

COVID-19 Lessons Learned: A Global Perspective

Kevin Kavanaugh, MD, MS

Health Watch USA

Aug 6, 2021



COVID-19 Lessons Learned: A Global Perspective

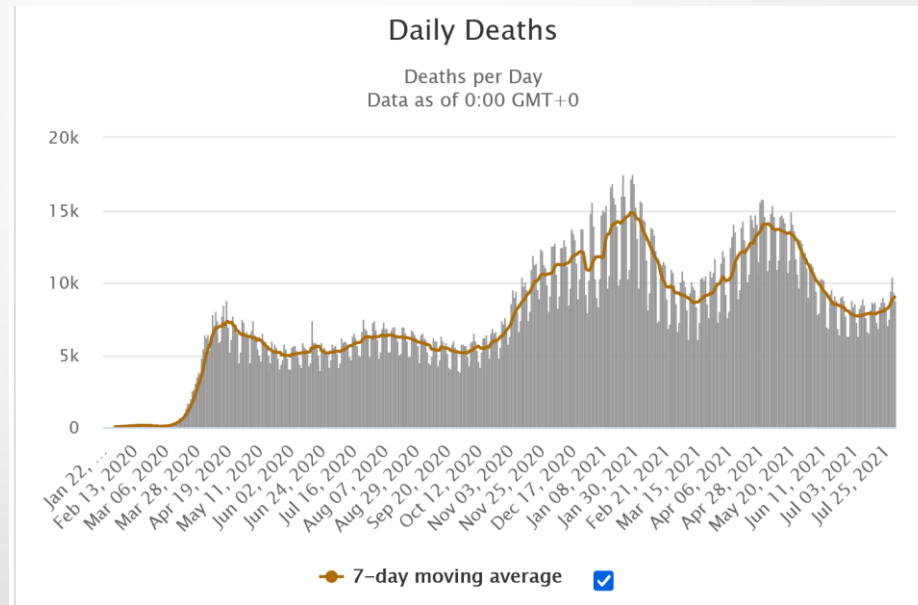
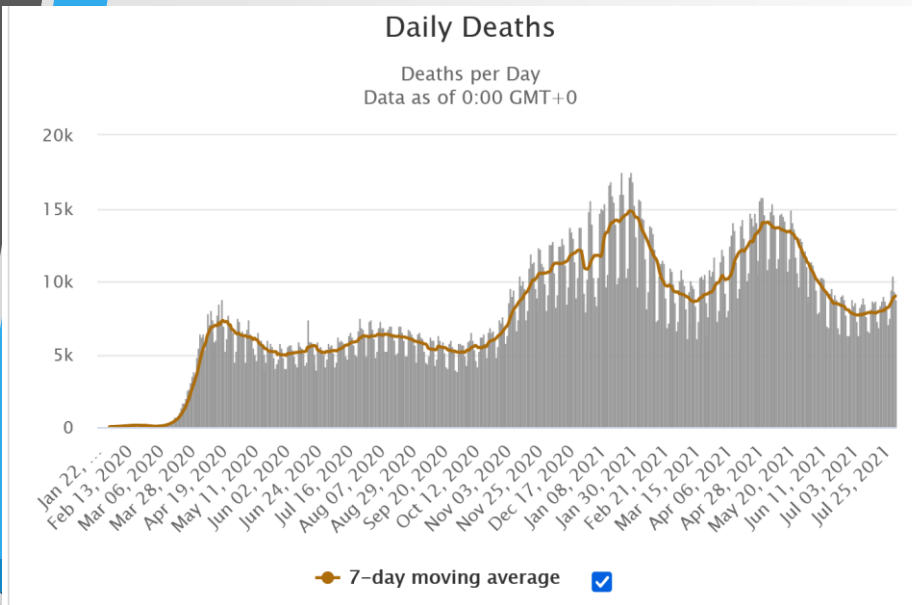
On June 15 we held a webinar which brought together infectious disease authorities from around the world with two major goals.

- To share experiences and strategies to mitigate the SARS-CoV-2 pandemic and
- To obtain a worldwide perspective to combat misinformation which is often predicated on local or regional politics and mistrust of governments.

To view the presentations on YouTube and obtain PowerPoint Slides,
Go To: <https://healthconference.org>

Cases & Deaths Worldwide

**Total Cases: 198,547,026; Deaths: 4,232,892;
Recovered: 179,285,118**



Worldometer, July 31, 2021 - <https://www.worldometers.info/coronavirus/>

Response Strategies

- **Exclusion Strategy – Some Pacific Islands**
Maximum Action to Exclude Disease
- **Elimination Strategy – Singapore, Australia**
Maximum Action to Exclude Disease & Eliminate Community Transmission
- **Suppression Strategy – UK, EU**
Stepwise Targeted Measures to Lower Cases Numbers and Outbreaks Until Treatment or Vaccine Is available.
- **Mitigation Strategy – USA, Brazil, India**
Use of “Herd Immunity” & Try To Flatten Peak Until A Vaccine Is Available.
- **No Substantive Strategy**

Baker GM, Wilson N, Blakely T. Elimination could be the optimal response strategy for covid-19 and other emerging pandemic diseases. BMJ. Dec. 22, 2020. 2020;371:m4907
<http://dx.doi.org/10.1136/bmj.m4907>

Mitigation Strategy

These are arguably the three worst countries in the pandemic's response and share the following characterizes:

#	Country, Other ↕	Total Cases ↓	New Cases ↕	Total Deaths ↕	New Deaths ↕
	World	198,503,352	+530,872	4,232,291	+8,772
1	<u>USA</u>	35,745,024	+51,898	629,315	+241
2	<u>India</u>	31,654,584	+41,790	424,384	+542
3	<u>Brazil</u>	19,917,855	+37,582	556,437	+925

Worldometer July 31, 2021

Mitigation Strategy

These are arguably the three worst countries in the pandemic's response and share the following characterizes:

- Inundated with misinformation regarding the lethality and severity of the pandemic which led to the continuation of holding large rallies for political, religious, protests and other events.
- A large segment of the population and leadership embraced the “Herd Immunity” strategy.
- Unable to formulate an effective uniform national strategy and resolve disagreements between the scientific community and policymakers.
- Underdeveloped or Non-Coordinated Public Health Systems.

Misinformation

- **Misinformation can come from social media and news outlets.**
- **Misinformation can also come from governments and elected leaders.**

Misinformation



Researchers: Nearly Half Of Accounts Tweeting About Coronavirus Are Likely Bots

"We do know that it looks like it's a propaganda machine, and it definitely matches the Russian and Chinese playbooks, but it would take a tremendous amount of resources to substantiate that," said Kathleen Carley, a professor of computer science at Carnegie Mellon University

Allyn B. Researchers: Nearly Half of Accounts Tweeting About Coronavirus are Likely Bots. NPR. May 20, 2020. <https://www.npr.org/sections/coronavirus-live-updates/2020/05/20/859814085/researchers-nearly-half-of-accounts-tweeting-about-coronavirus-are-likely-bots>

Misinformation



Russia deploying coronavirus disinformation to sow panic in West, EU document says

The EU document said the Russian campaign, pushing fake news online in English, Spanish, Italian, German and French, uses contradictory, confusing and malicious reports to make it harder for the EU to communicate its response to the pandemic.

Emmott R. Researchers: Russia deploying coronavirus disinformation to sow panic in West, EU document says. Reuters. March 18, 2020. <https://www.reuters.com/article/us-health-coronavirus-disinformation/russia-deploying-coronavirus-disinformation-to-sow-panic-in-west-eu-document-says-idUSKBN21518F>

Misinformation



US denounces Russian 'disinformation' over Covid vaccines

“The United States on Monday denounced what it called a Russian disinformation campaign against US-made Covid-19 vaccines, saying Moscow was putting lives at risk. The Global Engagement Center, an arm of the State Department whose activities include monitoring foreign propaganda, said that Russian intelligence was behind four online platforms involved in a campaign.”

<https://www.msn.com/en-us/news/world/us-denounces-russian-disinformation-over-covid-vaccines/ar-BB1enW0A>

Misinformation - Brazil



The misinformation bubble threatening Brazil's indigenous people

May 8, 2021

False information from the mouths of politicians and preachers is reaching remote villages in the Amazon via WhatsApp, reports BBC News Brasil's Juliana Gragnani.

<https://www.bbc.com/news/blogs-trending-56919424>



Bows and arrows greet healthcare workers delivering Covid vaccine in Amazon

Healthcare workers have reportedly been confronted by crowds armed with bows and arrows while attempting to deliver the Covid-19 vaccine to indigenous communities in Brazil's Amazon. A wave of vaccine misinformation spread through chat apps like WhatsApp is thought to be to blame for people's opposition to the jab.

[*Bows and arrows greet healthcare workers delivering Covid vaccine in Amazon | The Independent*](#)



Misinformation - India

THE
NEW YORKER

By Rahul Bhatia

May 10, 2021

INDIA'S EPIDEMIC OF FALSE COVID-19 INFORMATION

As patients and families frantically seek treatment, elected officials—and some physicians—have fuelled denialism and specious talk of miracle cures.

“As the virus’s second wave washed over India, and hospital beds and oxygen grew scarce, visitors to the site frantically hunted for medicines rumored to treat the disease: Fabiflu, remdesivir, azithromycin, ivermectin, doxycycline. Then, on April 28th, those search terms were all overshadowed—by a factor of three—by queries for an obscure homeopathic nasal spray.”

<https://www.newyorker.com/news/dispatch/indias-epidemic-of-false-covid-19-information>

Anti-Vaccine Misinformation



Russia trolls 'spreading vaccination misinformation' to create discord

🕒 24 August 2018

<https://www.bbc.com/news/world-us-canada-45294192>

📺 CBS NEWS

Russian trolls fueled anti-vaccination debate in U.S. by spreading misinformation on Twitter, study finds

BY CAITLIN O'KANE

MAY 31, 2019 / 11:16 AM / CBS NEWS



<https://www.cbsnews.com/news/anti-vax-movement-russian-trolls-fueled-anti-vaccination-debate-in-us-by-spreading-misinformation-twitter-study/>

Anti-Vaccine Misinformation

LEXINGTON
HERALD LEADER

1 in 5 Americans believes microchips are hidden in COVID vaccines, poll finds

An [Economist/YouGov survey](#) conducted July 10-13 based on a sample size of 1,500 adults found that 15% of respondents said it was “probably true” that vaccines contain microchips while 5% said it was “definitely true.”

<https://www.kentucky.com/news/coronavirus/article252883663.html>



Kevin Kavanagh made with lunar technology? Do you know about the nanotechnology? What of the graphene oxide that mutilates every one of the body systems? The vaccine is the virus. What is in the injection? How many manufacturers are there? What are their agendas? How are the 5G towers connected to the receptors in the injections? What are the patent numbers of the manufactured virus? Look it up for yourself. This is part of Klaus Schwabs plan.

Anti-Vaccine Misinformation

- **Vaccines Do Not Work**
- **Microchips in Vaccines**
- **Vaccines Have High Death Rates**
- **Vaccines Change Your DNA**
- **Vaccines Decrease Fertility (Actually there is some evidence that COVID-19 may decrease fertility in males.)**
- **Vaccines Have Not Been Adequately Tested**
- **Vaccines are FDA Authorized Not Approved**



Anti-Vaccine Misinformation

- Vaccine Misinformation is a Large Problem in Most European Countries. Spain was the one exception.

Jesus Rodriguez-Baño, Spain: <https://youtu.be/pWuu1oGg7ro>

- Peru also has embraced vaccines, with in home vaccinations, delivered by nurses who have to forge streams and travel on donkeys. Surprisingly, in the United States in-home public health outreach has become controversial. *Patrick Palmieri, Peru: <https://youtu.be/bd5-vkiEdwU>*



(Slides Courtesy of Patrick Palmieri, Peru)

False!

COVID-19 Just Like the Flu

– **Barry_C.** | 2 months ago

I trust the virus more than the "vaccines". I have more data about the virus. It has existed longer. And with low death rate, it is not dangerous for most.

Courier Journal June 2021

- [Kathy Woods](#)

[Kevin Kavanagh](#)

I'm guessing they forgot that it's also flu season? Has the flu just disappeared? I guess they're just calling it covid now. 🤔 The hospitals are always full at this time of year. The vaccine is rushed and people will be harmed and killed...

Facebook

False!

Fatality Rates Are Over Estimated

Under-reporting paints a false picture of COVID-19's true impact making it harder to mobilize resources and easier to politically mitigate or even deny the devastation of the pandemic.

We have been unable to learn from the mistakes of others.

Lessons learned during the Ebola Epidemic: “In the [Ebola epidemic of 2014](#), the government of Guinea, a country with very limited health resources, initially insisted that only laboratory-confirmed cases be counted, this led to a drop in reported cases and a false sense of security, delaying the mobilization of resources and fueling the spread of the virus.”

Kavanagh K. Op-Ed: Collective ignorance and government timidity are public health threats. Los Angeles Times. May 16, 2019. <https://www.latimes.com/opinion/op-ed/la-oe-kavanagh-epidemics-health-public-policy-20190516-story.html>



False!

Fatality Rates Are Over Estimated

Misinformation Coming From Social Media



Highlighted reply

Игорь Ижценков 1 day ago

[@Health Watch USA](#)

For exactly DECADES the lethality of a virus was measured by it's TOTAL death toll worldwide.

Suddenly that does NOT matter???

As of December 16, 2020 COVID-19 has killed 1,648,147 people on a SEVEN BILLION people planet.

Contrast that with the 1918 Spanish Flu that killed FIFTY MILLION people in TWO YEARS when the world's population was 1.8 BILLION.

I'm supposed to ignore that difference???

WHY?

I live in the Dominican Republic and whenever I ask someone (from numerous strangers and acquaintances) if they know anyone who has or had COVID-19 they ALL say they don't know anyone who had it yet and out of approximately thirty people ONE will say that they know someone who had it but they recovered.

I'm supposed to ignore that??

WHY?

I have hundreds of cousins, aunts and uncles on both sides of my parents families who live in both New York City and New York State.

NONE of them have had COVID-19 and NONE of them know someone who had it.

I'M SUPPOSED TO IGNORE THAT???????,

WHY????

Any logical answers or will you flee from a TRUTH that goes against the narrative that you're obviously striving for?



False!

Fatality Rates Are Over Estimated

Misinformation Coming From Social Media



Health Watch USA 4 days ago

@Игорь Ижценков In New York city it lasted longer they had an additional wave. It all depends upon your willingness to follow public health recommendations.

By the way, why don't you tell about you. You seem to have great interest in a small website and obscure video. We have lots of questions. Who are you working with? Are you being paid? Who are your handlers? What country are you working for? We are just fascinated to have attracted what appears to be an international misinformation initiative.



Highlighted reply

Игорь Ижценков 4 days ago

@Health Watch USA

I am from Russia (born in the former Soviet Union in 1964) and left in 1996, one year after serving in the first Chechen war in 1995. I moved to Spain, lived there for twelve years and became a citizen. In 2008 I moved to the Dominican Republic and became a naturalized citizen there in 2015 and now permanently reside in the DR.



False!

Fatality Rates Are Over Estimated

Misinformation Coming From Foreign Nations

Brazil



Ricard J, Medeiros J. April 17, 2021

<https://misinforeview.hks.harvard.edu/article/using-misinformation-as-a-political-weapon-covid-19-and-bolsonaro-in-brazil/>

“Despite all evidence, a strong rhetoric undermining risks associated to COVID-19 has been endorsed at the highest levels of the Brazilian government...”

Peru

#	Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	New Recovered	Active Cases	Serious, Critical	Tot Cases/ 1M pop	Deaths/ 1M pop
1	Peru	2,109,294		196,291		N/A	N/A	N/A	1,814	63,026	5,865

Has the highest death rate per capita. The country is the probably origin of the Lambda Variant. Deaths were undercounted due to the requirement of having a COVID-19 test in a country with reduced testing capacity. Using Excess Deaths the number of fatalities increased threefold.

Prof. Patrick Palmieri, Peru: YouTube Presentation: <https://youtu.be/bd5-vkiEdwU>

False!

Fatality Rates Are Over Estimated

Misinformation Coming From Foreign Nations

Peru



June 1, 2021
12:46 AM EDT
Last Updated 2 months ago

Healthcare & Pharmaceuticals

Peru revises pandemic death toll, now worst in the world per capita

2 minute read

Marco Aquino, Marcelo Rochabrun

The government said it will now update its death count, which stood at 69,342 as of Sunday, in part because of a lack of testing that made it difficult to confirm whether a person had died due to the virus or some other cause.

According to Johns Hopkins data, Hungary had the worst number of per capita COVID-19 deaths at about 300 per 100,000 people. With its updated death toll, Peru now stands at more than 500 COVID-19 deaths per 100,000 people.

<https://www.reuters.com/world/americas/peru-almost-triples-official-covid-19-death-toll-after-review-180000-2021-05-31/>



False!

Fatality Rates Are Over Estimated

Misinformation Coming From Foreign Nations

India

Dr. Vineeta Gupta

YouTube Video:

<https://youtu.be/vsOj76yBH9g>



Just How Big Could India's True Covid Toll Be?

By Lazaro Gamio and James Glanz May 25, 2021

Official counts

26.9 million 307,231
Reported cases Reported deaths

Data as of May 24

A conservative scenario

404.2 million 600,000
Estimated infections Estimated deaths

15 infections per reported case with an
infection fatality rate of 0.15%

A more likely scenario

539.0 million 1.6 million
Estimated infections Estimated deaths

20 infections per reported case with an
infection fatality rate of 0.30%

A worse scenario

700.7 million 4.2 million
Estimated infections Estimated deaths

26 infections per reported case with an
infection fatality rate of 0.60%

False!

Fatality Rates Are Over Estimated

Misinformation Coming From Foreign Nations

India

The Telegraph

By Joe Wallen MUMBAI

20 July 2021 • 3:30pm

India's Covid excess death toll nearly 10 times higher than official estimates

Nearly five million people may have died over the course of the pandemic, research shows

“The CGD combined data from three different data sources: a civil registration system that records births and deaths across seven of India’s 29 states, blood tests that compared the prevalence of the virus in India to global Covid-19 fatality rates and an economic survey of almost 900,000 people, which is completed three times a year.”

<https://www.telegraph.co.uk/global-health/science-and-disease/indias-covid-excess-death-toll-nearly-10-times-higher-official/>



False!

Fatality Rates Are Over Estimated

Misinformation Coming From Foreign Nations

United States

Worldometer - Reported Data: 626,668

Institute for Health Metrics and Evaluation - Excess Death Data: 937,100

One Reason For the Difference in the USA Death Toll is The Devastating Effects of Long COVID.

A Veterans Health Administration Study of 73,435 non-hospitalized survivors of COVID-19 reported deaths and morbidity from 30 days to 6 months after initial diagnosis.

Compared to controls they found that during this convalescent phase, survivors had:

- A 59% increase chance of dying.
- Translates to an additional 8 extra deaths per 1000.



*Gale, F. 'Long Hauler' Study Shows Covid Can Kill Months After Infection
Bloomberg. Apr. 22, 2021 <https://www.bloomberg.com/news/articles/2021-04-22/-long-hauler-study-shows-covid-can-kill-months-after-infection>*

False!

Fatality Rates Are Over Estimated

Misinformation Coming From Foreign Nations

United States

“Al-Aly and his colleagues documented the cascade of debilitating effects that plague survivors months after diagnosis, from blood clots, stroke, diabetes and breathing difficulties to heart, liver and kidney damage, depression, anxiety and memory loss. They also found the risk of complications was far higher than with the flu.”

Gale, F. 'Long Hauler' Study Shows Covid Can Kill Months After Infection *Bloomberg*. Apr. 22, 2021 <https://www.bloomberg.com/news/articles/2021-04-22/-long-hauler-study-shows-covid-can-kill-months-after-infection>





COVID-19 Just Like the Flu

Singapore – Worldometer, July 31, 2021

#	Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	New Recovered	Active Cases	Serious, Critical	Tot Cases/ 1M pop	Deaths/ 1M pop
199	Singapore	64,981	+120	37		62,863	+130	2,081	7	11,014	6

(If the USA did as well, we would have approximately 2000 deaths total)

COVID-19 Lessons Learned: A Global Perspective

“Singapore instituted a stringent elimination strategy, resulting in both the less infectious influenza virus and the highly infectious SARS-CoV-2 virus to almost totally disappear. All respiratory viruses had a substantial decrease during Singapore’s lockdown period. Relaxation of strategies resulted in the reappearance of some viruses. Approximately 13 weeks after reopening, rhinovirus and enteroviruses reappeared. Later in 2020, adenoviruses reappeared but influenza remained at almost non-existent levels throughout the remainder of the year.” – Kavanagh, KT, et al. ARIC, Submitted 2021.

Trends in Respiratory Virus Infections During the COVID-19 Pandemic in Singapore, 2020

Wan WY, Thoon KC, Loo LH, Chan KS, Oon LLE, Ramasamy A, Maiwald M. Broad decline and subsequent differential re-emergence of respiratory viruses during COVID-19 pandemic response measures, Singapore 2020. *Jama Network*. June 28, 2021.

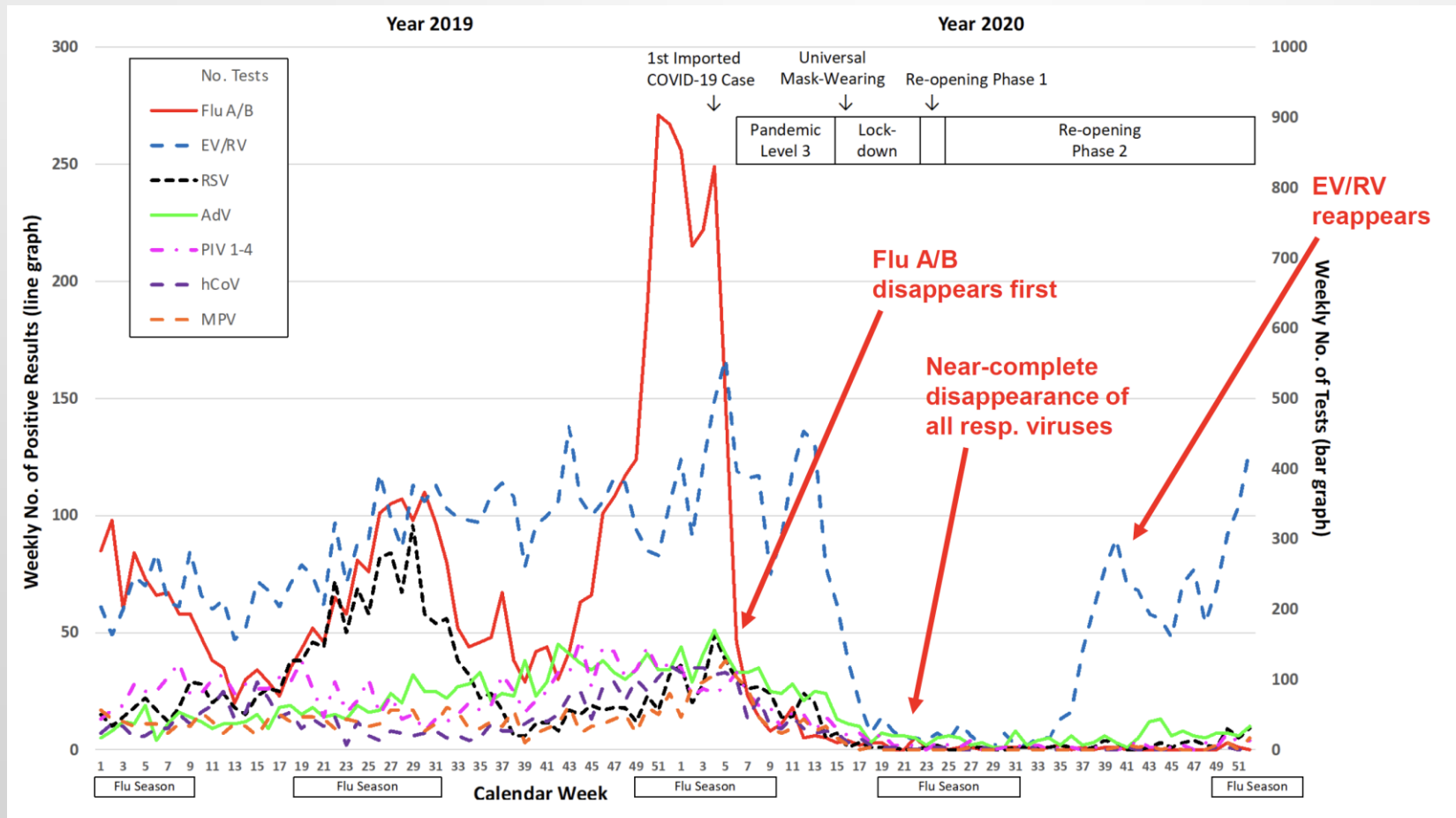
<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2781461>

Singapore: Dr. Matthias Maiwald <https://youtu.be/-WPQv9ghTy0>



False!

COVID-19 Just Like the Flu



False!

Herd Immunity Is Achievable Without Protective Measures

False!

Herd Immunity Is Achievable Without Protective Measures

Bloomberg

Infect Everyone: How Herd Immunity Could Work for Poor Countries

Ari Altstedter April 22 2020,

“No country can afford a prolonged period of lockdowns, and least of all a country like India,” said Jayaprakash Muliyil, a prominent Indian epidemiologist. “You may be able to reach a point of herd immunity without infection really catching up with the elderly. And when the herd immunity reaches a sufficient number the outbreak will stop, and the elderly are also safe.”

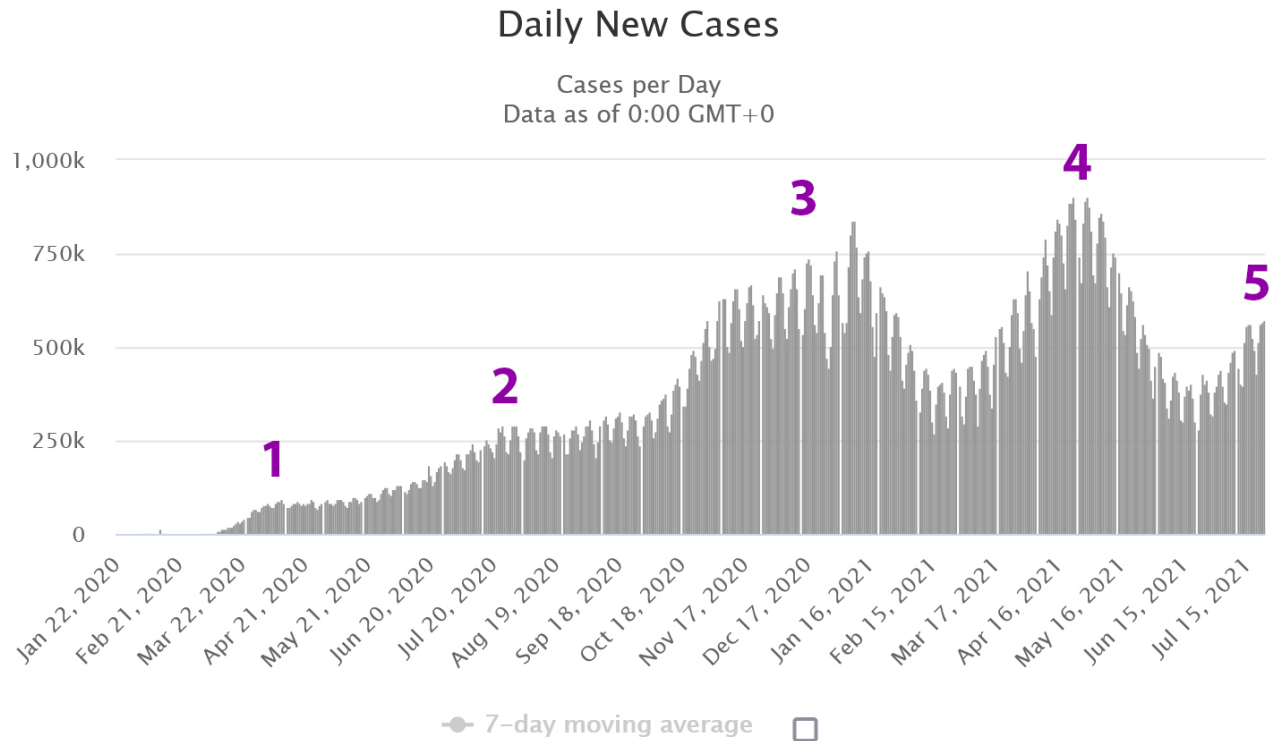
<https://www.bloombergquint.com/coronavirus-outbreak/a-herd-immunity-strategy-could-actually-work-in-youthful-india>



COVID-19: The 5th Surge

Daily New Cases The World

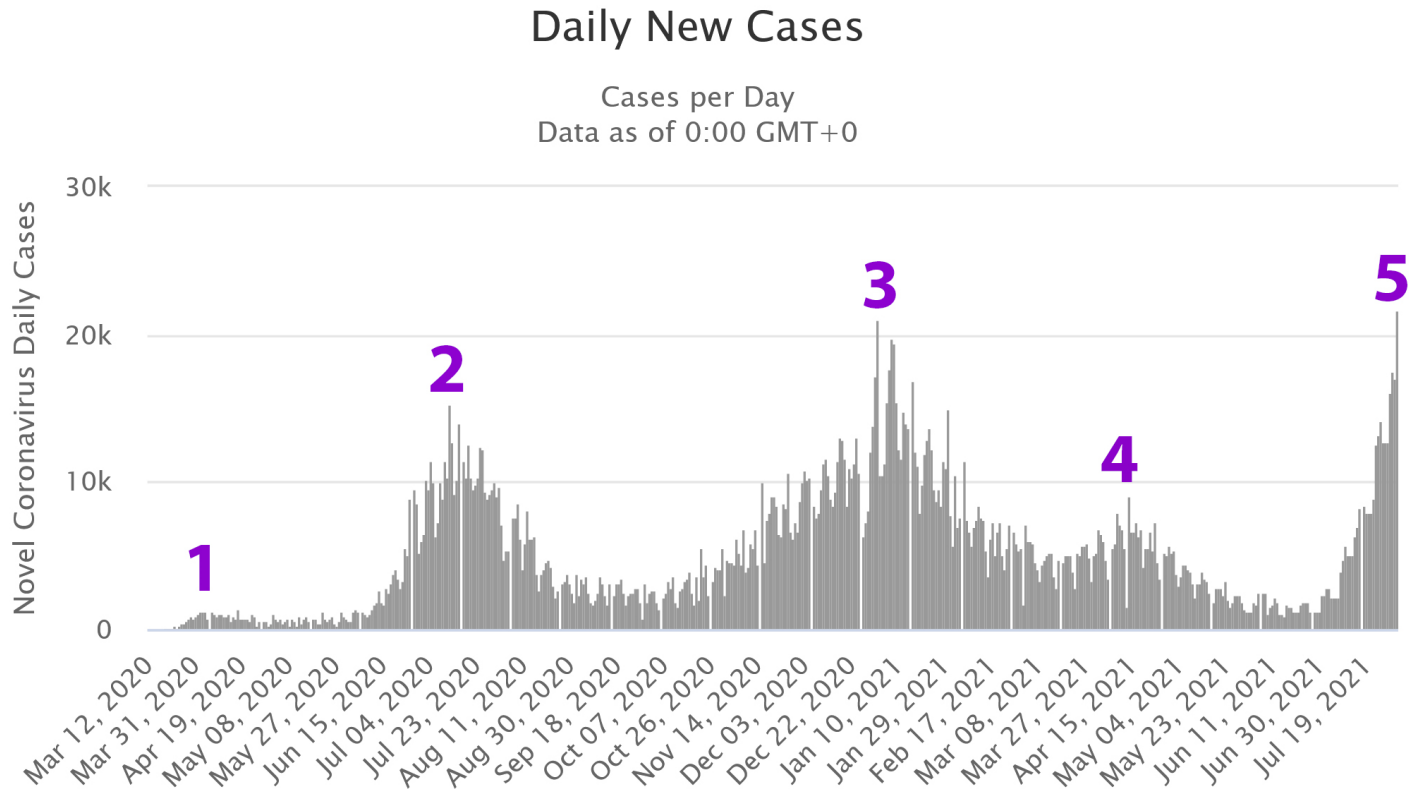
July 31, 2021



COVID-19: The 5th Surge

Daily New Cases in Florida

July 31, 2021



False!

Herd Immunity Is Achievable Without Protective Measures

India

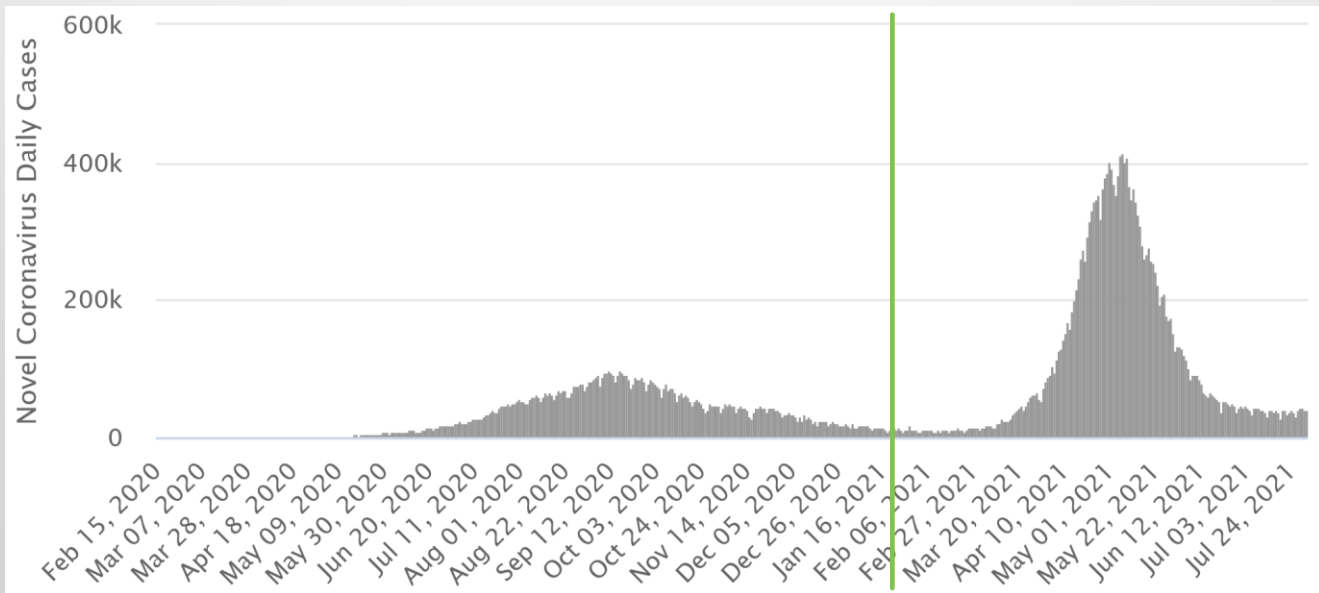
ThePrint

Indians must have no confusion about how we reached impressive Covid herd immunity

SANJIV AGARWAL 25 January, 2021 12:39 pm IST

It must be also understood that the herd immunity India seems to be approaching fast is due to natural immunity response in a large number of infected persons and not something that is naturally in-built in our blood. <https://theprint.in/opinion/indians-must-have-no-confusion-about-how-we-reached-impressive-covid-herd-immunity/591489/>

Graphs: Daily New COVID-19 Cases Source www.worldometers.info July 31, 2021



False!

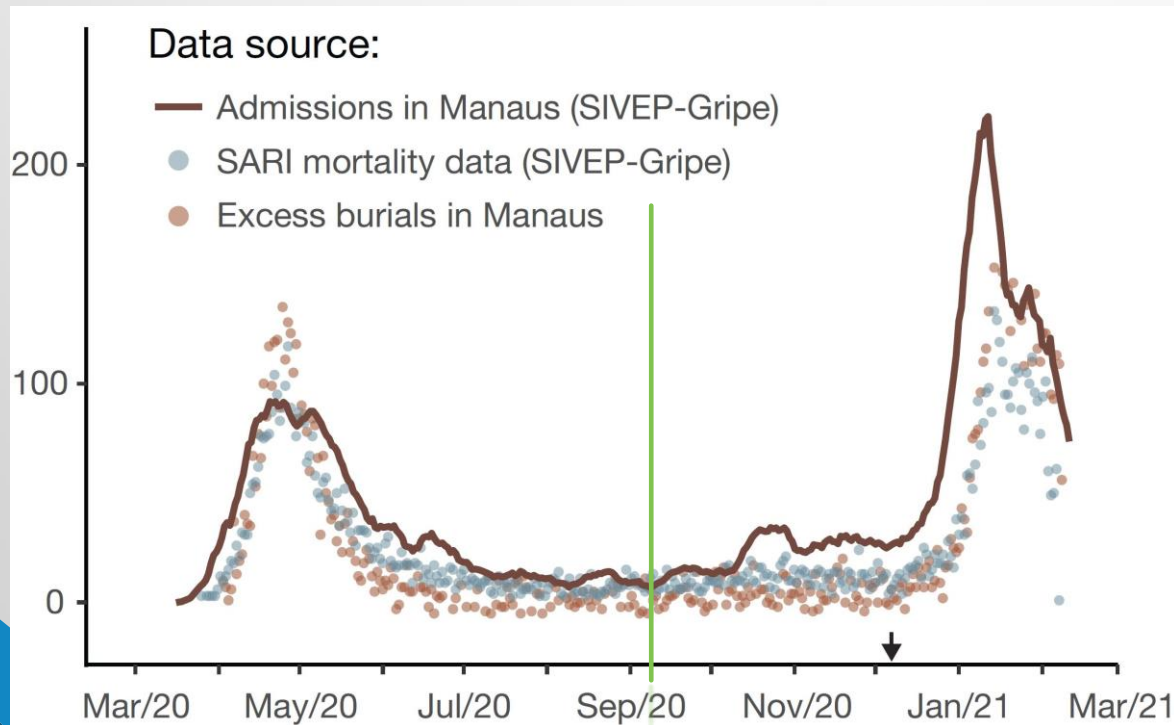
Herd Immunity Is Achievable Without Protective Measures

Brazil

**POPULAR
SCIENCE**

A Brazilian city may have achieved herd immunity to COVID-19—but not without a cost

“Antibody tests indicate that up to two thirds of the population of Manaus may have caught the virus, a team of researchers from Brazil, the United Kingdom, and the United States reported September 21.” The scientists argued this could explain decline in new cases.” <https://www.msn.com/en-us/news/technology/a-brazilian-city-may-have-achieved-herd-immunity-to-covid-19%e2%80%94but-not-without-a-cost/ar-BB19kKgZ>



Faria NR, et al.
Genomics and epidemiology of the P.1 SARS-CoV-2 lineage in Manaus, Brazil. Science. May 21, 2021

<https://science.sciencemag.org/content/372/6544/815/tab-pdf>

False!

Herd Immunity Is Achievable Without Protective Measures

United States

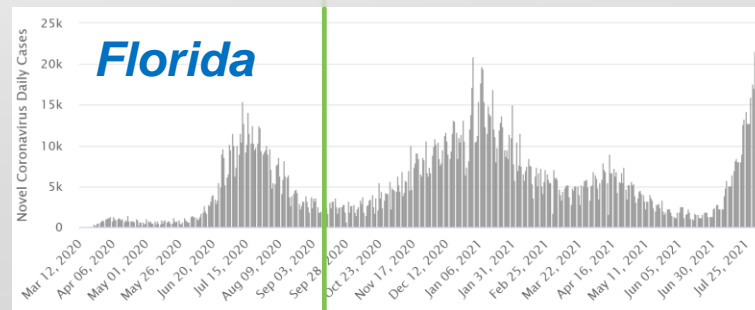
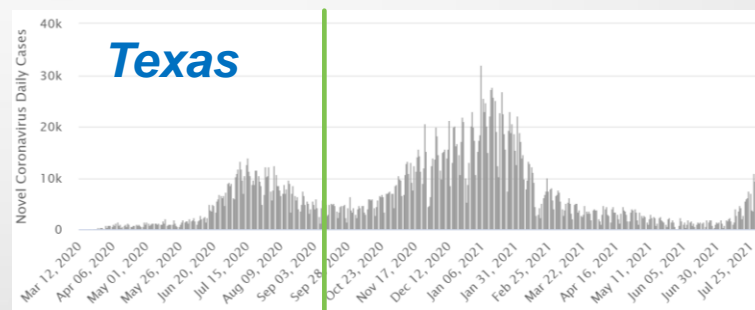
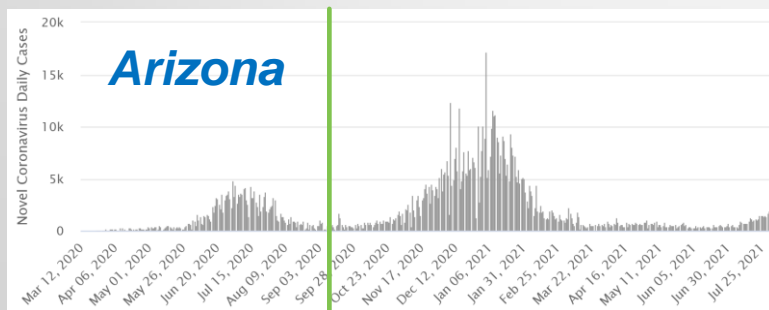
INSIDER

Some states have 'unintentionally' pursued a herd-immunity strategy to control the coronavirus, experts say — and it's kind of working

Aylin Woodward and Morgan McFall-Johnsen Sep 12, 2020,

“Arizona, Florida, and Texas — which had huge coronavirus outbreaks following early reopenings — may have reached low levels of herd immunity that have helped slow the virus's spread in the last month.” <https://www.businessinsider.com/us-states-unintentional-herd-immunity-strategy-curbed-covid-spread-2020-8>

Daily New Cases as of July 31, 2021



False!

Herd Immunity Is Achievable Without Protective Measures

United States

courier journal

Al Cross Opinion contributor

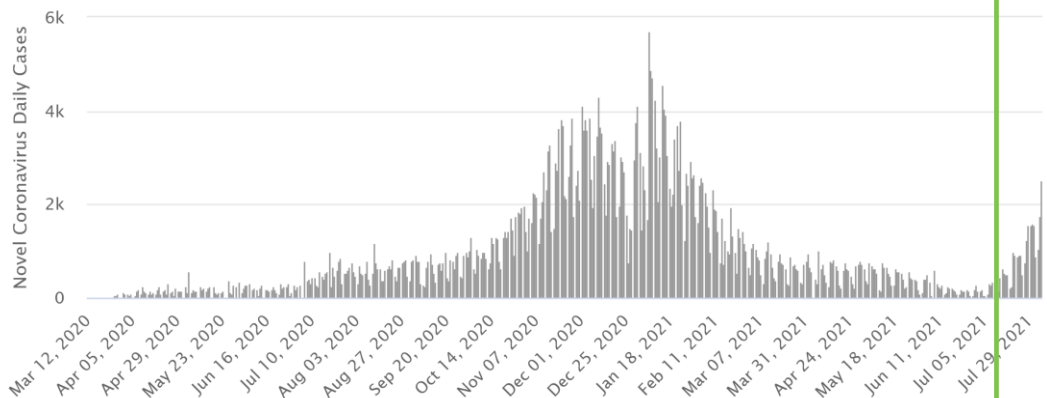
Published 6:18 a.m. ET Jul. 20, 2021

By his own account, U.S. Sen. Rand Paul, M.D., is discouraging Kentuckians from getting vaccinated against the coronavirus. He wrote in his July 9 newsletter:

“Natural immunity occurs when your body protects itself from a disease. Vaccine immunity occurs when you inject a certain disease into the body to produce immunity from it. When you combine both natural immunity and vaccine immunity, it's estimated that 80-85 percent of U.S. adults have Covid-19 immunity. As a result, we've likely already reached herd immunity, making the spread of this disease from one person to another unlikely.”

Kentucky Daily Cases

As of Aug. 4, 2021



False!

Herd Immunity Is Achievable Without Protective Measures

United States

The Delta Variant is over 2 times as infective as the Wild Type Virus. The Wild Type Virus had an R0 of at least 4 (three times as infectious as the flu). Thus, a very conservative estimate is that the R0 of the Delta Variant is greater than 6.

Percent of Population Needed To Reach Herd Immunity = $1 - (1 / R0)$

For an R0 of 6 it will take greater than 83% of the population. In actuality, it may be much higher than this.

False!

Herd Immunity Is Achievable Without Protective Measures

Can we predict the limits of SARS-CoV-2 variants and their phenotypic consequences?

-- UK's Scientific Advisory Group for Emergencies (SAGE).

“A longer-term version of shift whereby SARS-CoV-2 undergoes a reverse zoonotic event into an animal reservoir(s). This virus is then on a separate evolutionary trajectory because the virus animals is subject to different selection processes than in humans. The SARS-CoV-2 decedents then re-emerge into humans at a later time when vaccines that have been updated to keep pace with drift in humans sufficiently mismatched so as not able to provide immunologic cross protection.”

<https://amp.cnn.com/cnn/2021/08/01/health/uk-scientists-covid-variant-beat-vaccines-intl/index.html>



False!

Herd Immunity Is Achievable Without Protective Measures



Exclusive: Buddy, first dog to test positive for COVID-19 in the U.S., has ...
Even though the German shepherd likely had cancer, his health records show how little we know about animals and the coronavirus.
nationalgeographic.com

➤ SARS-CoV-2 has been reported to commonly infect domesticated [dogs and cats](#). One report found studied 48 cats and 54 dogs from 77 households with SARS-CoV-2 [positive owners](#). Sixty-seven percent (32) of the cats tested positive, 41% (13) cats had symptoms characterized by a runny nose and difficulty breathing. In three cases, the illness was severe. Forty-three percent (23/54) of the dogs tested positive for SARS-CoV-2. Forty-eight percent (11) of infected dogs had symptoms, mainly lack of energy and appetite, but some developed a cough and diarrhea. All of the dogs had mild infections.

- Zoo animals such as [large cats](#) and [gorillas](#) have become infected with COVID. The Oakland Zoo has begun an experimental COVID vaccine on tigers, bears, [lions and ferrets](#). Additional zoos, including the San Diego Zoo in California, the Columbus Zoo in Ohio, the Louisville Zoo in Kentucky, the John Ball in Grand Rapids, Michigan, and the North Carolina Zoo in Asheboro are planning vaccinations in the near future. Birds can also become infected with coronaviruses, but to date infections with SARS-CoV-2 have not yet been reported. However, the proclivity of SARS-CoV-2 to mutate and jump between animal species makes this a [future possibility](#)

False!

Herd Immunity Is Achievable Without Protective Measures

- “We targeted white-tailed deer (*Odocoileus virginianus*) for serosurveillance based on evidence these deer have ACE2 receptors with high affinity for SARS-CoV-2, are permissive to infection, exhibit sustained viral shedding, can transmit to conspecifics, and can be abundant near urban centers. We evaluated 624 pre- and post-pandemic serum samples from wild deer from four U.S. states for SARS-CoV-2 exposure. Antibodies were detected in 152 samples (40%) from 2021 using a surrogate virus neutralization test.”
- “Reverse zoonosis could lead to the establishment of novel wildlife reservoirs outside of southeast Asia (11), a potential that poses significant risks to both human and animal health.”



False!

Six Feet Away And Your Safe

- This narrative assumes the virus is spread by droplets and droplet precautions will stop the spread. But a major and possibly most important mechanism of spread is by aerosolization.
- SARS-CoV-2 is airborne.

Dr. Stephanie Dancer, United Kingdom: <https://youtu.be/sMW3wUWUboA>

False!

Six Feet Away And Your Safe

I feel this stage of grief was most evident in the delayed recognition that Aerosolization is probably the major mode of spread of SARS-CoV-2 – The Virus is Airborne!

Many Early Indications that SARS-CoV-2 was Aerosolized:

1. Early research found an average R_0 of 5.2. Much Greater Than The Average Seasonal Flu R_0 of 1.3 . https://wwwnc.cdc.gov/eid/article/26/7/20-0282_article
2. Reports of Spread in Choirs and Restaurants Where Social Distancing Took Place.
3. Massive and Fast Spread of the virus Around the World.
4. A July 6, 2020, Letter Published in Clinical Infectious Disease from Hundreds of Scientists encouraging public health organizations including the WHO to recognize Aerosolization of SARS-CoV-2.
<https://academic.oup.com/cid/article/71/9/2311/5867798>

False!

Six Feet Away And Your Safe

The Washington Post

On May 6, 2021: The CDC acknowledges airborne transmission

"The Centers for Disease Control and Prevention advised that airborne transmission is one of several ways the virus can spread, adding that people more than six feet away from others indoors can become infected, according to the agency's website." <https://www.washingtonpost.com/nation/2021/05/07/coronavirus-covid-live-updates-us/>

The Washington Post

CDC director says mask turnaround based solely on science

May 14, 2021 CDC Revises Mask Guidance: "The head of the Centers for Disease Control and Prevention on Sunday defended the decision to ease mask-wearing guidance for fully vaccinated people, stressing that increasing political pressure had nothing to do with the abrupt shift in guidelines.....Under the new guidelines released last week, fully vaccinated people — those who are two weeks past their final dose of a COVID-19 vaccine — can quit wearing masks outdoors in crowds and in most indoor settings and give up social distancing."

https://www.washingtonpost.com/national/cdc-director-defends-decision-to-ditch-masks/2021/05/16/a87757dc-b667-11eb-bc4a-62849cf6cca9_story.html



False!

Masks Will Not Filter Viruses



- **Well-Fitted**
- **Well-Constructed**
- **With Delta, N-95s are best**

An **N95 respirator** is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles. Note that the edges of the respirator are designed to form a seal around the nose and mouth. Surgical N95 Respirators are commonly used in healthcare settings and are a subset of N95 Filtering Facepiece Respirators (FFRs), often referred to as N95s.

False!

Masks Will Not Filter Viruses

- This is a common misinformation argument. It is based upon N-95 masks which filter particles to 5 micros and a viron is less than one micron.
- However, there is also an electrostatic capturing of even smaller particles
- The droplets spread by talking, screaming and singing are between 10 to 100 microns. Thus, a solitary dry viron is the major spread threat. It is virons encased in mucus and water.

TABLE 1 Terminology for Particles Involved in Airborne Diseases

Terms	Traditional Thinking (based on longstanding misconceptions, <i>not</i> informed by aerosol science)	Updated Descriptions (informed by aerosol science and exposure pathways)		
		Definition and Typical Size	Behavior in Air	Exposure Pathways
Aerosol ^a	Particle <5 μm	Stable suspension of solid and/or liquid particles in air, smaller than about 100 μm	Can remain airborne for extended time. Concentration is highest near source. Concentration decreases with distance from source but can travel farther than about 2 meters or 6 feet and build up in a room	Inhaled into respiratory system
Droplet	Particle >5 μm	Liquid particle, larger than about 100 μm	Settles quickly to the ground or on to a surface. Travels less than about 2 meters or 6 feet, except when propelled (e.g., sneezes and coughs)	Exposure via eyes, nose, or mouth at close range

^a Aerosol is used here as a shorthand for “aerosol particle,” reflecting common usage. When the physical attribute of the particle is described in this document, the term aerosol particle is used.

False!

Masks Will Not Filter Viruses



The NEW ENGLAND
JOURNAL of MEDICINE

Visualizing Speech-Generated Oral Fluid Droplets with Laser Light Scattering

- “We found that when the person said “stay healthy,” numerous droplets ranging from 20 to 500 μm were generated. “

https://www.nejm.org/doi/full/10.1056/NEJMc2007800?query=featured_home



False!

Masks Will Not Filter Viruses

PNAS

Proceedings of the
National Academy of Sciences
of the United States of America

The airborne lifetime of small speech droplets and their potential importance in SARS-CoV-2 transmission

- “The high sensitivity of the light scattering method in observing medium-sized ($10\ \mu\text{m}$ to $100\ \mu\text{m}$) droplets, a fraction of which remain airborne for at least 30 s, likely accounts for the large increase in the number of observed droplets. ”

<https://www.pnas.org/content/117/22/11875>

False!

Masks Will Not Filter Viruses

- **Dosage Matters**

It is a numbers game.

-- The more virions you are exposed to the greater the chances on developing an infection. It is unlikely, exposure to a single virus will cause an infection.

-- The more virions you are exposed to the greater the chance for a severe infection.

False!

Masks Will Not Filter Viruses

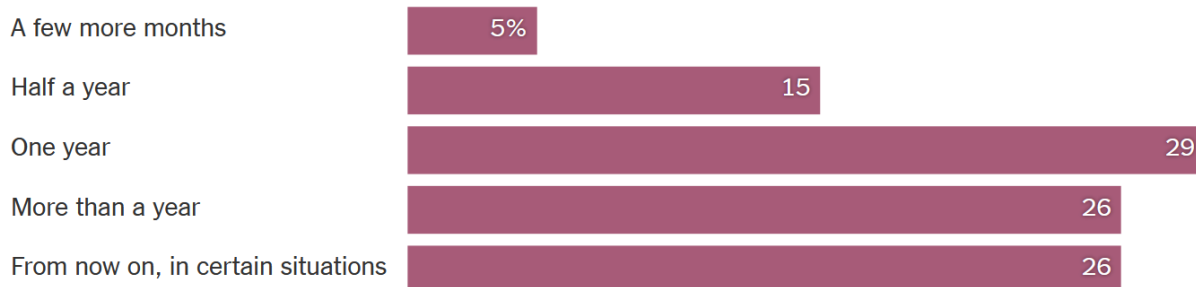
Hundreds of Epidemiologists Expected Mask-Wearing in Public for at Least a Year

“ In the informal survey, 80 percent said they thought Americans would need to wear masks in public indoor places for at least another year..... In large crowds outdoors, like at a concert or protest, 88 percent of the epidemiologists said it was necessary even for fully vaccinated people to wear masks.”

<https://www.nytimes.com/2021/05/13/upshot/epidemiologists-coronavirus-masks.html>

Epidemiologists on How Long They Thought We'd Be Wearing Masks Indoors

If you had to predict, how long will Americans need to wear masks when indoors with people whose vaccination status they don't know?



Based on responses by 570 academic and applied epidemiologists. The informal survey was conducted from April 28 to May 10.

False!

We Do Not Have To Do Anything Different With Variants

False!

We Do Not Have To Do Anything Different With Variants

The Delta variant is the virus we currently are dealing with. This is the third iteration to cause widespread surges in our country. We had the:

- Wild-type or Wuhan Variant.
- The D614G Variant about 1/3 more infective.
- Alpha Variant (U.K. Variant) about 70% more infective than the Wild-Type Virus.
- Delta Variant (Double Indian Mutation) over 2 times more infectious than the Wild-Type Virus.

And there is still the Lambda Variant (which arose in Peru) that has the potential to be more resistant than the Delta Variant, and there is also the Kappa Variant (which is the Delta Variant plus another strategic mutation). All of these variants are waiting in the wings and may cause new surges in the future.



The Vaccinated Do Not Need To Wear Masks





The Vaccinated Do Not Need To Wear Masks

Benefits of the vaccine - by result

Outcome	20/06-17/07		
	VE	Lower CI	Upper CI
SARS-CoV-2 cases	39.0%	9.0	59.0
Symptomatic COVID-19*	40.5%	8.7	61.2
COVID-19 hospitalization	88.0%	78.9	93.2
Severe COVID-19**	91.4%	82.5	95.7

NOTE: Follow-up period shifted to weeks when delta variant dominated sequenced strains in Israel

* Fever and/or respiratory symptoms on epidemiologic investigation

** Including severe, critical and deceased COVID-19 (Severe – respiratory rate > 30/minute, oxygen saturation < 94%, and/or PaO₂/FiO₂ < 300; Critical – invasive mechanical ventilation, shock or major organ failure)

**Israel's health
ministry**

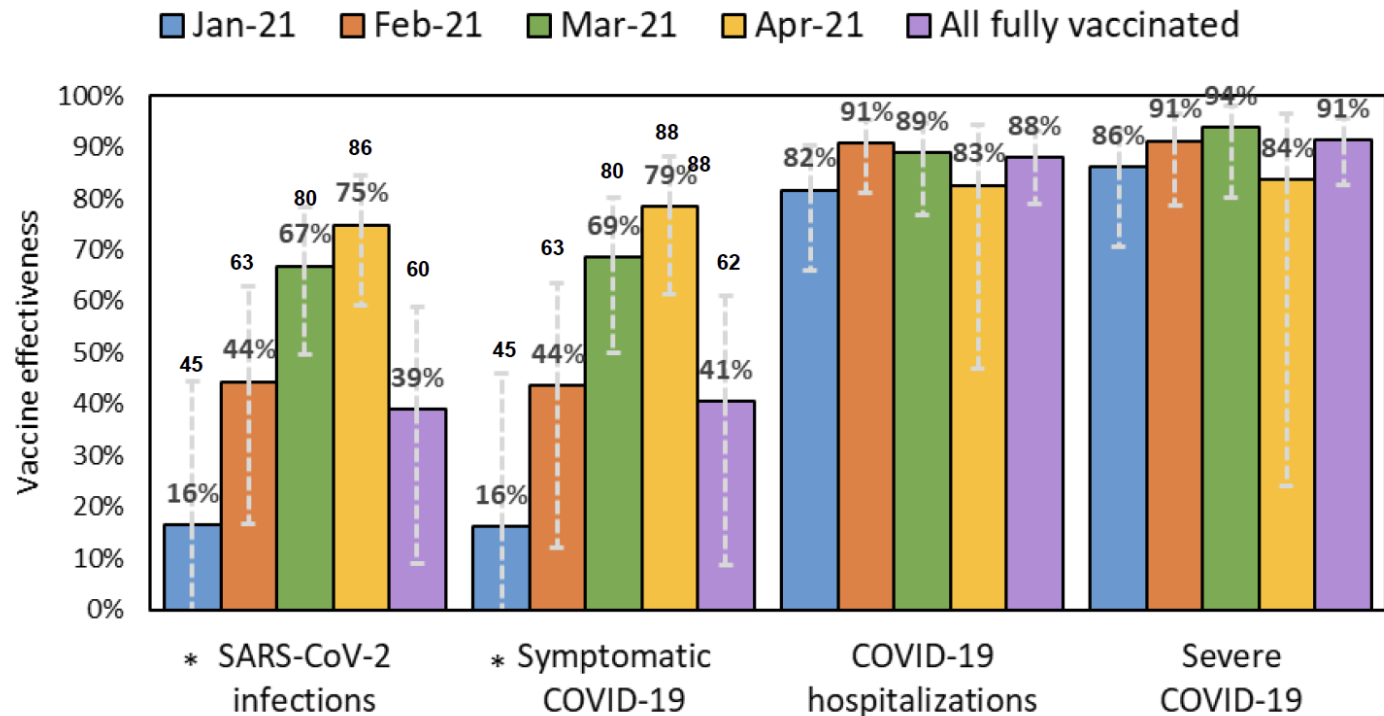
https://www.gov.il/BlobFolder/reports/vaccine-efficacy-safety-follow-up-committee/he/files_publications_corona_two-dose-vaccination-data.pdf

<https://www.forbes.com/sites/roberthart/2021/07/23/pfizer-shot-just-39-effective-against-delta-infection-but-largely-prevents-severe-illness-israel-study-suggests/>



The Vaccinated Do Not Need To Wear Masks

**Vaccine effectiveness[^] by outcome
and month vaccinated with second dose, 20/6 - 17/7/2021**



[^]Adjusted for age group, sex and epi-week

* 95% confidence interval crosses 0



The Vaccinated Do Not Need To Wear Masks



New numbers released on COVID-19 breakthrough cases in Lexington, Ky.

- The Lexington-Fayette County Health Department told us around 20-25% of the COVID cases they've seen over the last month have been breakthrough cases. They say even though vaccinated people may still catch the virus, those vaccines do appear to be effective at keeping vaccinated people from getting severely ill.
- In July, 2021 there have been 297 new COVID cases in Fayette County. The health department says roughly 23% of those have been breakthrough cases, where fully vaccinated people have tested positive.

<https://www.wkyt.com/2021/07/19/new-numbers-released-covid-19-breakthrough-cases-lexington/>



The Vaccinated Do Not Need To Wear Masks



**The Full Vaccination Rate in Fayette
County and Lexington is 58%.**

**This equates to a $1 - (23/58) = .6$ or 60%
Vaccine Efficacy in Preventing Infections.**



The Vaccinated Do Not Need To Wear Masks

Delta Variant Surges In LA And More Vaccinated People Are Testing Positive

By [Jackie Fortiér](#)

Published Jul 22, 2021 3:46 PM

Nationally, there's no exact number of breakthrough cases. There is no way to count asymptomatic breakthrough cases, because the U.S. isn't testing nearly enough to catch them all. The CDC stopped keeping a [running tally of mild breakthrough cases in May](#).

<https://laist.com/news/health/delta-variant-surges-in-la-and-more-vaccinated-people-are-testing-positive>





The Vaccinated Do Not Need To Wear Masks



SCIENCE

Why The Delta Variant Is Hyper-Contagious: A New Study Sheds Light

“The investigation on daily sequential PCR testing of the quarantined subjects indicated the viral load of the first positive test of Delta infections was **~1000 times higher** than that of the 19A/19B strains infections back in the initial epidemic wave of 2020”

<https://www.npr.org/sections/goatsandsoda/2021/07/08/1013794996/why-the-delta-variant-is-so-contagious-a-new-study-sheds-light>

<https://virological.org/t/viral-infection-and-transmission-in-a-large-well-traced-outbreak-caused-by-the-delta-sars-cov-2-variant/724>





The Vaccinated Do Not Need To Wear Masks

THE WALL STREET JOURNAL.

U.S. Vaccine Panel Signals Support for Covid-19 Booster Shots

Jared S. Hopkins, Felicia Schwartz · 20 hrs ago



“About 2.7% (1 in 37) of adults in the U.S. are considered immunocompromised, according to the CDC, including transplant recipients, some cancer survivors and people living with HIV. That makes them less responsive to vaccines, which require stimulation of the immune system to provide protection.” https://www.msn.com/en-us/health/health-news/us-vaccine-panel-signals-support-for-covid-19-booster-shots/ar-AAAMs6cs?ocid=MSNHP_W069&li=BBnb7Kz&pc=W069





The Vaccinated Do Not Need To Wear Masks



**Trump Surgeon General Says CDC Was
'Wrong' To Lift Mask Mandate And Should
Reverse Course**

“Adams, who served for nearly four years under former President Donald Trump, expressed deep concern about the CDC’s current “vax it or mask it” policy ... “CDC was well intended, but the message was misinterpreted, premature & wrong,” Adams said. “Let’s fix it.” ”

<https://www.forbes.com/sites/jemimamcevoy/2021/07/18/trump-surgeon-general-says-cdc-was-wrong-to-lift-mask-mandate-and-should-reverse-course/?sh=273f8a9f76a9>



The Vaccinated Do Not Need To Wear Masks

The Washington Post

Democracy Dies in Darkness

Going further than CDC, pediatricians group recommends masks in schools even for the vaccinated

The nation's leading association of pediatricians released new, highly anticipated covid-19 guidance for schools reopening this fall, recommending that everyone over the age of 2 wear masks, even if they are vaccinated against the virus — a more cautious approach than recent federal directives.

On Monday, the American Academy of Pediatrics called for in-person learning to fully resume and said universal masking should be part of a “layered approach to make school safe for all students, teachers and staff.”

<https://www.washingtonpost.com/health/2021/07/19/aap-mask-schools-vaccination/>





The Vaccinated Do Not Need To Wear Masks

**SCIENTIFIC
AMERICAN®**

WHO Urges Vaccinated People to Wear Masks; CDC Still Says No Need

World Health Organization leaders advised caution as new variants threaten progress
against the pandemic

<https://www.scientificamerican.com/article/who-urges-vaccinated-people-to-wear-masks-cdc-still-says-no-need/>





The Vaccinated Do Not Need To Wear Masks

- **Remember Dosage Matters**

It is a numbers game. Masks Reduce Viral Exposure Even in Those Vaccinated Making Infections Milder.

-- The more virions you are exposed to the greater the chances on developing an infection. It is unlikely, exposure to a single virus will cause an infection.

-- The more virions you are exposed to the greater the chance for a severe infection.

False!

Schools Can Open Without Implementing Mitigation Strategies

The excuse often given in many regions of the United States is that other countries have shown that schools can be opened safely, and children are at low risk for the disease, but what is left out is that extensive strategies to identify carriers and prevent spread were enacted to allow the students to attend schools in as safe of an environment as possible.

False!

Schools Can Open Without Implementing Mitigation Strategies



EMERGING
INFECTIOUS DISEASES®

ISSN: 1080-6059

Disclaimer: Early release articles are not considered as final versions. Any changes will be reflected in the online version in the month the article is officially released.

Volume 26, Number 10—October 2020

Dispatch

Contact Tracing during Coronavirus
Disease Outbreak, South Korea, 2020

**SARS-CoV-2 positive patients tracing number
of positive cases in household contacts. (Table 2)**

This Research included both symptomatic and asymptomatic patients. South Korea does extensive testing and case tracking but the authors stated “all asymptomatic patients might not have been identified”

Age 1 to 9 spread the virus half as frequently as adults, and those 10 to 19 spread it more than adults.

Index patient age, y	No. Household contacts positive/no. contacts traced	% Positive (95% CI)
0–9	3/57	5.3 (1.3–13.7)
10–19	43/231	18.6 (14.0–24.0)
20–29	240/3,417	7.0 (6.2–7.9)
30–39	143/1,229	11.6 (9.9–13.5)
40–49	206/1,749	11.8 (10.3–13.4)
50–59	300/2,045	14.7 (13.2–16.3)
60–69	177/1,039	17.0 (14.8–19.4)
70–79	86/477	18.0 (14.8–21.7)
≥80	50/348	14.4 (11.0–18.4)



https://wwwnc.cdc.gov/eid/article/26/10/20-1315_article

False!

Schools Can Open Without Implementing Mitigation Strategies

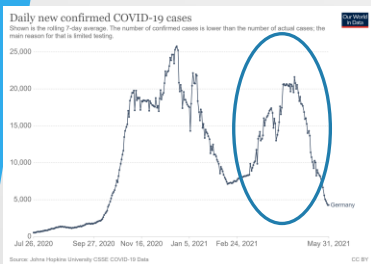


Figure source:
Our world in data

With the Alpha (UK) Variant, We Saw a Shift to Younger Patients.

VOC Alpha
(B.1.1.7)

Germany - Weekly COVID-19 incidence (per 100.000)

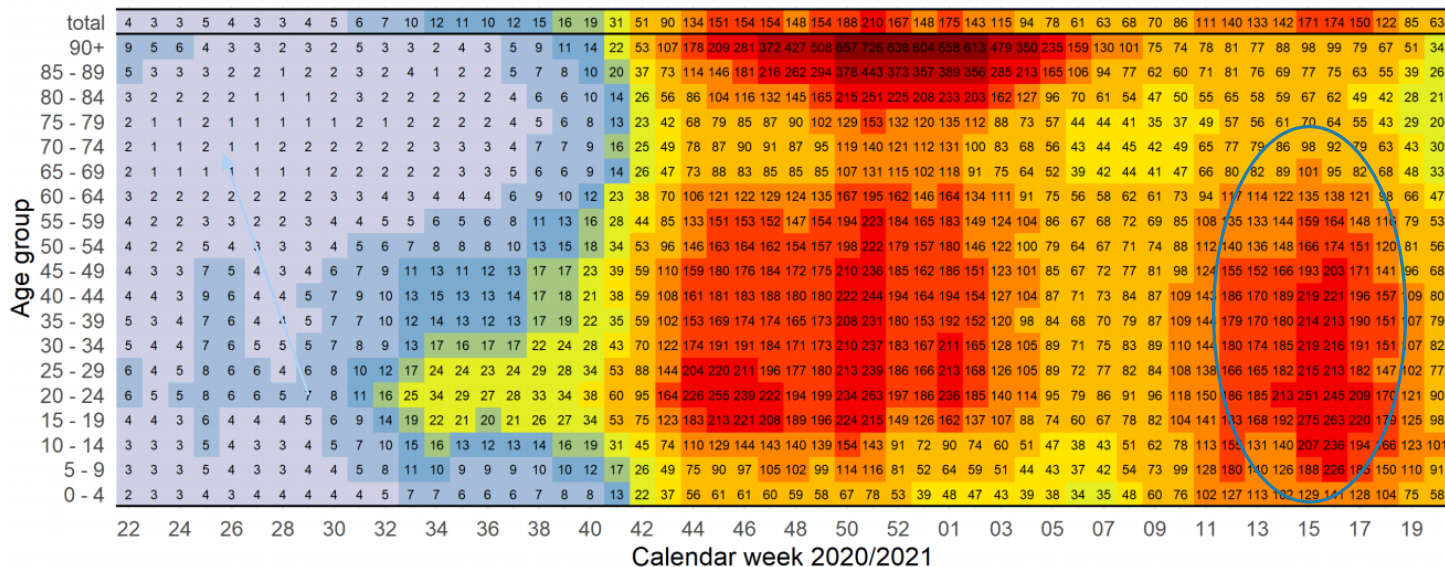


Figure source:
Robert Koch-Institut

Incidence (per 100.000)

0-5	>10-15	>20-35	>50-100	>150-200	>300-600
>5-10	>15-20	>35-50	>100-150	>200-300	>600

Dr. Sebastian Hoehl: https://youtu.be/_9is03QomGI



False!

Schools Can Open Without Implementing Mitigation Strategies

In Germany, there were school closures. When schools were reopened, there were mask mandates, social distancing and rapid antigen testing twice weekly for all students and teachers. A positive test was then confirmed with PCR testing. Even with these interventions, there were at least 86 outbreaks documented in daycare nurseries and schools.

Dr. Sebastian Hoehl: https://youtu.be/_9is03QomGI

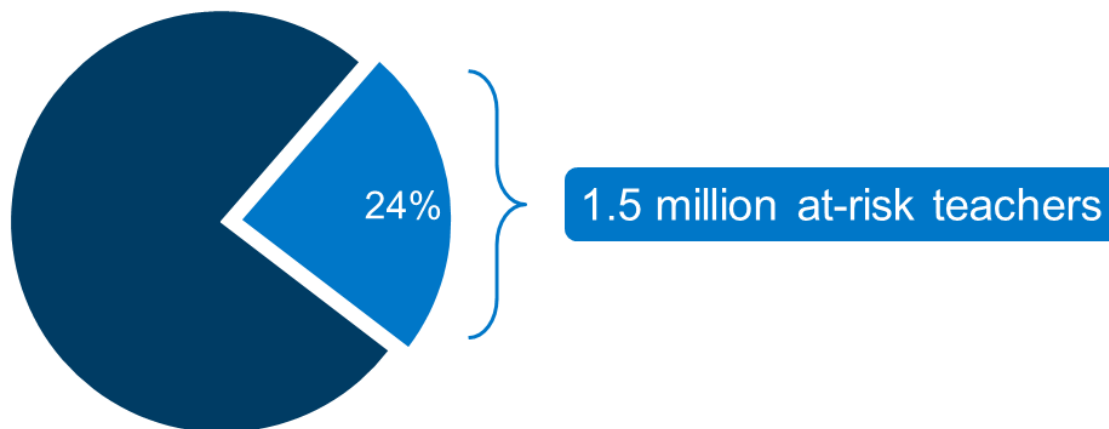
False!

Schools Can Open Without Implementing Mitigation Strategies

KFF

Nearly 1.5 Million Teachers (One in Four) are at Greater Risk of Serious Illness if Infected with Coronavirus

Share of teachers at greater risk of serious illness if infected with coronavirus



Source: KFF analysis of 2018 National Health Interview Survey.

KFF



<https://www.kff.org/coronavirus-covid-19/issue-brief/how-many-teachers-are-at-risk-of-serious-illness-if-infected-with-coronavirus/>

False!

Schools Can Open Without Implementing Mitigation Strategies

Political Pressure & Bargaining by Parents, Teachers, Students and Employers to Open Schools

July 5, 2020: Strategies to Prevent Droplet NOT Airborne Spread Were Adopted. These were less costly, and compliance could be expedited.

yahoo/finance

Schools buy miles of plexiglass ahead of potential reopenings amid coronavirus pandemic



Aarthi Swaminathan • Reporter

July 5, 2020 · 5 min read

<https://finance.yahoo.com/news/schools-reopening-amid-coronavirus-pandemic-205923992.html>



(PHOTO: REUTERS/Piroschka van de Wouw)

False!

Schools Can Open Without Implementing Mitigation Strategies

Political Pressure & Bargaining by Parents, Teachers, Students and Employers to Open Schools

But these shields did little good to protect one from an aerosolized virus. Upgrades to the building ventilation was desperately needed.

yahoo/finance

Schools buy miles of plexiglass ahead of potential reopenings amid coronavirus pandemic



Aarthi Swaminathan • Reporter

July 5, 2020 · 5 min read

<https://finance.yahoo.com/news/schools-reopening-amid-coronavirus-pandemic-205923992.html>



(PHOTO: REUTERS/Piroschka van de Wouw)

False!

Schools Can Open Without Implementing Mitigation Strategies

Aerosolization – The Virus is Airborne! This probably has been the major mode of spread.

Poor Air Circulation & Sanitization and Crowded Conditions in Schools are a Setup For a Disaster.

Feb. 1998: “Half of the city's 1,000 school buildings were built before World War II, and many are suffering from years of neglect and deferred maintenance that began with the city's fiscal crisis of the mid-1970's.”

The New York Times

Many Schools, in Disrepair, Pose Hazards

Feb. 2, 1998

By Jacques Steinberg and John Sullivan

<https://www.nytimes.com/1998/02/02/nyregion/many-schools-in-disrepair-pose-hazards.html>

June: 2020: “About half (an estimated 54 percent) of public school districts need to update or replace multiple building systems or features in their schools, according to GAO's national survey of school districts. For example, an estimated 41 percent of districts need to update or replace heating, ventilation, and air conditioning (HVAC) systems in at least half of their schools...”

United States Government Accountability Office

GAO

Report to Congressional Addressees

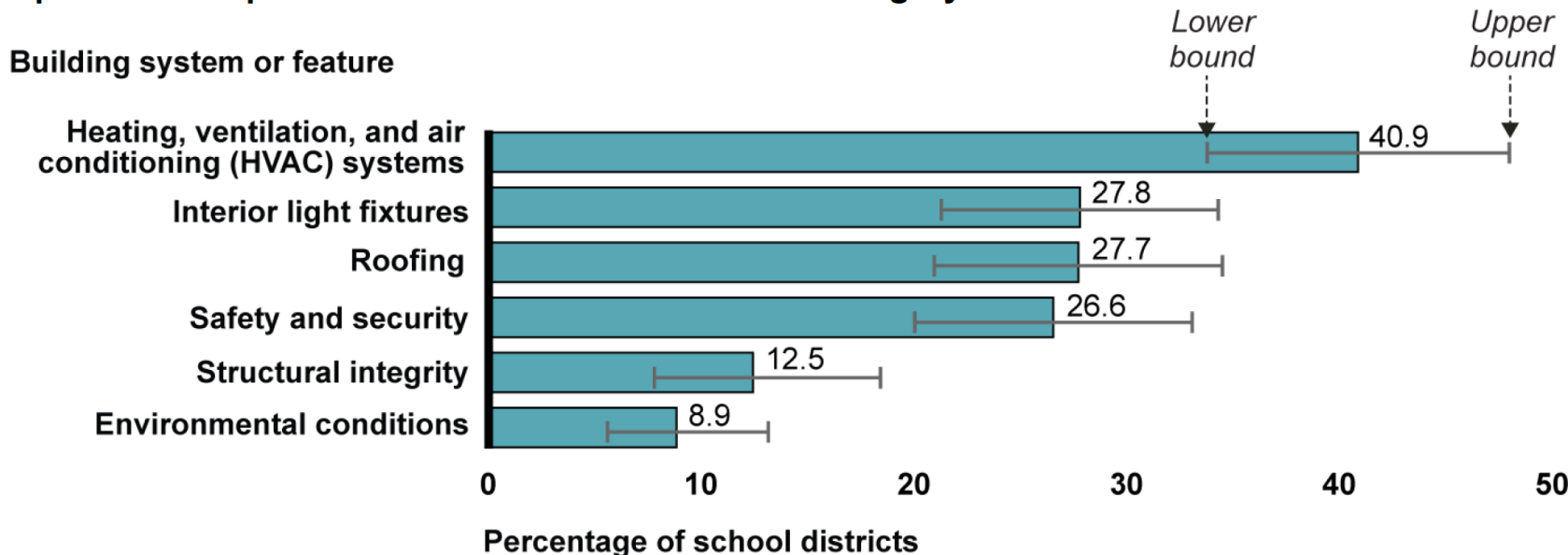
<https://edlabor.house.gov/imo/media/doc/School%20Districts%20Frequently%20Identified%20Multiple%20Building%20Systems%20Needing%20Updates%20or%20Replacement1.pdf>



False!

Schools Can Open Without Implementing Mitigation Strategies

Estimated Percentage of Public School Districts in Which at Least Half the Schools Need Updates or Replacements of Selected School Building Systems and Features



Source: GAO analysis of school district survey data. | GAO-20-494

Note: GAO administered the survey from August to October 2019. Thin bars in the chart display the 95 percent confidence interval for each estimate.

False!

Schools Can Open Without Implementing Mitigation Strategies

Summer camps hit with COVID outbreaks – are schools next?

By HEATHER HOLLINGSWORTH, KANTELE FRANKO and LINDSEY TANNER July 12, 2021

The U.S. has seen a string of COVID-19 outbreaks tied to summer camps in recent weeks in places such as Texas, Illinois, Florida, Missouri and Kansas, in what some fear could be a preview of the upcoming school year.

AP

<https://apnews.com/article/health-coronavirus-pandemic-michael-brown-7dd22f4efe101603c2c4caf531c980dc>



Public Health Officials Announce More Than 80 COVID-19 Cases Now Associated with Youth Camp Outbreak

28th Jun, 2021

<https://www.dph.illinois.gov/news/public-health-officials-announce-more-80-covid-19-cases-now-associated-youth-camp-outbreak>



False!

Schools Can Open Without Implementing Mitigation Strategies



Mississippi health officials warn about delta 'surge' as 7 children in ICU due to COVID-19

Two of the patients are on ventilators, officials said.

By **Meredith Deliso**, **Arielle Mitropoulos**, and **Dr. John Brownstein**

July 14, 2021, 6:48 PM • 6 min read



<https://abcnews.go.com/US/mississippi-health-officials-warn-delta-surge-12-children/story?id=78828192>



False!

Schools Can Open Without Implementing Mitigation Strategies

CNN: From Columbia County, NY. 38 children under the age of 12 who are unvaccinated tested positive for COVID-19. (July 29, 2021)

COVID OUTBREAK AT NEW YORK SUMMER CAMP

- **8 years old** 1 tested positive
- **9 years old** 10 tested positive
- **10 years old** 8 tested positive
- **11 years old** 12 tested positive

COLUMBIA COUNTY, NY HEALTH DIRECTOR

False!

Asymptomatic Patients Have Nothing To Worry About

- And then there are those who had no symptoms. Researchers think they made up between a quarter to a third of all infections
- COVID-19 is not just a Lung Disease. It commonly affects the Heart and Vascular along with the G.I. Track.
- Studies have shown of Asymptomatic Patients
 - About half had CT changes in lungs.
 - Also can have MRI abnormalities of heart (Myocarditis often has no symptoms).



"Ultimately, 712 passengers -- out of 3,700 on board -- tested positive. Almost half of them, 331, had no symptoms. Of those, 76 had their lungs examined by [CT scan](#) for [a study](#). More than half had ground glass opacities, though they didn't show as much damage as people who had symptoms."

<https://www.webmd.com/lung/news/20200811/asymptomatic-covid-silent-but-maybe-not-harmless>

In Children: "Four asymptomatic patients (4/16, 25 %) in ordinary cases had chest computed tomography (CT) abnormalities." <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7195294/>

<https://www.npr.org/2021/02/07/965014017/covid-19s-potential-effects-on-asymptomatic-patients>

False!

Schools Can Open Without Implementing Mitigation Strategies

Mitigation Strategies Should Include:

- Reduced Class Sizes / Hybrid Classes, Option for Tele-learning Especially for Immunosuppressed.
- Podding and Testing of All Twice a Week (can use pool testing).
- All to Wear Masks.
- Upgrades to Building Ventilation and Increased Complete Air Exchanges.
- Hand Hygiene, Frequent Cleaning of Surfaces.

Social Disparities

Social disparities must also be addressed in a comprehensive pandemic response. It is not only a moral imperative, but those with a lower social economic status are particularly vulnerable to infections by the virus.

- Low-income migrant workers (about 300,000) in Singapore became the subjects of a fourth wave which hit the country. Dr. Matthias Maiwald <https://youtu.be/-WPQv9ghTyo>
- In Germany, a major outbreak was associated with a meat processing plant. As stated by Dr. Sebastian Hoehl, “This was one of the first times that we saw that those that are the most affected by this cluster, this outbreak, were very low paid workers.” https://youtu.be/_9is03QomGI
- During the winter holiday surge, Germany also recorded a “much higher” number of cases in lower income communities. https://youtu.be/_9is03QomGI
- In Kenya and Peru, as in most low-income countries, vaccines are lacking which not only places their citizens at greater risk for COVID-19 but also creates a basis for the emergence of new variants. The Lambda Variant arose in Peru and may be more problematic than the Delta Variant.
- As stated by Dr. Jesús Rodríguez-Baño “It is a global failure, in the way the vaccines have been distributed across the world. Once again, those of us who live in developed countries are lucky enough to have much more probabilities of receiving the vaccines earlier than those living in low-income countries” <https://youtu.be/pWuu10Gq7ro>

Protection of Front-Line Workers

- All front-line workers should be provided with adequate PPE, including N-95 masks, and with a robust testing infrastructure. Increases in testing capacity for COVID-19 screening in the workplace and schools is needed. Pooled testing can be used to increase testing efficiency and conserve resources.
- For example, Germany mandated testing of all students, teachers and industrial workers twice a week, and testing is recommended in all workplaces.
- Rapid antigen tests are used. They are relatively accurate during the time period of symptom onset, when viral load is high.
- In Australia, it became apparent that staff in designated quarantine hotels could become vectors for SARS-CoV-2 and as a result, their movements were restricted, and they were currently tested daily.

Text From: Kavanagh KT, Pontus C, Pare J, Cormier LE. **COVID-19 Lessons Learned: A Global Perspective.** Submitted Antimicrobial Resistance and Infection Control. July 20, 2021.

Protection of Healthcare Workers

- Protecting hospital staff and patients is of utmost importance. NHS Lanarkshire in Scotland started to vaccinate their staff against SARS-CoV-2 in early December 2020. The virus entered all three acute care hospitals “from the community via staff both asymptomatic and pre-symptomatic.” Transmission then occurred between staff and patients, and from patients on one ward, and then to other wards. Naturally ventilated wards contributed towards spread since it was winter, and staff were reluctant to open windows. *Dr. Stephanie Dancer:* <https://youtu.be/sMW3wUWUboA>
- In Singapore, after case clusters occurred in hospitals, all staff were tested every two weeks, and if unvaccinated, every week. Pooled testing was used to facilitate implementation of this strategy. *Dr. Matthias Maiwald* <https://youtu.be/-WPQv9ghTy0>
- In the United States, healthcare-acquired infections are effectively not tracked.

The metric used in the United States for hospital onset infections, does not require reporting unless the patient is currently hospitalized and the infection occurred 14 or more days after admission. In addition, patients “should not be counted” if they become asymptomatic and are removed from isolation precautions.

The average length of hospital stay is 4.6 days. Hence, a hospitalized patient who left the hospital at day 13 would not be counted as a Hospital Acquired Infection (HAI). This method does not provide an adequate method for accurate accounting of HAI.



Text From: Kavanagh KT, Pontus C, Pare J, Cormier LE. **COVID-19 Lessons Learned: A Global Perspective.** Submitted Antimicrobial Resistance and Infection Control. July 20, 2021.

Travel Restrictions

- Travel restrictions and bans are important strategies which have been implemented by most nations. They are intended to limit the spread of variants, delaying entrance into a country and hopefully allowing effective case tracking for the few cases which emerge.
- SARS-CoV-2 entered Germany on 17 January 2020, from an air traveler who flew into the country from China. Dr. Sebastian Hoehl presented extensive data regarding the ineffectiveness of symptom and temperature screening and stressed the impact that asymptomatic carriage has on spread of the virus.
- Dr. Imogen Mitchell from Australia emphasized the importance of controlling viral spread. Australia banned cruise lines and advised against citizens traveling overseas. Everyone entering the country would have to be quarantined for 14 days, usually at designated hotel quarantine facilities. During outbreaks, Australia also closed borders and travel between states and territories to limit the spread of SARS-CoV-2.
- Singapore, a city-state, performed similar bans and quarantines for persons entering the country.



Text From: Kavanagh KT, Pontus C, Pare J, Cormier LE. **COVID-19 Lessons Learned: A Global Perspective.** Submitted Antimicrobial Resistance and Infection Control. July 20, 2021.

Need For a Comprehensive National Coordinated Response

- Of all of the industrialized nations, the United States appeared to have one of the most substantive deficits in how the public healthcare system was able to address the pandemic, and the country lacked a national coordinated response. To help elevate this deficiency, Acting Deputy Secretary Carolyn Clancy and Undersecretary Beth Taylor described how the United States Department of Veterans Affairs (VA) activated its Fourth Mission.
- The Fourth Mission does not solely aid veterans, it is designed to aid the country in healthcare emergencies, including pandemics. During the COVID-19 pandemic, the VA hospitalized over 400 non-veterans at VA facilities and outsourced over 1000 healthcare staff to community nursing homes and non-VA facilities.
- With the VA having the largest infrastructure of any healthcare system in the United States, many at the conference felt that the VA could possibly serve as an infrastructure for development of a national public healthcare system, along with coordinating and delivering a unified national response for the next pandemic.



Text From: Kavanagh KT, Pontus C, Pare J, Cormier LE. **COVID-19 Lessons Learned: A Global Perspective.** Submitted Antimicrobial Resistance and Infection Control. July 20, 2021.

Acceptance

Acceptance will allow us to change the way we live for a better normal and prepare for the next pandemic. Specifically, we need to:

1. Upgrade and enforce standards for indoor air ventilation and quality.
2. Build a better supply chain for tests and testing supplies; This includes PPE, especially N-95 masks; and we need to have manufacturing capabilities in the country where they are used.
3. Maintain adequate stockpiles of supplies: Including, therapeutics, tests and PPE.
4. Have a robust system of testing and reporting for dangerous pathogens, including genomic sequence testing, which is of utmost importance to track viral variants.



Acceptance

A Recent Policy Forum in Science Magazine “A paradigm shift to combat indoor respiratory infection” asserts that we need to pay as much attention to clean air as we do for clean water and surfaces.

“A paradigm shift is needed on the scale that occurred when Chadwick’s Sanitary Report in 1842 led the British government to encourage cities to organize clean water supplies and centralized sewage systems. In the 21st century, we need to establish the foundations to ensure that the air in our buildings is clean with a substantially reduced pathogen count, contributing to the building occupants’ health, just as we expect for the water coming out of our taps.”

Flexible ventilation systems, dependent on the building’s purpose

Ventilation airflow rates must be controlled by the number of occupants in the space and their activity.

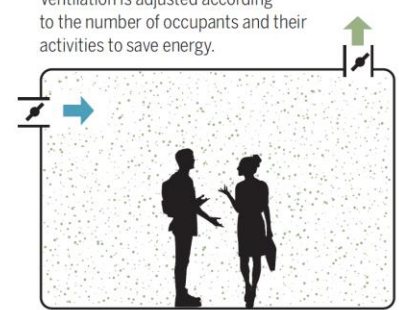
Design occupancy

Ventilation is set for maximum occupancy.



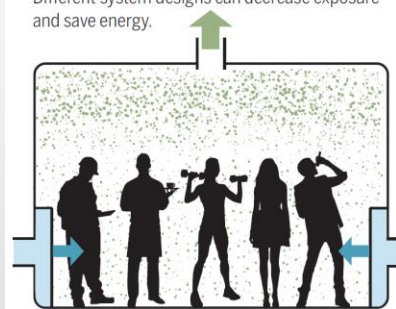
Demand controlled

Ventilation is adjusted according to the number of occupants and their activities to save energy.



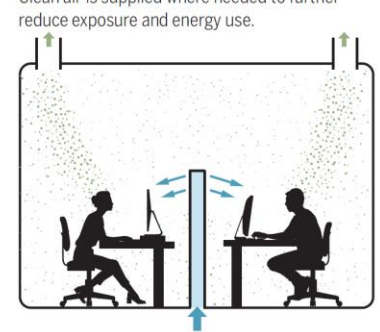
Improved air distribution

Different system designs can decrease exposure and save energy.



Personalized ventilation

Clean air is supplied where needed to further reduce exposure and energy use.



Conclusion

“What separates mankind from the rest of the biosphere is our intelligence and ability to leverage science. If we do not do this, we are in no better position than a tadpole. Unfortunately, almost all of our leaders appear to be hoping the virus will miraculously disappear. This did not work last year, and it will not work in 2021.”



Kavanagh KT. Viewpoint: CDC Continues to Bungle COVID-19 Response. *Infection Control Today*. July 20, 2021. <https://www.infectioncontrolday.com/view/cdc-arguably-continues-to-bumble-covid-19-response>

**It is of Utmost Importance That We
Prepare for the Next Pandemic.**

