

Sars-CoV-19



- Where are we.
- How did we get here?
- Where are we going?

Virus Background

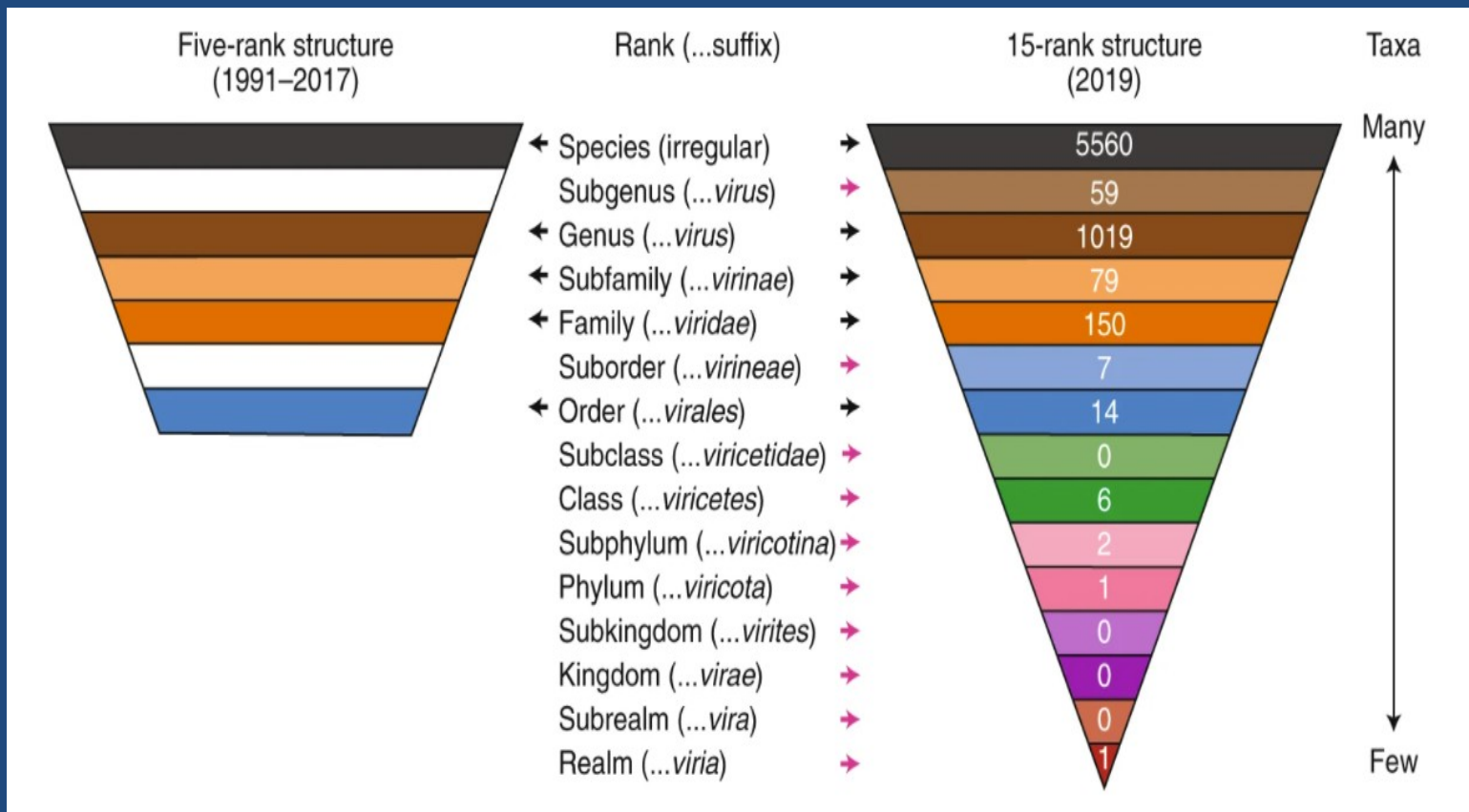
- An infective agent that typically consists of a nucleic acid molecule in a protein coat
- Able to multiply only within the living cells of a host.
- “Borrowed life.”

How did viruses come about?

- Theory: they are escaped host genes.
- Yet, this is not an ongoing process with wholly new viruses emerging from time to time.

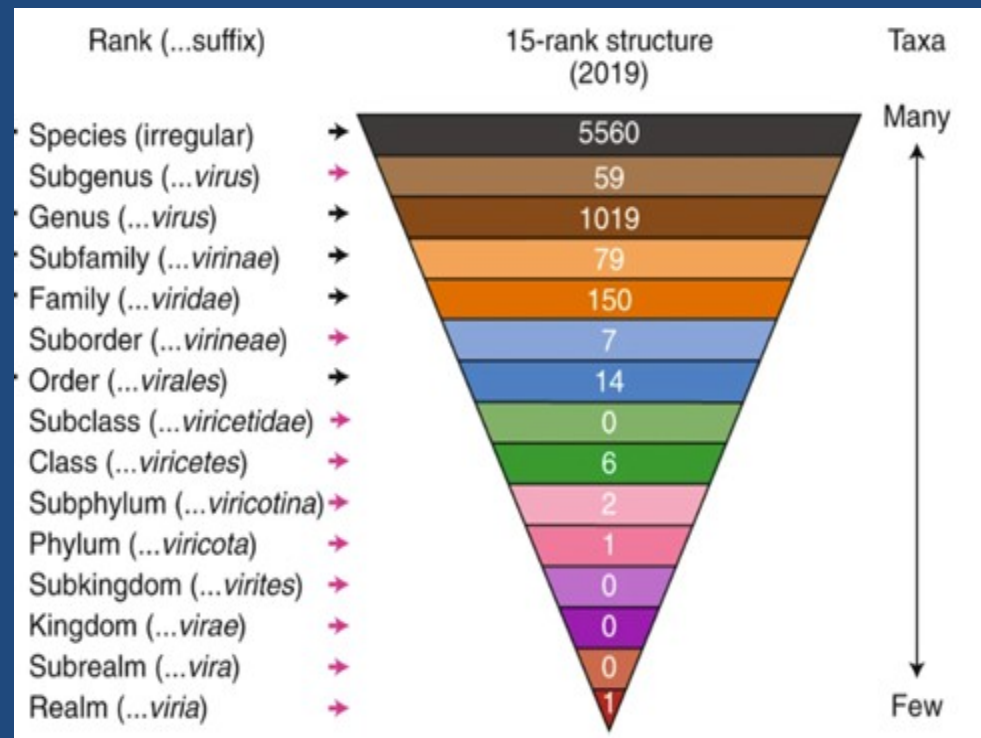
Taxonomy

- Where does corona virus fit in?



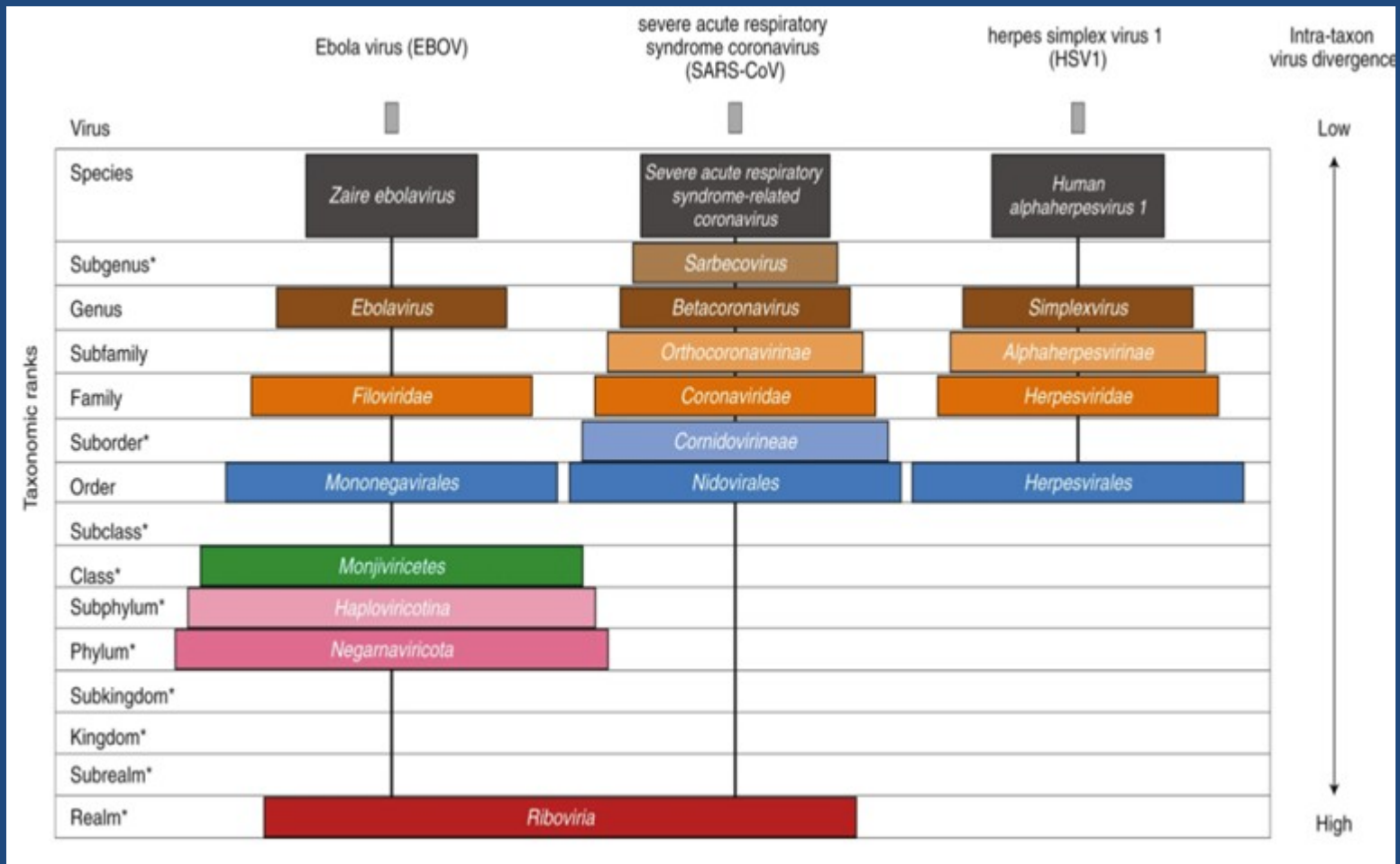
Realm Orthoviria

- RNA replicating — as contrasted to RNA viruses that have a reverse transcriptase to make DNA.



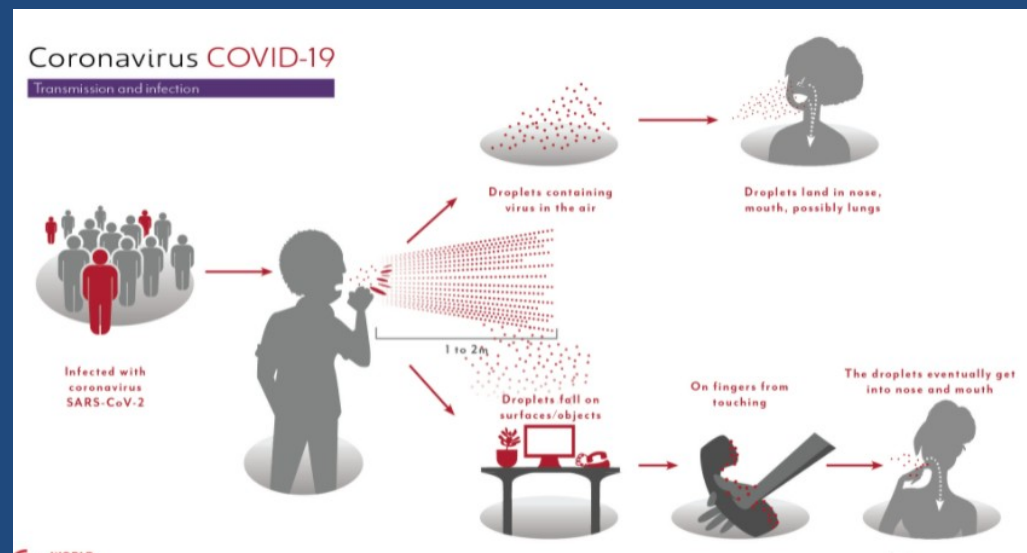
Clinical Classification

- Classified by the type of disease



SARS-CoV-2

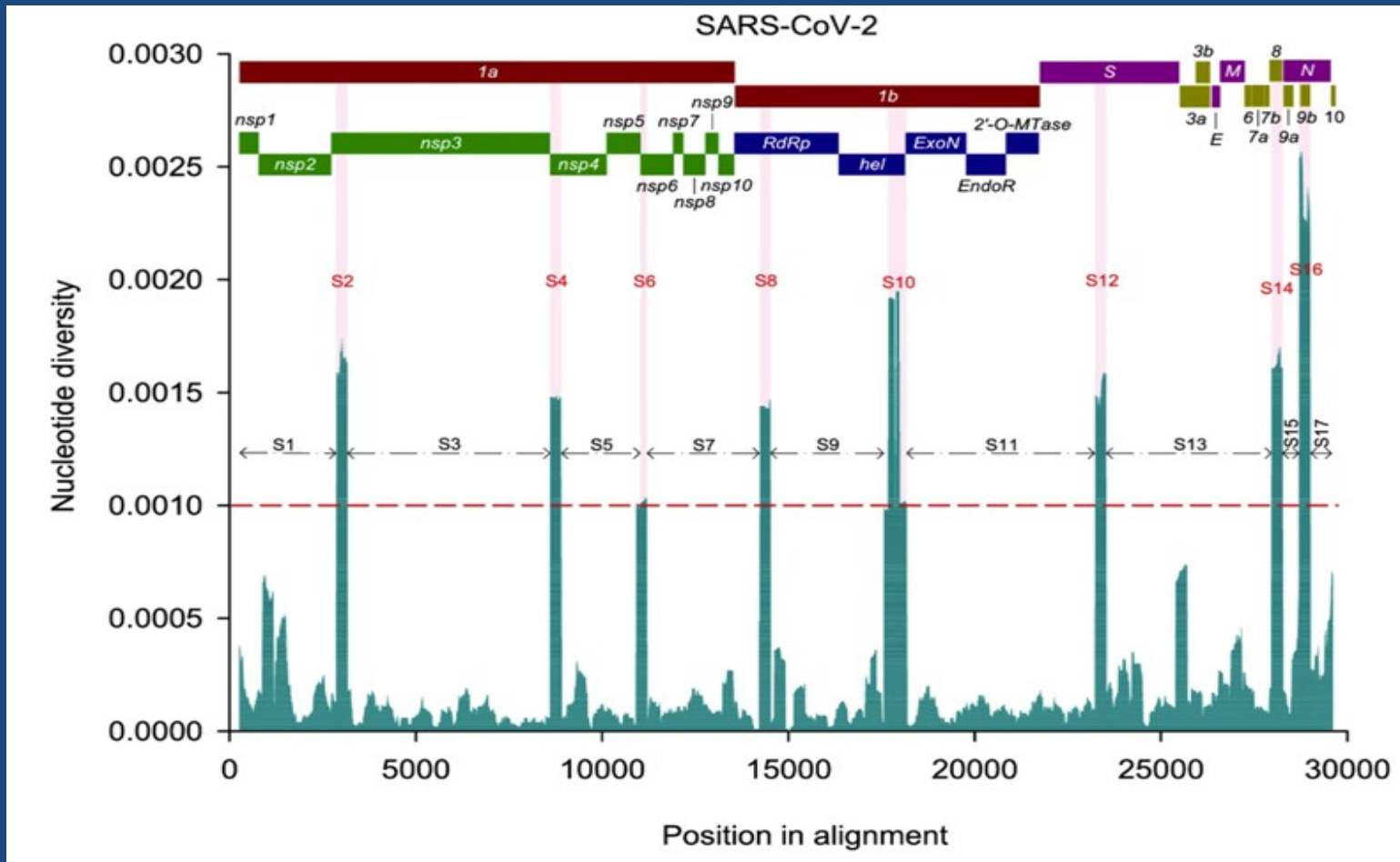
- Genome very much like the SARS Covid virus.
- Disease very much like the SARS Covid virus.
- Far more transmissible
- Less virulent (lower mortality)



What's in a Name ?

- Corona of the sun
- Common human coronaviruses
 - α Alpha coronavirus 229E & NL63
 - β Beta coronavirus OC43, HKU1
- MERS-CoV Middle East Respiratory Syndrome
- Sars-CoV Severe Acute Respiratory Syndrome
- Sars-CoV-2 (causes Covid-19)

Subtypes are arbitrary based upon a degree of nucleotide diversity and clinical disease.



Variants

- DNA and RNA replication is imperfect.
- The wrong nucleotide may be inserted.
- Cells have a “proofreader” to ensure that the sequence is correct.
- Coronavirus proof reader does not work well.

Proofreading DNA / RNA replication

- Fidelity vs diversity
- A virus replicates in massive numbers
e.g., respiratory secretions may have 10^8 copies per mL. ($10^8 = 100$ million)
- It is to the viral genome's survival advantage to try random mutations.
(Diversity)
- A one-in-a-gazillion shot at improving genome survival is a good bet to place.



Variants

- Nucleotide diversity
- Differing virulence or transmission [+] or [-]
- Confusing numbering system replaced by letters of the Greek alphabet.
 - **a** Alpha (B.1.1.7)
 - β Beta (B. 1.351)
 - γ Gamma (B.1.1.28/P.1)
 - **d** Delta (B.167.2)
 - **h** Eta
 - **i** Iota
 - **k** Kappa
 - **l** Lambda
 - 13 other variants, some “of interest”

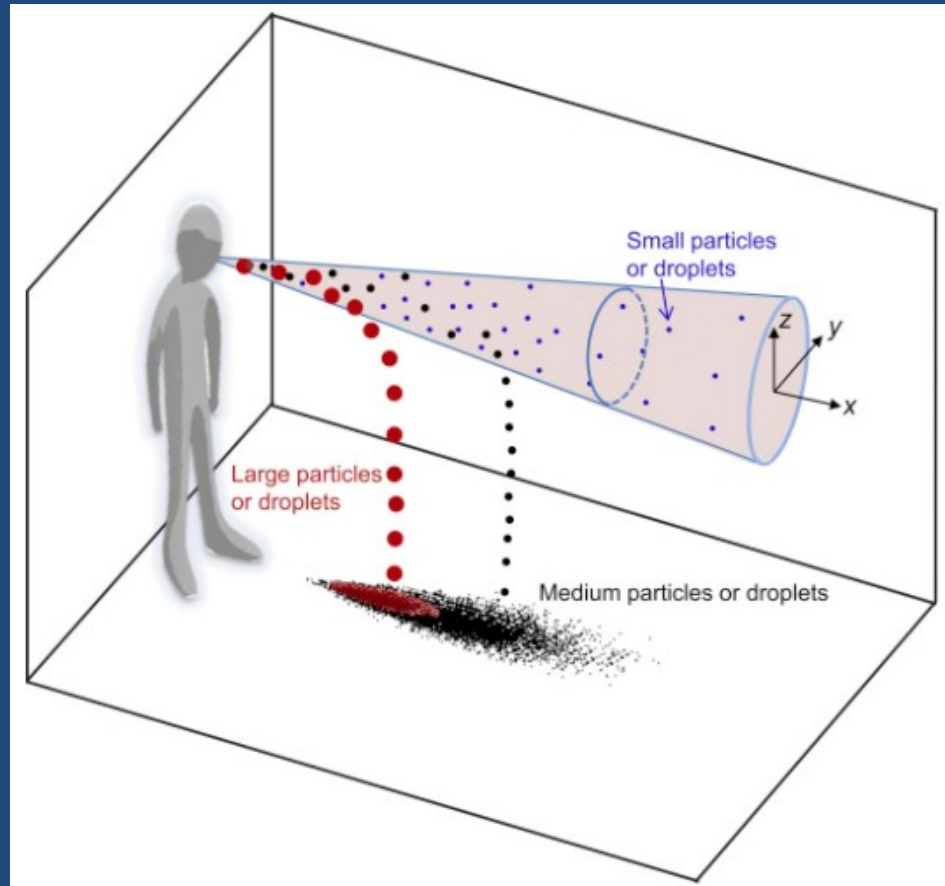
Transmission



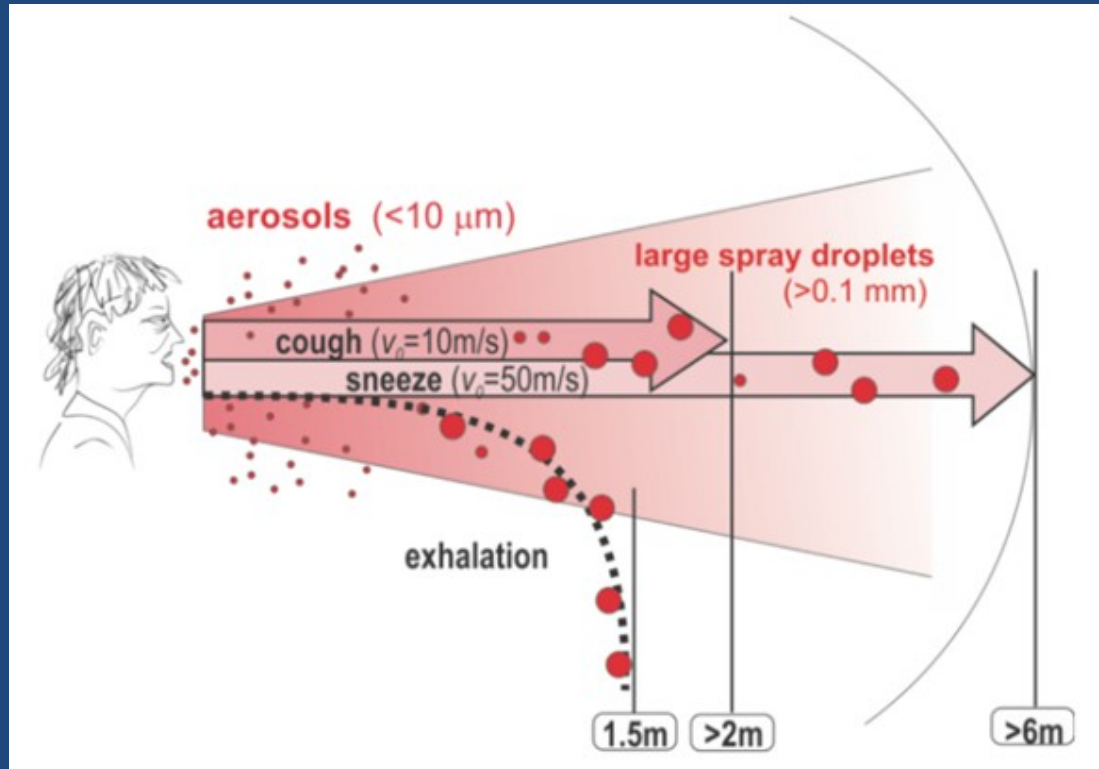
Cough: Jet acceleration fractures
liquid particles into droplets

Sol: A suspension of particles in liquid or gas.

Aerosol: A suspension of particles in a gas.



Six Feet: Magical Thinking



The longer the aerosol is generated,
the higher the aerosol titer.

Masks: What's the Deal?

- Rating System Nomenclature for **INHALATION**
- 0.3 micron sized particles.
 - These fall at about 1 foot per hour
- **N** Not resistant to oil-based substances
- **R** Somewhat resistant
- **P** Oil proof (99.7% of particles).

- **95** Filters 95% of relevant particles
- **99** Filters 99%
- **100** Filters (99.7%)

Chinese Masks

- KN95 is supposed to be similar to N95
- Up to 70% of Chinese KN95 Masks Tested by ECRI* Don't Meet Minimum Standards



- Emergency Care Research Institute

Other masks

- Surgical mask: Blocks inhalation of large particles only.
- Cloth about the same as surgical mask.



Protection by Masking Infected Person

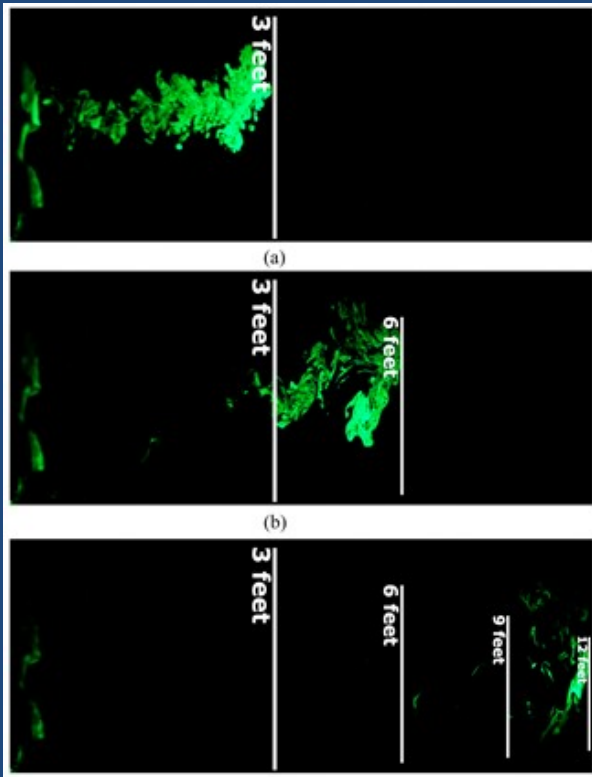
- Interrupt the aerosol



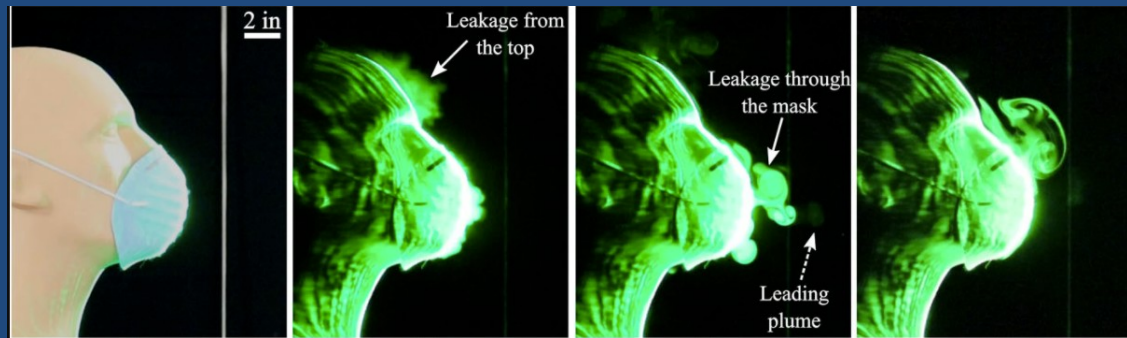
Protection by Masking Infected Person

- Tuberculosis: When an individual with tuberculosis in the sputum wears a face mask, transmission is almost zero.
- Cystic Fibrosis: Bacterial aerosolization reduced by 98% with a surgical mask.
- Surgical masks were implemented to prevent medical personnel from aerosolizing secretions onto a surgical field.

Cough Plume Images



2.3 s 11 s 53 s

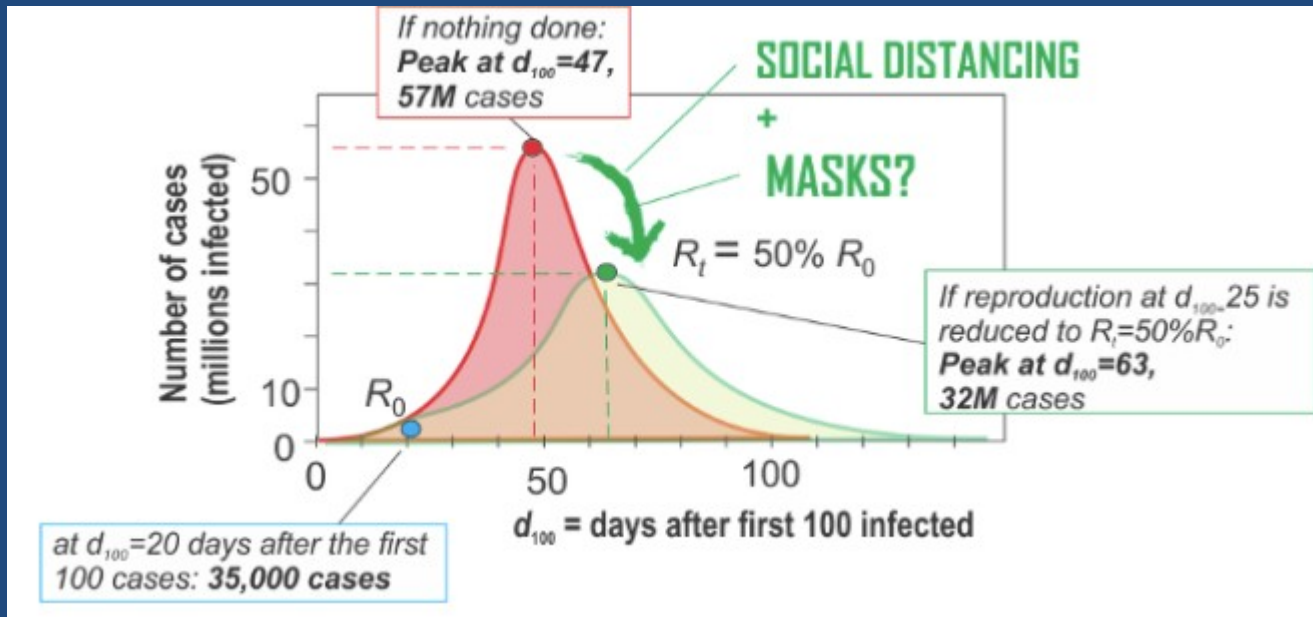


0.2s

0.97 s

3.7 s

How much protection does a mask on a Covid-19 patient protect others?

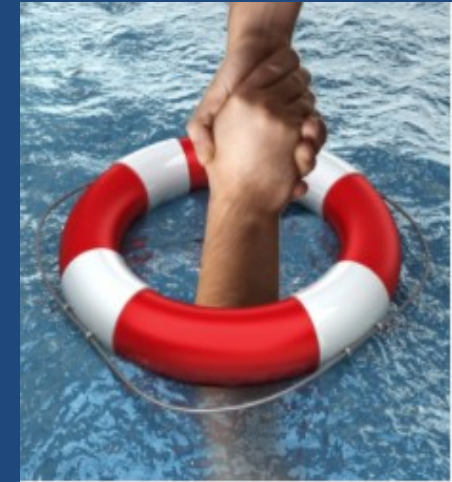


This graphic does not answer the question.

The above combines the effect of masking on the Covid-19 carrier and the healthy person.

Vaccines

Vaccines for SARS-CoV-19		
Moderna	Spikevax	RNA in proprietary envelope
Pfizer-BioNtech	Comiraty	RNA Lipid nanoparticles
AstraZeneca Oxford	Covishield & Vaxzevria	Viral vector
Johnson & Johnson	Janssen COVID-19	Viral vector
Gamaleya Research	Sputnik V	Viral vector
Sinovac Biotech	CoronaVac	Killed coronavirus
Bharat Biotech	Covaxin	Killed coronavirus



Efficacy

- Rough numbers
 - 65-95% reduction in number of cases
 - Risk of severe disease & death overall:
(Actually age & comorbidity dependent)
 - No immunization 1% 1:100 Death
 - Immunized
 - Severe disease 0.05% 1 : 20,000
 - Death 0.003% 1 : 333,000
 - Population of Lexington 33,800.



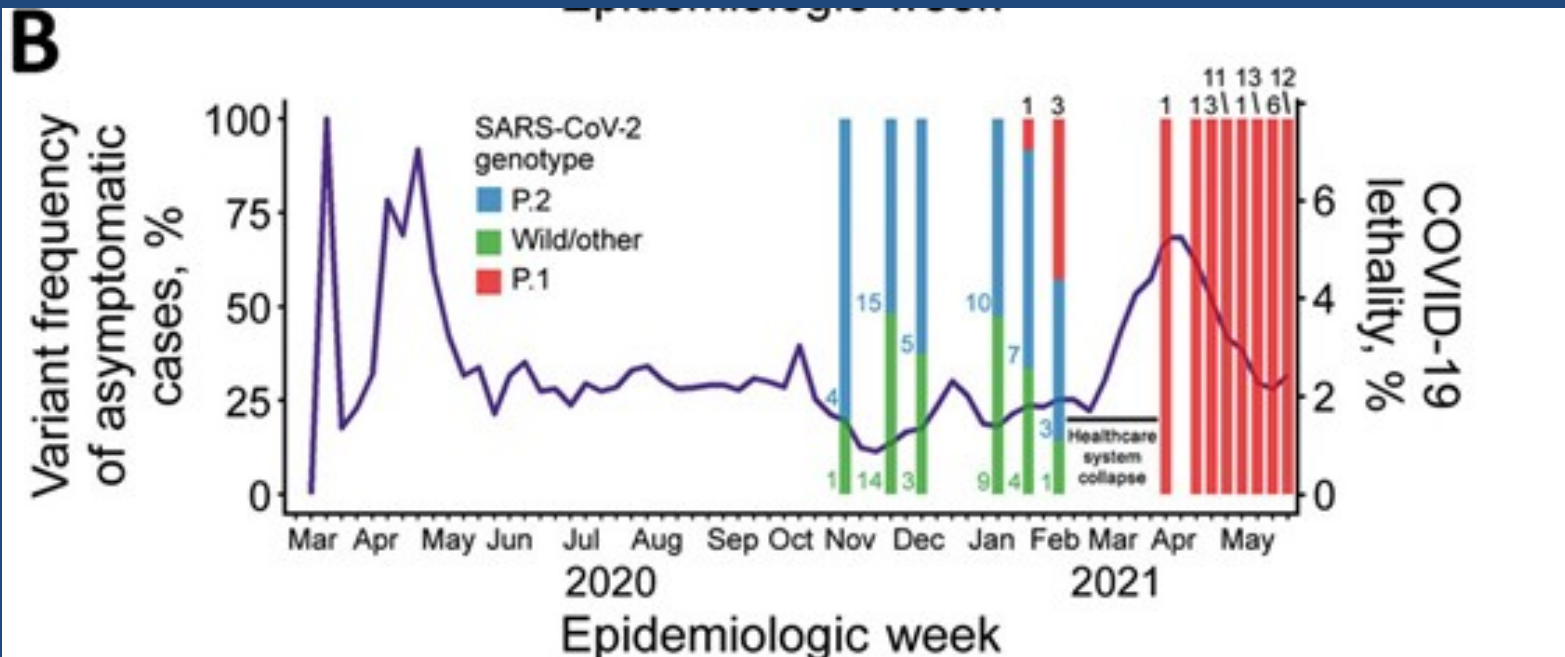
Delta Variant



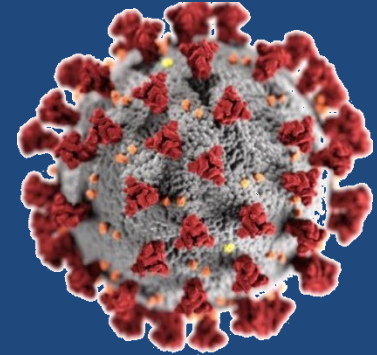
- Hit the genetic jackpot.
- Respiratory titers 1,200 times that of Covid-19
- Literally outran old Sars-CoV-2 to its targets.

More Variants

- Gamma (γ) variant in Brazil (Red)



Will the Coronavirus Escape Current Vaccine Coverage



- Not as easy as it looks.
- There are limitations to varying structure without limiting infectivity.
- We make a panoply of antibodies against the m-spike. Multiple changes not affecting infectivity would be needed.
- But eventually....

Vaccine Hesitancy

- The eager
- The willing
- The hesitant
- The resistant



Can Immunization be Required?



- 1905 - Cambridge small pox vaccination.

Amendment 14

No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.



The Supremes

7-2 majority: The Massachusetts law did not violate the 14th amendment.

“In every well ordered society charged with the duty of conserving the safety of its members, the rights of the individual in respect of his liberty may at times, under the pressure of great dangers, be subjected to such restraint, to be enforced by reasonable regulations, as the safety of the general public may demand.

Real liberty for all could not exist under the operation of a principle which recognizes the right of each individual person to use his own [liberty], whether in respect of his person or his property, regardless of the injury that may be done to others.

Should Children Be Vaccinated ?

- Pro: (Public health)
 - Social Responsibility
 - Spreading has an exponential effect. Everything we do to reduce the spread of Sars-CoV-2 has a material downstream effect.
 - The fewer the cases, the less likely a new variant uncovered by the vaccine will emerge.
 - Older family members may become infected.
(Hey, they can be immunized.)
 - We advise Influenza vaccination for children.
- Con: (Personal health)
 - Few children have significant symptoms.
 - The death rate in children from Covid-19 is lower than that for Influenza.
 - Significant disease is so rare in children that it is difficult to unequivocally state that the benefits outweigh the risk of vaccination for a healthy child receiving a vaccination.



Which children should be vaccinated? When?

- CDC: All children over 5 years old... now.
- But what if they had Covid-19?
 - Immunity wanes
 - So... 6 months? 1 year?
 - What if antibody titer is high now?
 - Wait 6 months? 1 year?

Let's Look at the Numbers



- England. Mar 2020 to Feb 2021
 - 12 million people under 18. (Not all got Covid-19)
 - 25 died of Covid-19.
 - Half had significant underlying medical conditions.
- Say 12 healthy children died of Covid-19. $12 / 10^6 \sim$ about one in a million.
- So.... If the vaccine kills $1:10^6$ (One in a million), then there is no benefit to a general pediatric population.

More Numbers



- Pfizer-BioNtech Trial 4700 children.
 - The half of the 4700 or so children tested represents an inadequate sample to compare to 1 in a million Covid-19 mortality for children in the general population.
- In the groups tested, there were no hospitalizations or deaths in vaccinated children nor in children with previous Covid-19 infection.
 - So should children with past Covid-19 be inoculated ??????
 - Since most children who get Covid-19 are asymptomatic, should a child be tested for antibodies before immunization?
- No one knows the long term effect of clinical or subclinical myocarditis in children, the main concern in the vaccination trials.
- The Pfizer trial in children was poorly done with inadequate monitoring and follow-up according to a whistleblower.

The Cynic

- When the CDC makes a one-size-fits all recommendation for children....
- When the CDC doesn't address simple issues like past or recent Covid-19 infection or antibody titers...
- You know that they either don't have all the information to make an informed recommendation or are holding back information.

Take your pick.



What Went Wrong with Our Approach to the Pandemic?

- (Short answer: What didn't?)
 - Public Health Failure
 - Political Failure



Role of Public Health

- “Do your job.”
 - Bill Belichick
- Inform the public about health issues and measures.
- Establish population programs to promote health.
- Do not play a role in personal health, e.g., making a recommendation for a single individual.



NEJM August 2021

Variable	Public Health	Clinical Medicine
Unit of measurement and focus	Population (global, national, regional small area)	Individual patient or series of patients
Disciplines	Epidemiology, economics, behavioral sciences, environmental health, microbiology, etc.	Medicine, nursing, and allied health; primary care and specialties
Training	Schools of public health, government, business, etc.	Schools of medicine, nursing, pharmacy, allied health
Team approach	Multidisciplinary	Interprofessional
Intervenes on	Upstream risk factors	Established or incipient disease
Best practices defined by	Scientific evidence encoded in regulations and guidelines	Evidence-based algorithms and clinical acumen
Financed by	Governments (national, regional, local); nonprofit and charity organizations	Governments, insurance, out-of-pocket
Orientation	Preventive	Preventive, disease management, or both
Outcomes	Reductions in exposures, disease incidence, or mortality	Successful disease management

Public Health Scenario

- Example: On the way home from work, a 64 year old man fixed a flat tire on his car. Went home. Was fine.
- Why: 30 years before, the Public Health Dept had an awareness campaign about the dangers of smoking and of hypertension. The man quit smoking then. He also found that his blood pressure was elevated and ever since has had excellent BP control on medications.
- **What didn't happen:** With public health information, under his doctor's care, he quit smoking, normalized his BP, and did not sustain a heart attack while changing the tire.
- Ba Da Boom....

Personal Health Decisions

- Provided by the person and a physician
- Takes into account the individual's medical issues and capacity for understanding and judgement.
- Generally, the individual defers to the (trusted) physician.



Political Decision-making

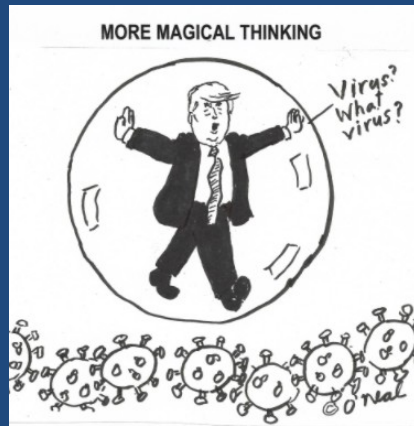


- From dictatorship to democracy, political leaders make decisions in their own personal self-interest.
- A democracy tries to align the personal interests of leaders with those of the citizenry (voters).
- In a dictatorship, because interests are unaligned, the dictator must force certain behaviors on government agents and the citizenry.

Authoritarian Government

- The Chinese Communist Party central authority insists on positive reports from lower functionaries.
- This results in an information gap which is generally tolerated and the functionary is not fired.
- It did not work when there was a public health failure in Wuhan.
- The local authorities suppressed information, even to the point of jailing the first physician to insist on publicizing the presence of a severe respiratory virus in Wuhan. His punishment was discontinued when he died of Covid-19.
- This was an standard Chinese communist political decision, i.e., deny bad news. It was a disastrous public health decision.





Democracy

Early on, President Trump, a great promoter, minimized the significance of the Covid-19 despite obvious medical information.

- A good political approach since a pandemic was bad for his re-election chances.
- This was followed by a string of medical claims which turned out to be untrue and undermined confidence in his leadership to all – except 70 million voters.

Kamala Harris



- Stated that she would not trust a vaccine developed under the Trump administration. She now endorses those same vaccine.
- This made her look like an untrustworthy political opportunist.

Joe Biden



Muddler-in-Chief



“You’re not going to get COVID if you have these vaccinations.”

“It may be possible, I know of none where they’re hospitalized, in ICU and or have passed away so at a minimum I can say even if they did contract it, which I’m sorry they did, it’s such a tiny percentage and it’s not life threatening.”

- **Fact: 5,492 vaccinated people who tested positive for coronavirus were hospitalized or died as of July 12. Not exactly “none.”**

CDC



- Vacillating information about masks, distancing, infectivity, muddled messaging, and subjugation to the Teacher's Union made the CDC look like a political organization, again, undermining confidence in their advice.
- Had they stuck to the facts, their leadership likely would have been fired by President Trump.
- They put their personal interest over what should have been a truthful, straight-forward, negative, and frightening message to the public.



Other Muddled Mask Messaging

- Public-health United Kingdom guidance
 - February 25, 2020
 - During normal day-to-day activities facemasks do not provide protection from respiratory viruses, such as COVID-19 and do not need to be worn by staff.”
- Jerome Adams: Surgeon General, USA, Feb 29, 2020
 - **Feb 29, 2020** “Seriously people—STOP BUYING MASKS! They are NOT effective in preventing general public from catching Coronavirus.”
 - **March 2, 2020** “Folks who don’t know how to wear them properly tend to touch their faces a lot and actually can increase the spread of coronavirus.”
 - **April 3, 2020** Adams announced that the CDC was changing its guidance and that the general public should hereafter wear masks whenever sufficient social distancing could not be maintained.
- Youtube
 - **July, 2021** .
 - Rand Paul suspended from YouTube for a week for saying, “Most of the masks you get over-the-counter don’t work.”
 - **Fact:** 70% of Chinese KN95 masks do not meet the N95 standard.

Anthony Fauci

.....giving personal medical advice



- Feb 2020. “There's no reason to be walking around with a mask.”
- March 2020 The statements below were made in a message to an individual but made public.
 - Masks are really for infected people to prevent them from spreading infection to people who are not infected rather than protecting uninfected people from acquiring infection.
 - I do not recommend that you wear a mask, particularly since you are going to a very low risk location.
 - Together, these two sentences do not make medical sense. What if you are the spreader?
- The public message should have been: “Some people with Covid have no symptoms but can spread disease. We don't know who is a spreader. All people should wear a mask to ensure that all spreaders are masked.”

Do Your Job – Part deux



- Had each party confined their public remarks to their own field, the world would have been a better place.

Disinformation

- False information intended to mislead, especially propaganda issued by a government organization to a rival power or the media.
 - Dictionary: Oxford Languages
 - Note how governments are major purveyors of disinformation.



Forms of Disinformation

- Misinformation
 - Distortion
 - Factually incorrect
- Assault on personal liberty
- Bizarre conspiracy theories



Small Pox (Variola major & minor)

- Pox
- Overwhelming viremia
- Uncontrolled immune response.

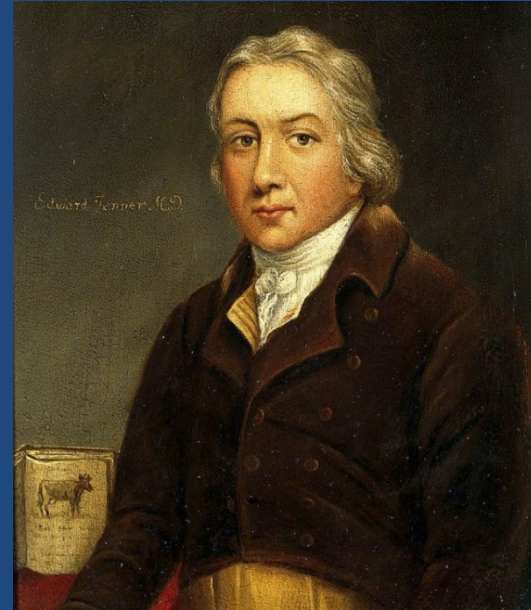
- Sound familiar?

- Mortality V. major 30%
 - Hemorrhagic form 100%



Treatment of Small Pox

- Variolation
 - 0.5 – 2% mortality
- Cow pox vaccination
 - ~ 0% mortality.



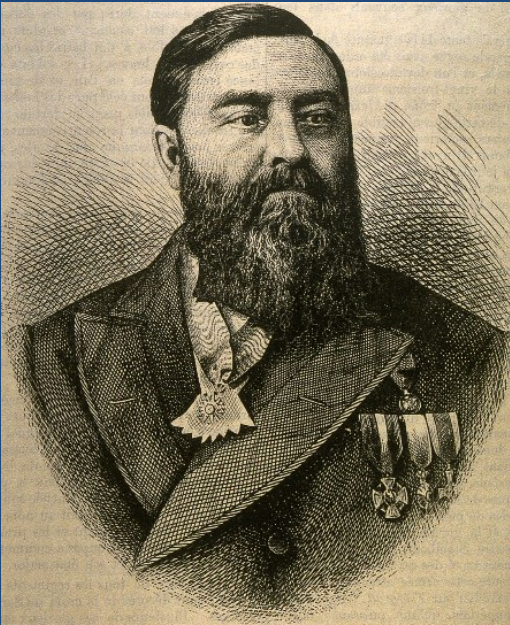
Edward Jenner
1749 – 1823

Small Pox Anti-Vaxers



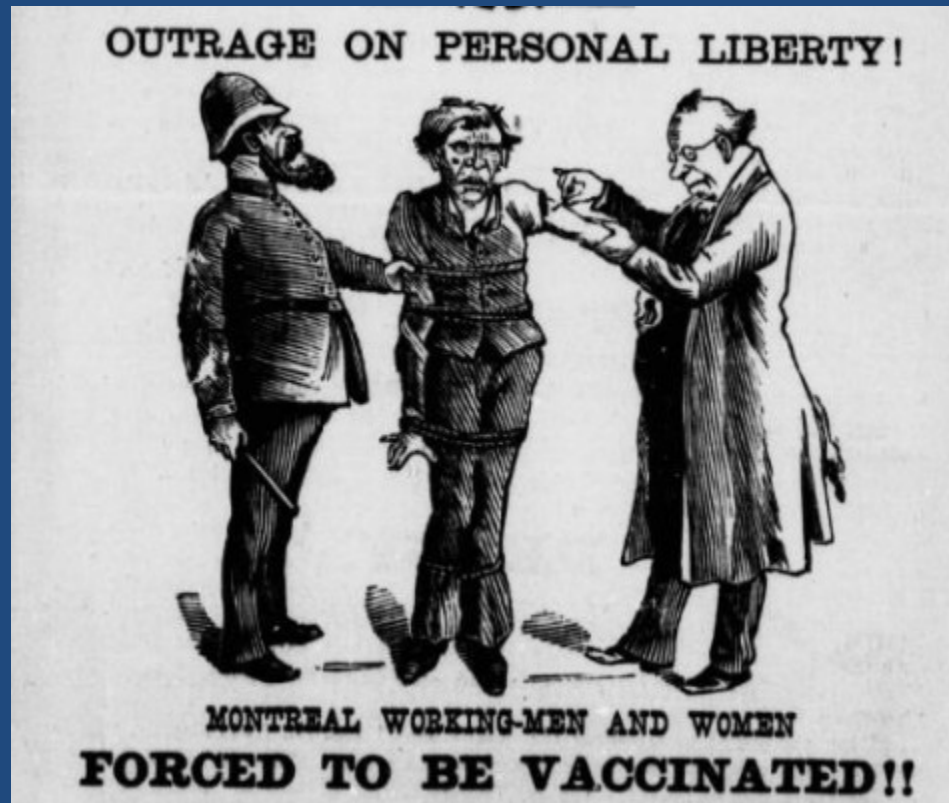
Nothing has Changed

Anti-vaccinationist,
Alexander M Ross MD
1885. Montreal, Canada



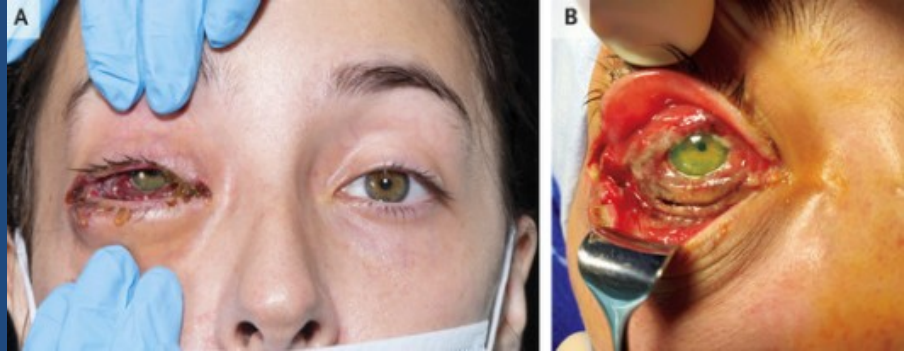
- 1.—Vaccination has been weighed in the balance, and found wanting.
- 2.—Vaccination *does not* prevent Small-pox in any cases.
- 3.—Vaccination *does cause* loathsome and often fatal diseases.
Many children are killed outright, and thousands have their health ruined by it.
- 4.—Vaccination *does not* lessen the severity or the fatality of Small-pox. The proportion of Vaccinated persons who have Small-pox has steadily increased as Vaccination has been extended—and the number of deaths in proportion to the cases is the same as ever. In the last epidemic of Small-pox in London, 92 per cent. were persons who had been Vaccinated or Re-vaccinated.

Nothing has Changed (Part Deux)



Cowpox – Forgotten but not gone

- Orthopox Virus (Small Pox)
- 28 yo woman with conjunctivitis
 - PCR Positive for Orthopox virus
 - Rx: tecovirimat which inhibits envelope wrapping protein.
 - No loss of vision
- Her cat was the major suspect.
 - Paw lesion PCR positive for Smallpox.



NEJM July 5, 2021

Boosters

- Over Time
 - Immunoglobulin levels fall.
 - T-cell immunity wanes
- So what?
 - This always happens after viral infection.
 - What is the clinical significance of waning immunoglobulin levels and T-cell immunity?



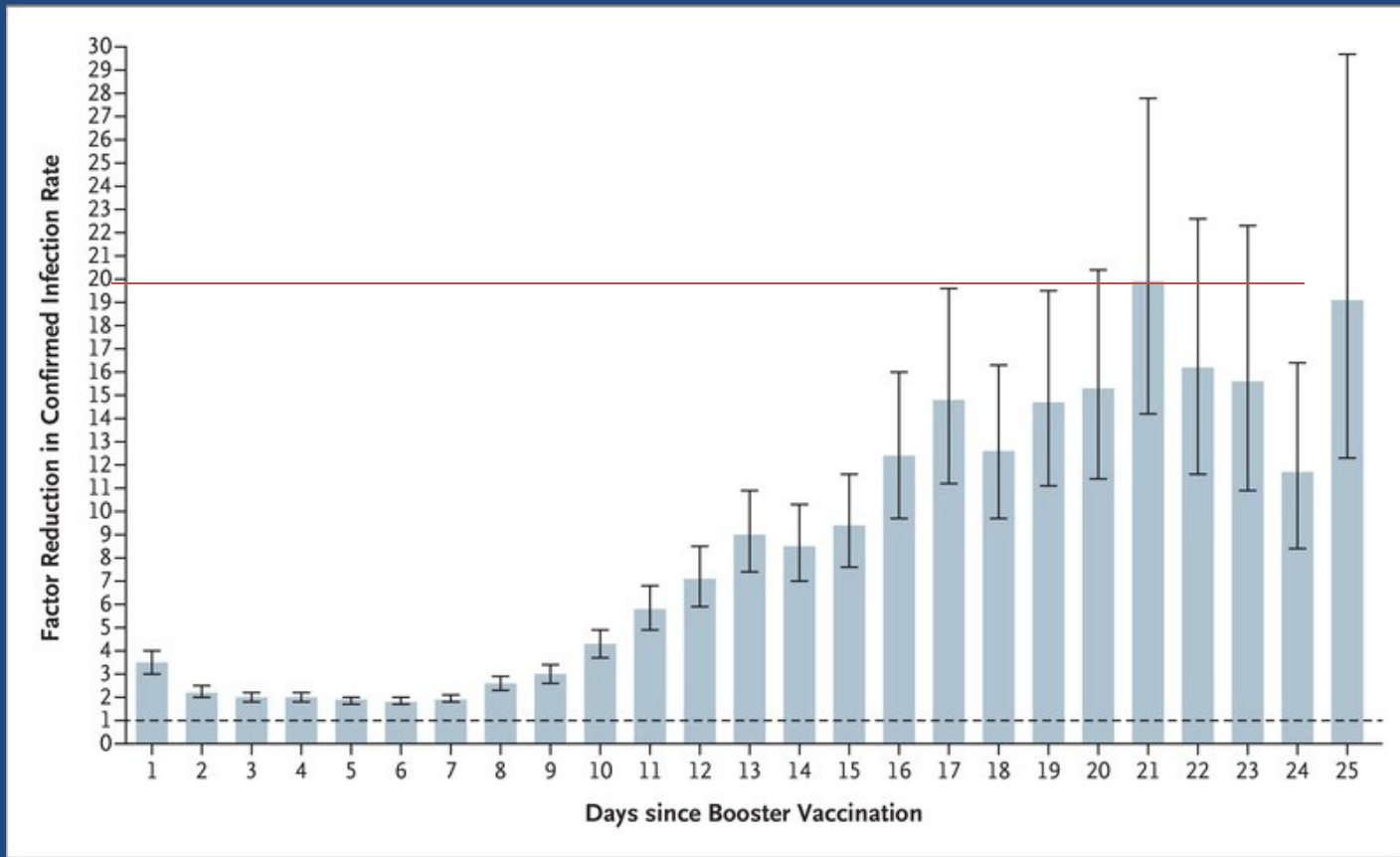
The Israeli Study

- Comparison of Booster to Non-Booster Groups
 - Age over 60 years.

ORIGINAL ARTICLE

Protection of BNT162b2 Vaccine Booster against Covid-19 in
Israel

Degree of Booster Protection



Absolute Values

Table 2. Primary Outcomes of Confirmed Infection and Severe Illness.*

Outcome	Nonbooster Group	Booster Group	Adjusted Rate Ratio (95% CI)†
Confirmed infection			11.3 (10.4 to 12.3)
No. of cases	4439	934	
No. of person-days at risk	5,193,825	10,603,410	
Severe illness			19.5 (12.9 to 29.5)
No. of cases	294	29	
No. of person-days at risk	4,574,439	6,265,361	

Participants 1,135,804

265 Cases of severe illness prevented

Cover-Up

- Various parties have been accused of covering up the origins of the SARS-Cov-19 virus.
- Was (is) there a cover-up ???
- What was being covered-up?



Why would high level technocrats and politicians cover things up?

- ~~Guilt~~
- ~~Shame~~
- ~~Embarrassment~~

No way, José



Reasons for high-level cover-up.

- Wealth
- Status
- Power



Let's look at the evidence

- China
- America



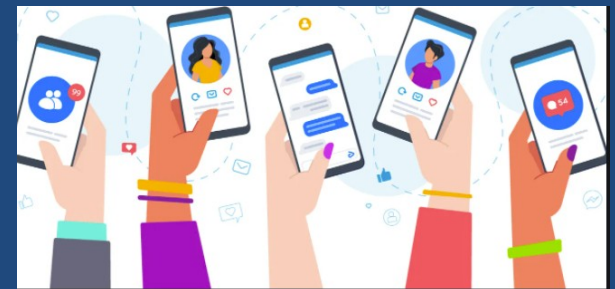
China

- Silencing
 - Genetic sequence distribution
 - 2019 Severe viral pneumonias noted in Wuhan
 - SARS-like virus identified
 - Provincial health officials instructed testing companies to stop testing Wuhan outbreak samples and to destroy their remaining specimens
- Censoring doctors.



Chinese Social Media

- > 10,000 Chinese government-linked accounts on Twitter were used to cast doubts on the early reports of the Wuhan outbreak.
 - ProPublica
- Thousand of keywords related to COVID were suppressed (deleted) on government platforms (YY and WeChat)
 - Citizen Lab



Chinese Reporting

- China did not report the outbreak early to the WHO as required.
- China refused to share Coronavirus genetic sequence.
 - Rogue researcher Zhang Yongzhen was directed not to release the info but defied the order. (Maybe.)
 - Within hours of his distribution, his lab at the Wuhan Institute was shut down by the Shanghai Municipal Health Commission for “rectification.”



Zhang Yongzhen

Other Chinese Behavior

- Not sharing
 - China did not share SARS-Cov-19 samples.
- Avoided travel restrictions out of China
- Misled the WHO
 - Did not reply to WHO request for information
- Refused lab inspection
 - CDC
 - WHO



China

- Wuhan lab cover-up.
 - All would have been sanctioned by the CCP.
 - Lose their jobs
 - Lose their lives
- CCP Cover-up
 - Authoritarian power does not lend itself to admissions of incompetence or killing the citizenry these days.



EcoHealth



- Conduit for CDC grant to Wuhan Lab and multiple other Chinese research facilities.
- Medical Director and President

Peter Daszak, MD

Military funding 2013-2020 - \$36.4 million

Total funding \$ 61 million

IRS Form 990 EcoHealth 2017

Form 990 Department of the Treasury Internal Revenue Service	Return of Organization Exempt From Income Tax		OMB No. 1545-0047	
	Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except private foundations) ▶ Do not enter social security numbers on this form as it may be made public. ▶ Go to www.irs.gov/Form990 for instructions and the latest information.		2017 Open to Public Inspection	
A For the 2017 calendar year, or tax year beginning		07/01, 2017, and ending	06/30, 20 18	
B Check if applicable: <input type="checkbox"/> Address change <input type="checkbox"/> Name change <input type="checkbox"/> Initial return <input type="checkbox"/> Final return/terminated <input type="checkbox"/> Amended return	C Name of organization ECOHEALTH ALLIANCE INC.		D Employer identification number 31-1726494	
	Doing business as		E Telephone number (212) 380-4460	
	Number and street (or P.O. box if mail is not delivered to street address) Room/suite 460 WEST 34TH STREET, 17 FL.			
	City or town, state or province, country, and ZIP or foreign postal code NEW YORK, NY 10001-2320		G Gross receipts \$ 16,882,435.	

(1) PETER DASZAK PH.D. PRESIDENT	40 T00 0.	X	X	336,615.	0.	65,444.
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Letter to Lancet

- Peter Daszak wrote this letter.
- He recruited the other scientists.
- He did not disclose his financial relationship.

now being threatened by rumours and misinformation around its origins. We stand together to strongly condemn conspiracy theories suggesting that COVID-19 does not have a natural origin. Scientists from multiple countries have published and analysed

Statement in support of the scientists, public health professionals, and medical professionals of China combatting COVID-19

We are public health scientists who have closely followed the emergence of 2019 novel coronavirus disease (COVID-19) and are deeply concerned about its impact on global health and wellbeing. We have watched as the scientists, public health professionals, and medical professionals of China, in particular, have worked diligently and effectively to rapidly identify the pathogen behind this outbreak, put in place significant measures to reduce its impact, and share their results transparently with the global health community. This effort has been remarkable.

We sign this statement in solidarity with all scientists and health professionals in China who continue to save lives and protect global health during the challenge of the COVID-19 outbreak. We are all in this together, with our Chinese counterparts in the forefront, against this new viral threat. The rapid, open, and transparent

nothing but create fear, rumours, and prejudice that jeopardise our global collaboration in the fight against this virus. We support the call from the Director-General of WHO to promote scientific evidence and unity over misinformation and conjecture.¹⁴ We want you, the science and health professionals of China, to know that we stand with you in your fight against this virus.

We invite others to join us in supporting the scientists, public health professionals, and medical professionals of Wuhan and across China. Stand with our colleagues on the frontline!

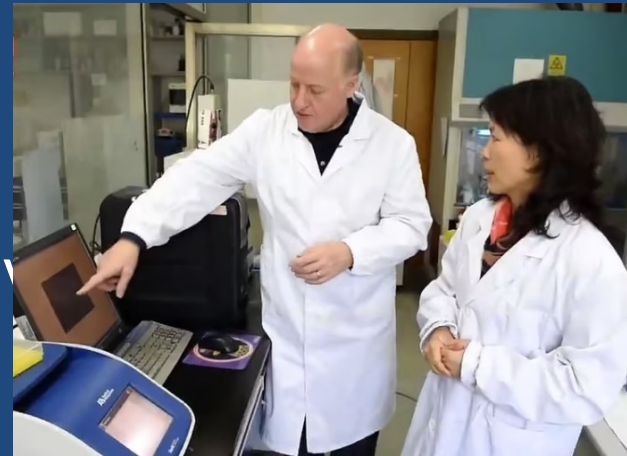
We speak in one voice. To add your support for this statement, sign our letter online. LM is editor of ProMED-mail. We declare no competing interests.

Charles Calisher, Dennis Carroll, Rita Colwell, Ronald B Corley, Peter Daszak, Christian Drosten, Luis Enjuanes, Jeremy Farrar, Hume Field, Josie Golding, Alexander Gorbalenya, Bart Haagmans, James M Hughes, William B Karesh, Gerald T Keusch, Sai Kit Lam, Juan Lubroth, John S Mackenzie, Larry Madoff, Jonna Mazet, Peter Palese, Stanley Perlman, Leo Poon, Bernard Roizman, Linda Saif, Kanta Subbarao, Mike Turner
COVID19statement@gmail.com

Not a Good Look

- Peter Daszak stated that he had “no competing interests.”
- Daszak told Prof. Ralph Baric that he would publish the letter in such a way that it doesn't link it back to our collaboration so we maximise an independent voice.
- Baric, who had worked in conjunction with the Wunna lab, did not sign the letter.

- R. Baric: Professor NC State
Research area Coronaviruses



Peter Daszak

Prof Bret Weinstein on Peter Daszak



“In looking at all of the sources that claim to put the idea of a lab leak to rest, I find the name Peter Daszak... shows up all over the place. He’s everywhere the idea is mocked.”
But the information Daszak presents invariably does not check out, and as a result, “I have begun to regard him as Patient Zero for misinformation.”

Prof Bret Weinstein

Biologist and evolutionary theorist

- GMWatch 2020

Oh no, Tony.
Say it ain't so....



- Dr. Fauci playing footsie with the definition of gain of function.



“Senator Paul, with all due respect, you are entirely and completely incorrect that the NIH has not never [sic] and does not now fund gain-of-function research in the Wuhan Institute of Virology.”

Anthony Fauci
May 11, 2021

Taking a step back – 2011.

“There is, however, considerable concern that such a virus could evolve naturally. We cannot predict whether it or something similar will arise naturally nor when or where it might appear. Given these uncertainties, important information and insights can come from generating a potentially dangerous virus in the laboratory... The question is whether benefits of such research outweigh risks.”

- Anthony S. Fauci
- Gary J. Nabel NIH Vaccine Research Center (1999-2012)
- Francis S. Collins Dir. NIH
 - The Washington Post
 - December 30, 2011

The Big Pause – 2014-2017

- In 2014, such research was paused for three years as the government set up a review process to oversee funding, known as the Potential Pandemic Pathogen Care and Oversight (P3CO) framework.

**U.S. Government Gain-of-Function
Deliberative Process and Research Funding
Pause on Selected Gain-of-Function
Research Involving Influenza, MERS, and
SARS Viruses**

To the Rescue

- EcoHealth
 - President (You guessed it) Peter Daszak
- NIH grants to EcoHealth were distributed to the Wuhan Laboratory to fund viral genome research.



BFF's

Gonif Principle Number 2

- Gonifs always leave a trail.



The Evidence

Title

Discovery of a rich gene pool of bat SARS-related coronaviruses provides new insights into the origin of SARS coronavirus.

Text

“Construction of recombinant viruses

Recombinant viruses with the S gene of the novel bat SARS-CoV and the backbone of the infectious clone of SARS-CoV WIV1 were constructed using the reverse genetic system described previously...”

Citation

Hu B, Zeng LP, Yang XL, Ge XY, Zhang W, Li B, Xie JZ, Shen XR, Zhang YZ, Wang N, Luo DS, Zheng XS, Wang MN, **Daszak P**, Wang LF, Cui J, **Shi ZL**.

PLoS Pathog. **2017 Nov** 30;13(11):e1006698. doi: 10.1371/journal.ppat.1006698. PMID: 29190287; PMCID: PMC5708621.



Shi Zhengli (石正丽)
The Wuhan Bat Lady



Really, Tony?

2014 Pause (Text)

New USG funding will not be released for gain-of-function research projects that may be **reasonably anticipated** to confer attributes to influenza, MERS, or SARS viruses such that the virus would have enhanced pathogenicity and/or transmissibility in mammals via the respiratory route.

The research funding pause would not apply to characterization or testing of naturally occurring influenza, MERS, and SARS viruses, unless the tests are **reasonably anticipated** to increase transmissibility and/or pathogenicity.



I beg to differ.

“The research met the definition for gain-of-function research of concern under the 2014 Pause.”

Richard H Ebright.

Board of Governors

Professor of Chemistry and Chemical Biology

Waksman Institute , Rutgers

NIH acknowledges US funded gain-of-function at Wuhan lab, despite Fauci's denials

Reporter Andrew Miller October 21, 2021



The National Institutes of Health is now admitting to funding gain-of-function research on bats infected with coronaviruses at a lab in Wuhan, China, despite repeated denials from Dr. Anthony Fauci that U.S. tax dollars were used on the funding.

In a letter (from Lawrence A Tabak, NIH Principal Deputy Director) to Rep. James Comer, ranking member of the House Committee on Oversight and Reform, [Tabak] admits that a "limited experiment" was conducted in order to test if "spike proteins from naturally occurring bat coronaviruses circulating in China were capable of binding to the human ACE2 receptor in a mouse model."

(The mice became sicker when infected with the new virus. QED)

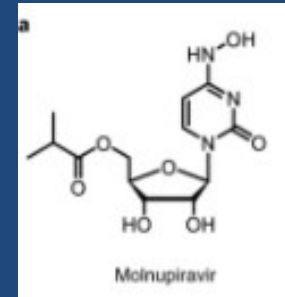
New Medications

- Lagevrio (molnupiravir)
- Paxlovid (retonavir & PF-07321332)



Lagevrio (Molnupiravir)

- Ridgeback Biotherapeutics & Merck
- Ribonucleoside analog creates viral RNA mutations
- Imitates uridine triphosphate (uracil)
- Forms a stable base pair with guanine or adenine that fools the viral proofreader and creates non-functioning RNA.
- Reduced hospitalization /death by 50%



New Medications

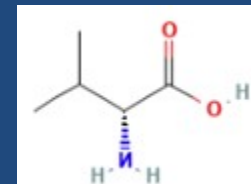
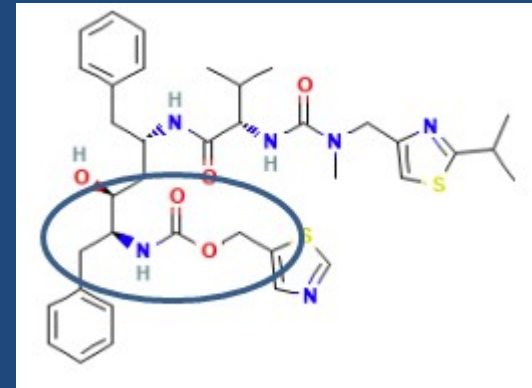
- Paxlovid (Pfizer)

- Two protease inhibitors

- Ritonavir (peptidomimetic)
- PF-07321332

- Given early, it reduces hospitalization / death by 98%.

- No deaths in the Paxlovid arm.



Valine

Tha... tha... that's all folks.

