic birds and shorebirds natural virus reservoir. "On April 17,

2007, FDA licensed the first vaccine in the United States for the prevention of H5N1 influenza, commonly referred to as avian influenza or "bird flu." This inactivated influenza virus vaccine is for use in people 18 through 64 years of age who are at increased risk of exposure to the H5N1 influenza virus subtype contained in the vaccine. This vaccine is derived from the A/Vietnam/1203/2004 influenza virus. The vaccine is manufactured by Sanofi Pasteur Inc. of Swiftwater, PA and has been purchased by the federal government for inclusion within the Nation's National Stockpile."

APPENDIX VIII

THE NARRATIVE IS COLLAPSING

James Rickards, DailyReckoning.com,

Let's face it: The public health policy response to the pandemic has been abysmal. I realize I'm not exactly breaking news here, but it can't be said enough.

Even those on the political left, like Bari Weiss, formerly of The New York Times, and comedian Bill Maher are beginning to publicly question mandates and other anti-COVID measures.

Of course the mainstream media have its dutiful lapdogs who still fawn over Dr. Fauci, but what do you expect?

Let's start at the beginning…

In January 2020, Dr. Fauci said there was no danger the COVID-19 virus would strike the United States. We were soon overwhelmed with it.

Then Fauci told the public not to wear masks. Then he said wear two masks, indoors and out. Fauci and others favored lockdowns and quarantines.

Then they said the vaccines would prevent infection and stop the spread of the virus. You could throw away your masks and return to normal living.

At the same time, they warned against early treatment with drugs like hydroxychloroquine and ivermectin, despite numerous studies proving that they're both safe and effective. And the sooner they're administered, the better.

Killer Medical Advice

But the public health authorities told COVID sufferers to just wait it out at home until they had trouble breathing. Only then should they go to the hospital. But guess what? By the time you're having trouble breathing, it's already too late in many cases because the disease process is so advanced.

Besides, if you went to the hospital, there'd be a real chance you'd end up on a ventilator and be treated with remdesivir, a drug that's shown little effectiveness but that has potentially serious side effects, including heart and kidney damage.

There are a lot of conspiracies surrounding the suppression of early treatment. There's no need to get into them here, but it's clear that the public health authorities decided that mass vaccination was the solution, and they knew that effective therapeutics would undermine the rationale for the vaccines.

Remember, the vaccines were granted Emergency Use Authorization, a requirement for which was that no alternate treatments existed. By claiming that there were no effective therapeutics (relying on badly flawed studies a junior high biology student could pick apart), they cleared the way for emergency authorization.

They feared that people wouldn't take their experimental mRNA vaccines if they knew they could take these safe and effective medicines if they got sick.

So they went all out to discredit the therapeutics and those who promoted them. They said quacks were pushing a "horse dewormer," which is ridiculous because people have been taking ivermectin for decades.

But the authorities, colluding with Big Tech, wanted it to appear that vaccination was the only legitimate option.

Well, pretty much everything they said was wrong.

You Can't Vaccinate Your Way out of a Pandemic

The vaccines don't prevent infection and do not stop the spread. Remember when Fauci and others were calling it a "pandemic of the unvaccinated"? That wasn't true at all, as statistics from the most highly vaccinated countries like Israel have demonstrated.

The vaccinated are getting sick at very high rates, and it appears that they're more likely to acquire the Omicron variant than the unvaccinated.

It's not that the vaccines should have no role whatsoever. But they should be targeted toward the elderly and those with serious comorbidities. They shouldn't be forced on the population as a whole, especially on children who face practically no risk from COVID whatsoever.

And it's entirely possible that mass vaccination is actually creating variants because it forces the virus to evolve rapidly in order to perpetuate itself. Many vaccinologists will tell you that you can't vaccinate your way out of a pandemic because of that strong possibility. It could actually make it worse.

Aside from the vaccines, masks don't work because the weave is not tight enough and they're not worn properly. Lockdowns create indoor incubators for the disease. They don't stop the virus from spreading. Lockdowns also lead to social isolation and so-called diseases of despair, including those produced by drug and alcohol abuse.

A Tale of Three Cities

Needless to say, lockdowns are also economically destructive.

Here's some dinner reservation data, comparing January 2022 with January 2020:

In Manhattan, reservations are down 64%. In San Francisco, they're down 66%.

Both New York and San Francisco have vaccine mandates. Here's one city that doesn't: Miami. And reservations in Miami are up 14% compared with January 2020.

See a pattern here? You might, but the politicians running cities like New York and San Francisco don't, or they simply won't admit that they've been wrong. I'll leave that for you to decide.

The best approach is to be outside without a mask, getting exercise and fresh air. Boosting your immune system is probably the best thing you can do.

All of these lies and incompetence have cost lives, ruined economies and destroyed trust in science and public health officials. Real science (as opposed to THE SCIENCE of phonies like Fauci) shows clearly that the best defense against the virus is natural immunity.

Fauci Has Blood on His Hands

If you've had COVID, you have natural antibodies that are far more effective in preventing a severe case than the vaccines. In fact, that's how human populations have always survived pandemics and plagues — by just recovering and relying on herd immunity to eventually shut down the virus.

Independent medical studies show that, as Dr. Marty Makary of Johns Hopkins wrote for The Wall Street Journal, “natural immunity was 27 times as effective as vaccinated immunity in preventing symptomatic illness” from the COVID virus. But because the government ignores natural immunity and insists on ineffective vaccines, thousands of nurses, doctors and emergency workers have been fired from their jobs for not getting the vaccines.

In turn, this depletes hospitals and clinics of much-needed staff, including highly experienced clinicians who have worked with tens of thousands of COVID patients.

Ignoring natural immunity is not just stupid — it’s a death sentence for some sufferers who cannot get the help they need because medical professionals have been fired for no good reason.

Preventing early treatment with repurposed drugs like hydroxychloroquine and ivermectin, among others, is also criminal. Potentially hundreds of thousands of lives could have been saved if early treatment options were made widely available. They weren’t.

For many, waiting around at home until they had trouble breathing, i.e., following Fauci’s advice, cost them their lives.

Fauci and his vax-at-all-costs gang have blood on their hands. Hopefully, one day they’ll be held to account. When they are, I think they’re going to need good lawyers.

EXERCISES

1. An insurance company requires a 30 percent overhead on the premiums it collects from its customers. If the payment to a beneficiary is $100,000 and it collects $1,000 per year in premiums, what is the probability of death in the year that the insurance company used to calculate the collected premium? Compare the result to the case of breakeven for the actuarial risk.
2. Estimate the individual risks for each human from the different natural events in units of [death / (capita. year)].
3. Estimate the distance travelled by a car at 70 miles / hour during the 4.6 seconds taken by a texting event.

REFERENCES

1. Michael Behar, Amanda MacMillan, “When Earth Attacks,” Popular Science, pp. 46-60, May 2005.
2. James Fluere, “Researchers: ‘There is no Safe Level Threshold for Alcohol and Cancer Risk’,” Science Recorder, February 17, 2013.
3. Jane E. Brody, “Sodium, Hiding in Plain Sight,” The New York Times, April 1, 2013.
4. Jonathan LaPook, “A FreshWay to Test Risk of Heart Attack, Stroke,” CBS Evening News, April 24, 2013.
5. Nick Collins, “One Fizzy a day May Raise Diabetes Risk by Fifth,” The Telegraph, Health News, April 25, 2013.
6. “FDA Probing Caffeinated products, from Gum to Chips,” CBS News, April 29, 2013.
7. _____, “Distracted Driving Kills,” The Illinois Sheriff, pp. 2-3, May 2013.
8. Kristen Hallam, “Dementia Risk Raised 35 percent by General Anesthesia in Study,” Blommberg, May 31, 2013.

9. Melissa Healy, “Obesity’s Death Toll could be Higher than Believed, Study Says,” Science and Health, Los Angeles Times, August 15, 2013.
10. Robert Herriman, “The World Health Organization Advises Against E-Cigarettes,” The Global Dispatch, July, 12, 2013.
11. Jonas Dorner, “Caffeine Energy Drinks ‘Intensify Heart Contractions,” BBC News Health, December 2nd, 2013.
12. Emily Dwass, “Drilling Down on the Necessity of Dental X-rays,” Los Angeles Times Health, December 20, 2013.
13. Robert Langreth, “Unreported Robotic Surgery Injuries Open Questions for FDA,” Bloomberg, December 29, 2013.
14. William Hudson, “Consumer Reports: Too many Sodas contain Potential Carcinogen,” CNN Health, January 23, 2014.
15. Karen Kaplan, “Fewer Americans are living with Hepatitis C, because more have died,” Science Now, March 3, 2014.
16. Richard A. Friedman, “Why Teenagers Act Crazy,” New York Times, Sunday Review, June 28, 2014.
17. Kevin Byrne, “Brain-Eating Amoeba Kills 9-year Old Kansas Girl,” AccuWeather.com, July 16, 2014.
18. Jo Jolly, “Why do so many people die shoveling snow?,” BBC News Magazine, November 19, 2014.
19. Ahanad O’Connor, “BPA in Cans and Plastic Bottles Linked to Quick Rise in Blood Pressure,” The New York Times, Well, December 8, 2014.
20. Tara Haelle, “Arsenic and California Wine: Do You Need To Worry?” Forbes, March 23, 2015.
21. David Rhodes, “Can Eating more than six bananas at once kill you?,” BBC News Magazine, September 13, 2015.
22. Vanessa Barford, “Why hasn’t the US eradicated the plague?”, BBC Magazine, October 155, 2015.
23. Michael Hiltzik, “How the Powerball Rules were Tweaked to make the Game an even Bigger Rip-off,” LA Times, January12, 2016.
http://www.latimes.com/business/hiltzik/la-fi-mh-powerball-rules-were-tweaked-20160112-column.html
24. Claudia Hammond, “Can quicksand really suck you to your death?”, BBC News, March 29, 2016.
25. Marian Blasberg, Hauke Goos and Veronika Havkenbroch, “Aedes Aegypti Mosquito: Fighting the Most Dangerous Animal in the World, Der Spiegel, July 21, 1016.
26. John M. Barry, “How the Horrific 1918 Flu Spread Across America,” Smithonian Magazine, November 2017. https://www.smithsonianmag.com/history/journal-plague-year-180965222/
27. Zaria Gorvett, “Cave Rescue: The dangerous diseases lurking underground,” BBC Future, July 11. 2008.
28. Holle Abee, “Cats and the Black Plague,” Owlcation. February 4, 2010, https://owlcation.com/humanities/Cats-and-the-Black-Plague
29. Wuze Ren, Xiuxia Qu, Wendong Li, Zhenggang Han, Meng Yu, Peng Zhou, Shu-Yi Zhang, Lin-Fa Wang, Hongkui Deng, Zhengli Shi, “Difference in Receptor Usage between Severe Acute Respiratory Syndrome (SARS) Coronavirus and SARS-Like

Coronavirus of Bat Origin," Journal of Virology, American Society for Microbiology, January 30, 2008. https://jvi.asm.org/content/82/4/1899
30. Jie Cui, Fang Li & Zheng-Li Shi, "Origin and evolution of pathogenic coronaviruses," Nature Reviews Microbiology, volume 17, pages181–192(2019) https://www.nature.com/articles/s41579-018-0118-9
31. Vincent, M.J., Bergeron, E., Benjannet, S. *et al.* "Chloroquine is a potent inhibitor of SARS coronavirus infection and spread." *Virol J* **2,** 69 (2005). https://doi.org/10.1186/1743-422X-2-69 https://virologyj.biomedcentral.com/articles/10.1186/1743-422X-2-69
32. Li-Meng Yan, Shu Kang, Jie Guan, Shanchang Hu, "Unusual Features of the SARS-CoV-2 Genome Suggesting Sophisticated Laboratory Modification Rather Than Natural Evolution and Delineation of its Probable Synthetic Route," Rule of Law Society and Rule of Law Foundation, New York, NY, USA, team.lmyan@gmail.com, September 14, 2020.
33. Related Links:
Newsweek: https://www.newsweek.com/dr-fauci-backed-controversial-wuhan-lab-millions-us-dollars-risky-coronavirus-research-1500741?amp=1 https://www.newsweek.com/dr-fauci-backed-controversial-wuhan-lab-millions-us-dollars-risky-coronavirus-research-1500741 https://youtu.be/bpQFCcSI0pU https://youtu.be/beDmuDDknNI https://youtu.be/ATcHGlTFLFg https://www.zerohedge.com/covid-19/top-scientists-pondered-covid-lab-origin-explosive-emails-while-concerns-grow-over-beijing https://www.dailymail.co.uk/news/article-8302739/Cellphone-location-data-analysis-Wuhan-virology-lab-suggests-hazardous-event-October-shutdown.html https://www.zerohedge.com/covid-19/china-scrubs-critical-wuhan-lab-data-deletes-300-studies-including-research-batwoman https://www.zerohedge.com/covid-19/chinas-clampdown-covid-19-origins-exposed-ap-journalists-tailed-samples-seized https://www.zerohedge.com/covid-19/china-slaps-citizen-journalist-jail-over-virus-reporting-wuhan https://zenodo.org/record/4073131 https://www.researchgate.net/publication/341547726_Understanding_the_Origin_of_'Bat CoVRaTG13'_a_Virus_Closest_to_SARS-CoV-2 https://www.theweek.in/news/world/2020/05/19/novel-coronavirus-is-human-made-says-australia-study.html https://www.youtube.com/watch?v=MoMUCBA8Amw https://www.nature.com/news/engineered-bat-virus-stirs-debate-over-risky-research-1.18787?WT.mc_id=TWT_NatureNews
CRISPR Explained: https://www.youtube.com/watch?v=UKbrwPL3wXE
Engineered Synthetic Viruses, Ethnic bio-weapons: https://www.youtube.com/watch?v=NBBIfGaml0c
Ethnic bioweapon: https://en.wikipedia.org/wiki/Ethnic_bioweapon https://www.globalresearch.ca/no-weapon-left-behind-american-hybrid-war-

china/5704403
https://www.youtube.com/watch?v=j7JRe_U8g_E
https://armswatch.com/project-g-2101-pentagon-biolab-discovered-mers-and-sars-like-coronaviruses-in-bats/
Theory of Coronavirus Origins: https://nyti.ms/2wlQnpb
https://articles.mercola.com/sites/articles/archive/2020/05/10/is-there-a-vaccine-for-coronavirus.aspx
https://www.google.com/url?sa=t&source=web&rct=j&url=https://en.m.wikipedia.org/wiki/%25C3%2589tienne_de_La_Bo%25C3%25A9tie&ved=2ahUKEwiqlaHe-7LuAhW7F1kFHbRTAK8QFjATegQIKxAB&usg=AOvVaw3gb-Bc4eGrE6Zy-FGdWAwc
ABCNews report12 JULY 2019, "Respiratory outbreak being investigated at retirement community after 54 residents fall ill. Two have died and 18 were hospitalized in Virginia.":
https://abcnews.go.com/US/respiratory-outbreak-investigated-retirement-community-54-residents-fall/story?id=64275865&fbclid=IwAR3rNV5NmSxrmc-Um3Jy84UBku7DSyLY5E-JomVGuTfEJ-GRIta3BjxUvdU
Virginia Department of Health put alert about the outbreak of respiratory illness at Greenspring in July 2019 showed several bacteria, including Haemophilus influenzae (H. flu) and rhinovirus, the cause of the common cold: increase in respiratory illnesses in long-term care facilities
1980 Georgia Guidestones: https://en.wikipedia.org/wiki/Georgia_Guidestones
2001 - Dec 21, 2001 - The Model State Emergency Health Powers Act (MSEHPA). Legal liabilities for drug companies which manufactured the vaccines and/or substances were removed.
https://en.wikipedia.org/wiki/Model_State_Emergency_Health_Powers_Act#Draft
CDC Applied For Secret Coronavirus Patent In 2003: https://greatgameindia.com/cdc-coronavirus-patent/
Meeting in the City of London "China will catch a cold":
https://www.youtube.com/watch?v=TmWM51mTY_c
http://projectavalon.net/lang/en/anglo_saxon_mission_interview_transcript_en.html
https://thefreedomarticles.com/china-will-catch-a-cold-predictions-virus-outbreak/
2008 - COVID-19 Questions: Why Was SARS-CoV-2 And Also SARS-CoV-3 Viruses Mentioned In Published Study In 2008 That Was Catalogued By U.S. NIH?
https://www.thailandmedical.news/news/covid-19-questions-why-was-sars-cov-2-and-also-sars-cov-3-viruses-mentioned-in-published-study-in-2008-that-was-catalogued-by-u-s--nih
https://www.fort-russ.com/2020/04/awakening-100-proof-positive-the-coronavirus-pandemic-was-planned-by-rockefeller-foundation-in-2010/
https://www.slideshare.net/workingwikily/gbnrockefeller-scenarios-on-technology-development
https://www.youtube.com/watch?v=zpB_GqAfro4
Project G-2101, 2014 : Pentagon biolab discovered MERS and SARS-like coronaviruses in bats: https://armswatch.com/project-g-2101-pentagon-biolab-discovered-mers-and-sars-like-coronaviruses-in-bats/
https://silview.media/2020/10/04/atomic-bombshell-rothschilds-patented-covid-19-

biometric-tests-in-2015-and-2017/amp/
https://www.mercurynews.com/2020/03/25/coronavirus-bill-gates-predicted-pandemic-in-2015/
https://www.washingtonpost.com/news/to-your-health/wp/2017/10/24/world-leaders-rehearse-for-a-pandemic-that-will-come-sooner-than-we-expect/
https://www.healio.com/news/infectious-disease/20170111/fauci-no-doubt-trump-will-face-surprise-infectious-disease-outbreak
https://www.youtube.com/watch?v=DNXGAxGJgQI
https://www.youtube.com/watch?v=msykwjpwG6Q
Naval War College ran a Pandemic War Game last September 2019:
https://www.military.com/daily-news/2020/04/01/naval-war-college-ran-pandemic-war-game-2019-conclusions-were-eerie.html
https://www.centerforhealthsecurity.org/event201/scenario.html
http://www3.weforum.org/docs/WEF_NES_Resetting_FOW_Agenda_2020.pdf
https://www.lgcstandards-atcc.org/Products/All/VR-1838.aspx?geo_country=bg#history
https://www.pnas.org/content/117/42/26382
The role of vaccinated people in virus evolution and infectious pressure:
https://pubmed.ncbi.nlm.nih.gov/34873910/
https://www.thelancet.com/journals/lanepe/article/PIIS2666-7762(21)00258-1/fulltext
https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02243-1/fulltext
https://www.medrxiv.org/content/10.1101/2021.10.14.21264747v1.full
https://link.springer.com/article/10.1007/s10654-021-00808-7
https://brownstone.org/articles/must-we-segregate-the-unvaccinated-from-the-vaccinated/
The role of natural immunity:
https://www.medrxiv.org/content/10.1101/2021.12.04.21267114v1
Vitamin D and nutritional status of Covid 19 patients:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7456194/
https://pubmed.ncbi.nlm.nih.gov/34684596/
https://www.endocrine.org/news-and-advocacy/news-room/2020/study-finds-over-80-percent-of-covid19-patients-have-vitamin-d-deficiency
https://pubmed.ncbi.nlm.nih.gov/32795605/
https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC8190272/
https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC8395320/
https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00405-3/fulltext
Vaccine side effects & complications:
https://www.sciencedirect.com/science/article/abs/pii/S0163445321003923
https://www.ahajournals.org/doi/10.1161/circ.144.suppl_1.10712
https://www.mdpi.com/1999-4915/13/10/2056/html
https://www.frontiersin.org/articles/10.3389/fimmu.2021.640093/full
https://www.sciencedirect.com/science/article/pii/S027869152200206X?via%3Dihub
https://doi.org/10.1016/j.fct.2022.113008
https://vid8.poal.co/user/AOU/0UIGzUs