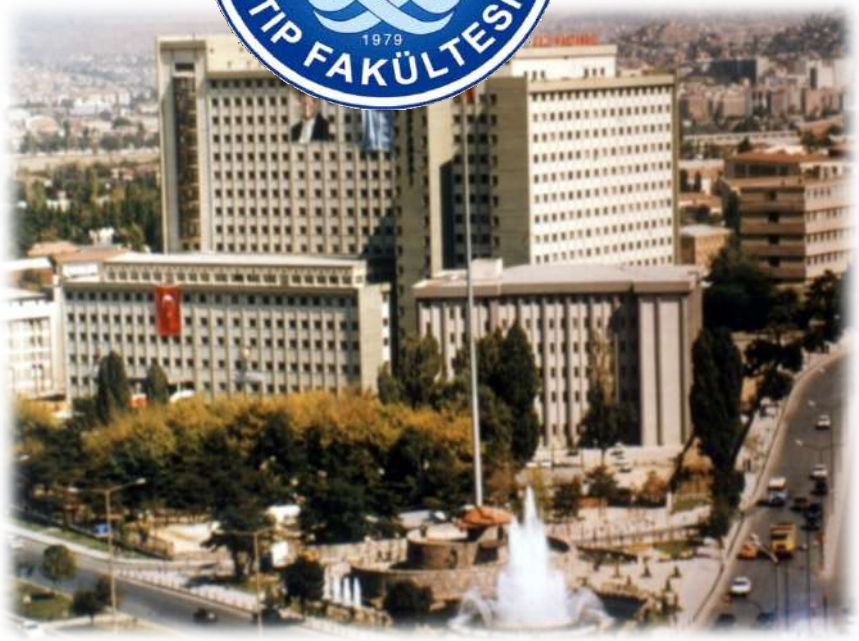
COVID-19'un Toplumsal Bağışıklığa Etkileri



esin şenol

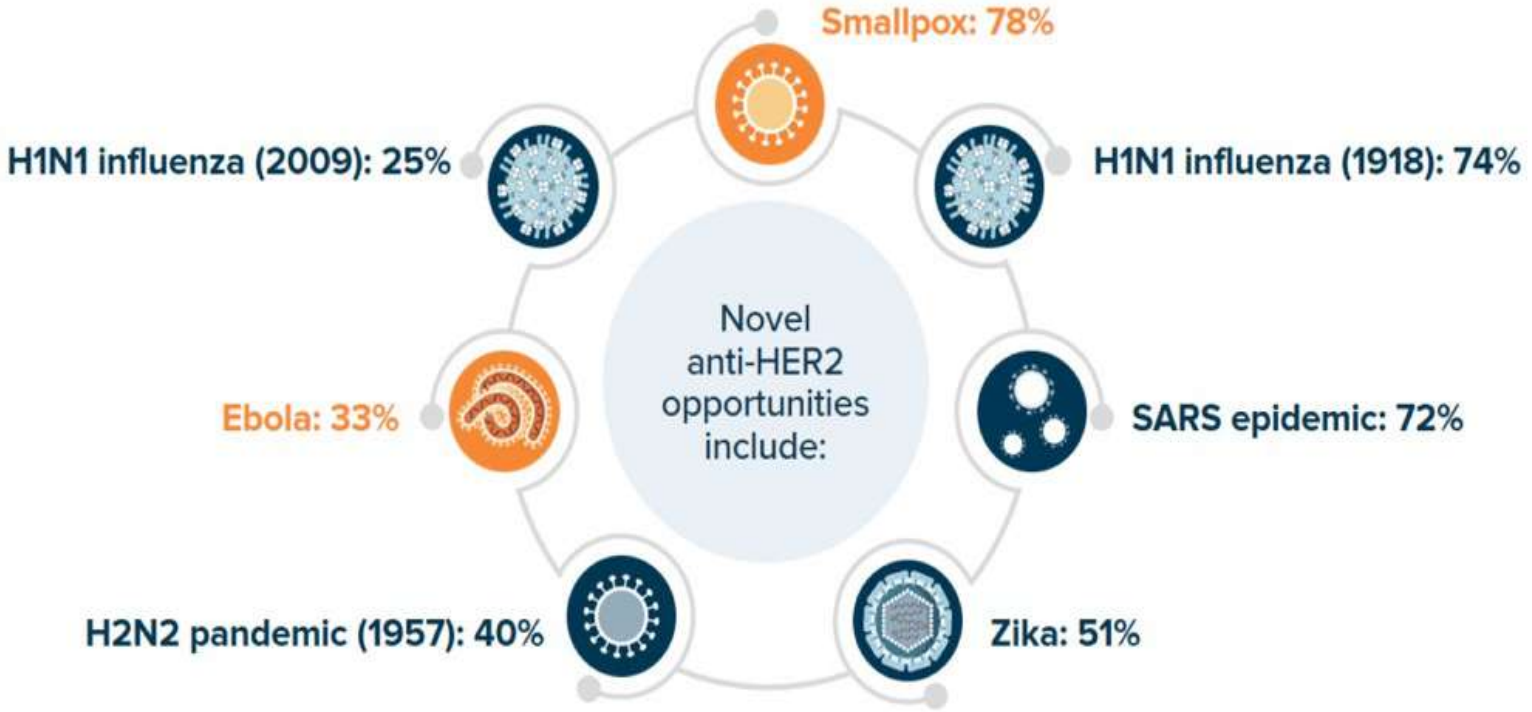
Dünya nüfusunun %40-70'i etkilenebilir!

DELTA –R:4-6 ; DEĞERİ İÇİN %60-80

"Herd immunity," more properly known as "community immunity" in humans, refers to protection from infectious disease enjoyed by all individuals due to residing in a community where a critical proportion of the population is vaccinated and thus not contagious

Omer SB, et al. JAMA. 2020;324:2095-2096.

Herd Immunity Thresholds by Disease



SARS, severe acute respiratory syndrome.

Omer SB, et al. JAMA. 2020;324:2095-2096.

Covid-19: UK launches world's first mass vaccination programme

77 shares

Issued on: 08/12/2020 - 07:47

8 ARALIK 2020-UK

New subvariants are masters of immune evasion

Vaccines and prior infection still prevent severe disease from new SARS-CoV-2 strains

By **Gretchen Vogel**

Once again, South Africa is at the forefront of the changing COVID-19 pandemic. Epidemiologists and virologists are watching closely as cases there rise sharply again, just 5 months after the Omicron variant caused a dramatic surge. This time, the drivers are two new subvariants of Omicron named BA.4 and BA.5, which the Network for Genomic Surveillance in South Africa first detected in January.

The new strains didn't have much of an impact initially, but over the past few weeks case numbers in South Africa jumped from roughly 1000 per day on 17 April to nearly 10,000 on 7 May. A third subvariant called BA.2.12.1 is spreading in the United States, driving increases along the East Coast.

It's still unclear whether the new subvariants will cause another global COVID-19 wave. But like the earlier versions of Omicron, they have a remarkable ability to evade immunity from vaccines, previous infection, or both—a disturbing portent for the future of the pandemic and a potentially serious complication for vaccine developers.

In most cases, vaccination or earlier infection still seem to provide protection from severe disease. "There's no reason to freak out," says John Moore, an immunologist at Weill Cornell Medicine. The new strains are "an additional hassle," he says, but "there's no indication that they're more dangerous or more pathogenic."

Hospitalizations in South Africa, for example, have increased, "but because it is starting from a very low level, it's not cause for alarm," says virologist Tulio de Oliveira of Stellenbosch University, who helped identify BA.4 and BA.5. Numbers of patients in intensive care units are as low as they have been since the start of the pandemic, he says. "At the moment, we expect something similar to the Omicron BA.1 wave," when hospitalization rates stayed manageable.

The new superspreaders do, however, showcase the restless virus' ability to find ways around the "immunity wall" built up over the past 2 years and to continue to circulate at high levels. Even if the new variants cause relatively little severe disease, "it's a numbers game," says Leif Erik Sander, an infectious disease expert at the Charité University Hospital in Berlin; enough new infections could still overwhelm health systems.

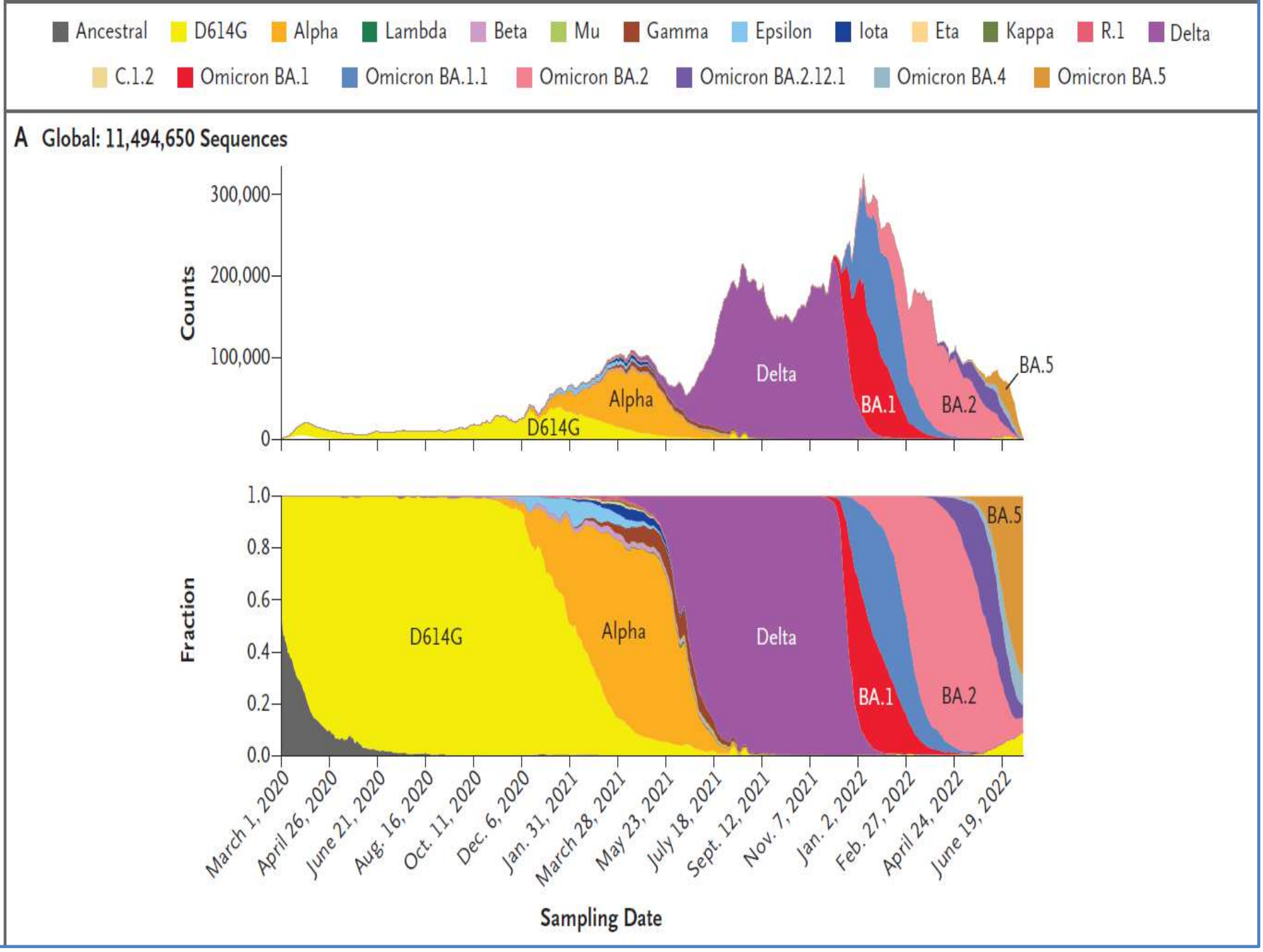
All three new strains share key mutations with the BA.2 strain of Omicron, which, like BA.1, emerged in southern Africa in October 2021. Initial studies by de Oliveira and Alex Sigal, an infectious disease expert at the Africa Health Research Institute in Durban, suggest BA.4 and BA.5 can elude the immunity of patients who were infected with the BA.1 strain, which in South Africa caused a much larger wave than BA.2. That may be in part because immunity has waned since South Africa's BA.1 wave peaked in December. People who were both vaccinated and infected had somewhat stronger protection, de Oliveira and Sigal reported in a 2 May preprint.

All three new variants have mutations that alter a key amino acid called L452, which may help explain their ability to dodge immunity. L452 is part of the receptor-binding domain, the part of the spike protein that locks onto cells, enabling infection. The domain is also a key target for protective antibodies.

The Delta variant that caused devastating surges around the world in 2021 had mutations in L452 as well, so many scientists

VARYANTLAR

- Varyantlar- bulaşma hızını artırabilr
- Aşı veya doğal enfeksiyon bağışıklığını aşıp reenfeksiyonlar yapabilir
- Pandeminin sürüp gitmesine yol açarken , çoğalma avantajı kazanabilir .


Ancestral
D614G
Alpha
Lambda
Beta
Mu
Gamma
Epsilon
Iota
Eta
Kappa
R.1
Delta
C.1.2
Omicron BA.1
Omicron BA.1.1
Omicron BA.2
Omicron BA.2.12.1
Omicron BA.4
Omicron BA.5
A Global: 11,494,650 Sequences
Counts
300,000
200,000
100,000
0
D614G
Alpha
Delta
BA.1
BA.2
BA.5
Fraction
1.0
0.8
0.6
0.4
0.2
0.0
March 1, 2020
April 26, 2020
June 21, 2020
Aug. 16, 2020
Oct. 11, 2020
Dec. 6, 2020
Jan. 31, 2021
March 28, 2021
May 23, 2021
July 18, 2021
Sept. 12, 2021
Nov. 7, 2021
Jan. 2, 2022
Feb. 27, 2022
April 24, 2022
June 19, 2022
Sampling Date

COVID-19

How variants are named

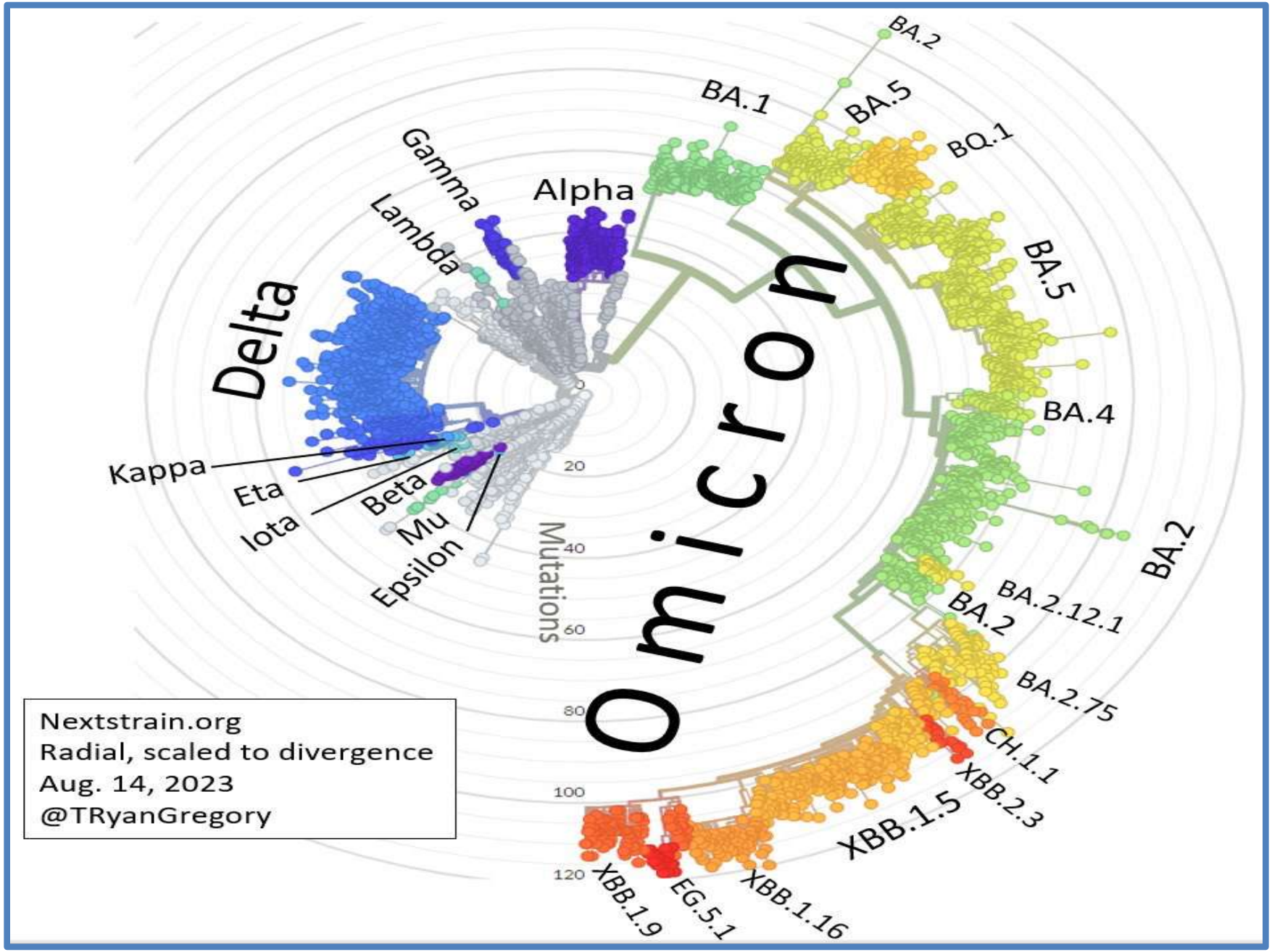
The WHO has identified **five variants of concern (VOC)** and **eight variants of interest (VOI).** They are named after the letters of the **Greek alphabet.**

Α α alpha United Kingdom **September, 2020**	Β β beta South Africa **May, 2020**	Γ γ gamma Brazil **November, 2020**	Δ δ delta India **October, 2020**	Ε ε * epsilon India **October, 2020**
Ζ ζ * zeta Brazil **April, 2020**	Η η * eta Multiple countries **December, 2020**	Θ θ * theta Philippines **January, 2021**	Ι ι * iota United States **November, 2020**	Κ κ * kappa India **October, 2020**
Λ λ lambda Peru **December, 2020**	Μ μ mu Colombia **January, 2021**	Ν ν — Ξ ξ nu — xi Skipped "Nu is too easily confounded with 'new' and Xi was not used because it is a common surname." - **WHO**		Ο ο omicron Multiple countries **November, 2021**
Π π pi	Ρ ρ rho	Σ σ/ς sigma	Τ τ tau	Υ υ upsilon
Φ φ phi	Χ χ chi	Ψ ψ psi	Ω ω omega	

variant of concern
Earliest documented samples

variant of interest
Earliest documented samples

* Formerly monitored variant of interest.


Delta
Omicron
Alpha
Gamma
Lambda
Kappa
Eta
Iota
Beta
Mu
Epsilon
BA.1
BA.2
BA.5
BQ.1
BA.5
BA.4
BA.2
BA.2.12.1
BA.2
BA.2.75
CH.1.1
XBB.2.3
XBB.1.5
XBB.1.16
EG.5.1
XBB.1.9
0
20
40
60
80
100
120
Mutations
Nextstrain.org
Radial, scaled to divergence
Aug. 14, 2023
@TRyanGregory


CS554485
BIONTECH
BIONTECH
BIONTECH
ALPHA
95%
DELTA
65%
BIONTECH
OMEGA
0%

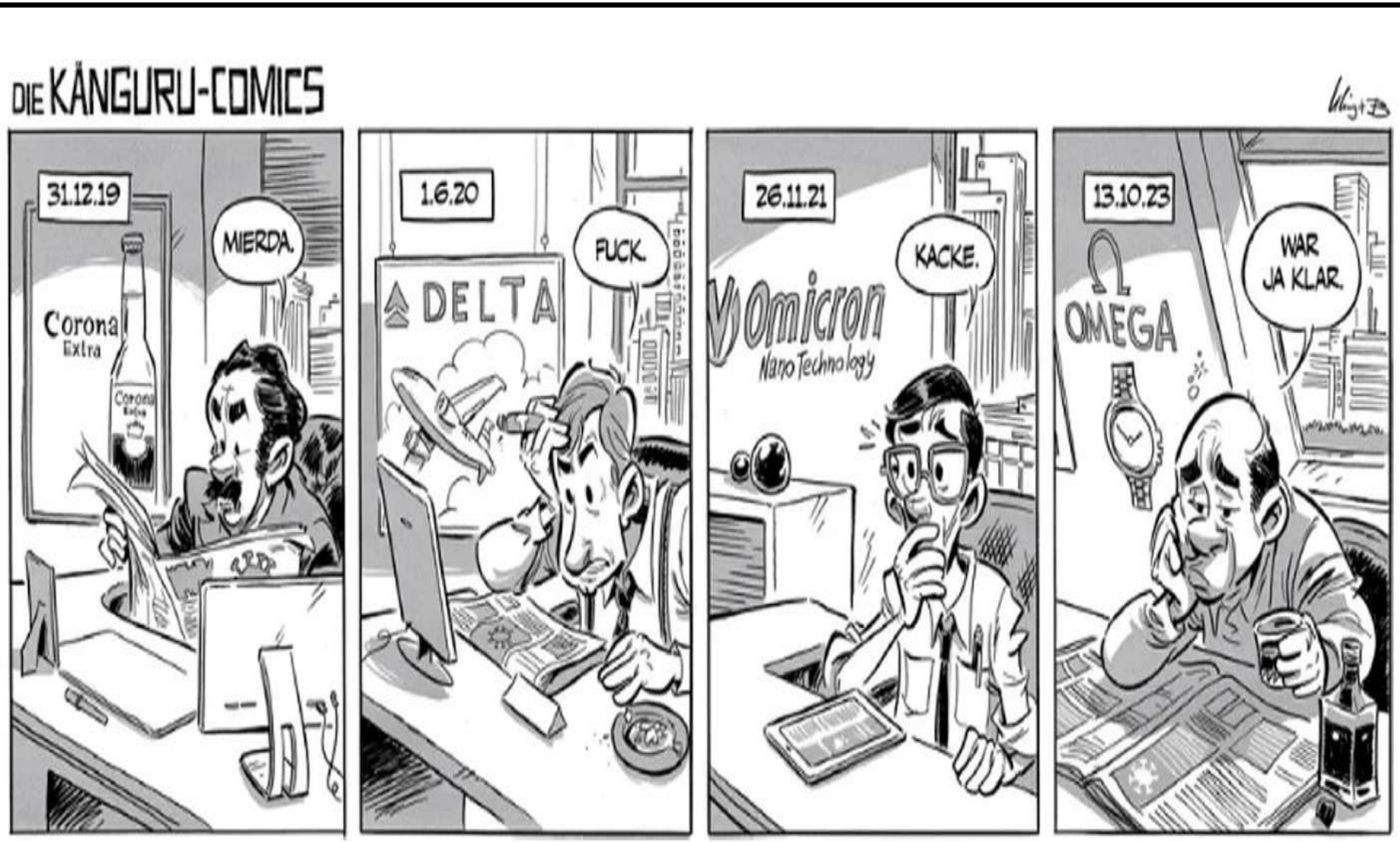


Fig. 1 A comical view of the history of COVID-19. A few translations: "vorhersehbar" = predictable and "war ja klar" = obviously or sure or of course. Reproduced with permission (Mira Nagel)

Environmental Research

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

Improving preparedness for next pandemics: Max level of COVID-19 vaccinations without social impositions to design effective health policy and avoid flawed democracies

Mario Coccia

CNR – National Research Council of Italy, Collegio Carlo Alberto, Via Real Collegio, n. 30, 10024, Moncalieri (TO), Italy

ARTICLE INFO

Keywords:
COVID-19 pandemic
Vaccine hesitancy
Vaccine passports
COVID-19 vaccinations
Economic wellbeing
Health policy

ABSTRACT

In the presence of pandemic threats, such as Coronavirus Disease 2019 (COVID-19) crisis, vaccination is one of the fundamental strategies to cope with negative effects of new viral agents in society. The rollout of vast vaccination campaigns also generates the main issue of hesitancy and resistance to vaccines in a share of people. Many studies have investigated how to reduce the social resistance to vaccinations, however the maximum level of vaccinable people against COVID-19 (and in general against pandemic diseases), without coercion in countries, is unknown. The goal of this study is to solve the problem here by developing an empirical analysis, based on global data, to estimate the max share of people vaccinable in relation to socioeconomic wellbeing of nations. Results, based on 150 countries, reveal that vaccinations increase with the income per capita, achieving the maximum share of about 70% of total population, without coercion. This information can provide new knowledge to establish the appropriate goal of vaccination campaigns and in general of health policies to cope with next pandemic impacts, without restrictions that create socioeconomic problems. Overall, then, nations have a natural level of max vaccinable people (70% of population), but strict policies and mandates to achieve 90% of vaccinated population can reduce the quality of democracy and generate socioeconomic issues higher than (pandemic) crisis.

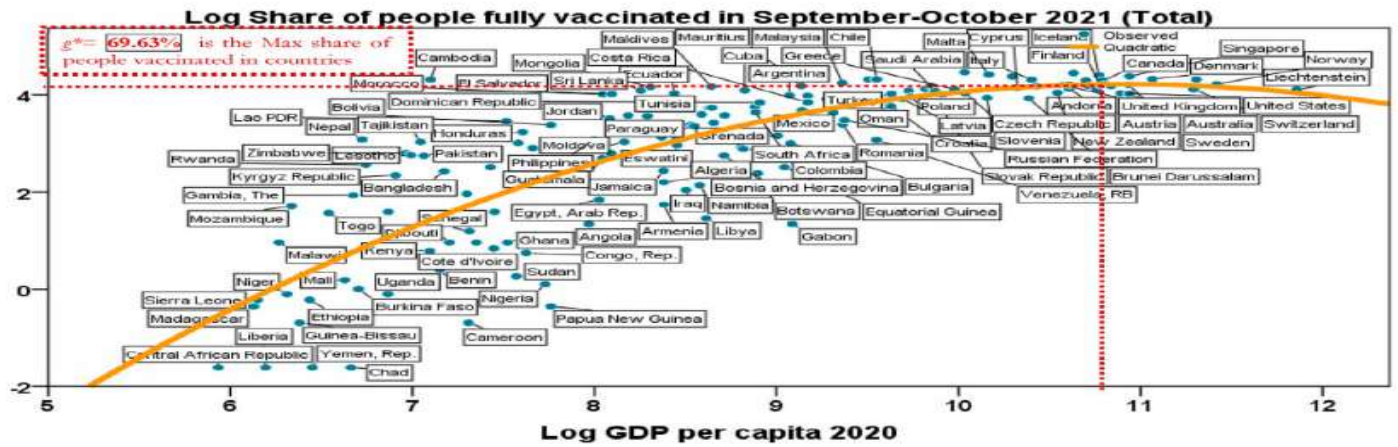


Fig. 2. The maximum level of vaccinated people (69.63%) based on full sample of countries.

4. Discussions and conclusions

Statistical analyses and mathematical optimization here suggest that the share of vaccinated people against COVID-19 increases with the wealth and wellbeing of nations, but it has a maximum level of about 70% between countries. Of course, the remaining share of about 30% is associated with a natural hesitancy of people to vaccinations (a social

sosyal, ekonomik, politik ve psikolojik faktörler

share of vaccinated people, can be based on communicating effectively with vaccine-hesitant individuals, using humble inquiry, compassionate listening, and storytelling, and engaging the entire health care staff in providing accurate information about vaccines and their side effects. Chan et al. (2022) describe many factors associated with vaccine hesitancy and propose that effective vaccination campaigns should be based on the implementation of mitigation plans and communication strategies. In general, the effectiveness of vaccinations is associated with levels of public trust in governments and correct communication that have to be reinforced in the presence of pandemic crisis, such as for COVID-19 (Echoru et al., 2021; Kanyike et al., 2021; Schwarzinger et al., 2021; Vergara et al., 2021; Verger and Peretti-Watel, 2021).

RESEARCH ARTICLE

Global SARS-CoV-2 seroprevalence from January 2020 to April 2022: A systematic review and meta-analysis of standardized population-based studies

Citation: Bergeri I, Whelan MG, Ware H, Subissi L, Nardone A, Lewis HC, et al. (2022) Global SARS-CoV-2 seroprevalence from January 2020 to April 2022: A systematic review and meta-analysis of standardized population-based studies. PLoS Med 19(11): e1004107. https://doi.org/10.1371/journal.pmed.1004107

What did the researchers do and find?

- We meta-analyzed standardized SARS-CoV-2 seroprevalence studies to estimate the proportion of the global population with antibodies against SARS-CoV-2, the virus causing COVID-19.
- By September 2021, global SARS-CoV-2 seroprevalence from infection or vaccination was 59.2%, 95% CI [56.1% to 62.2%].
- Overall seroprevalence rose steeply in 2021 due to infection in some regions (e.g., 26.6% [24.6 to 28.8] to 86.7% [84.6% to 88.5%] in Africa) and vaccination and infection in others (e.g., 9.6% [8.3% to 11.0%] to 95.9% [92.6% to 97.8%] in Europe high-income countries [HICs]). After the emergence of Omicron in March 2022, infection-induced seroprevalence rose to 47.9% [41.0% to 54.9%] in Europe HIC and 33.7% [31.6% to 36.0%] in Americas HIC.

What do these findings mean?

- Seroprevalence has increased over time, with heterogeneity in dynamics and data robustness between regions.
- Estimates of COVID-19 infections based on seroprevalence data far exceed reported cases.
- It remains important to continue investing in serosurveillance to monitor the COVID-19 pandemic and prepare for future potential emerging viruses.

The Journal of Infectious Diseases

PERSPECTIVE

IDSA Infectious Diseases Society of America

hivma hiv medicine association

OXFORD

The Concept of Classical Herd Immunity May Not Apply to COVID-19

David M. Morens,[1] Gregory K. Folkers,[1] and Anthony S. Fauci[1]

[1]National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland, USA

Keywords. COVID-19; SARS-CoV-2; herd immunity; history.

Although estimates of the infectiousness for the variants are subject to some uncertainty, it is reasonable to assume Delta has a reproduction number of about five and Omicron may be in the ballpark of about 20, placing it up there among the most infectious diseases known.

Based on these numbers for Delta and Omicron, the herd immunity threshold estimates go up to 100–118%.

"While we in the medical community are guardedly hopeful and optimistic ... there is cause for concern that with the appearance of viral variants across the globe, we might be facing a decidedly novel stage of the contagion: COVID 2.0."

DATE February 25, 2021

– George Daley, dean of Harvard Medical School

What is herd immunity?

If enough people in the community develop immunity to an infectious agent such as a virus, an epidemic is unable to grow.

In fact, much like a bushfire goes out when it runs out of fuel to burn, an epidemic begins to decline when the virus runs out of susceptible people to infect.

The level of vaccine coverage needed in a population to get you over the line to achieve herd immunity is the 'herd immunity threshold'.

This depends on two main parameters – the infectiousness of the virus and the effectiveness of the vaccine.

In short, the more infectious the virus and the less effective the vaccine, the more people you need to vaccinate to achieve herd immunity.

KİTLE BAĞIŞIKLIĞINA ULAŞILAMADIĞINDA

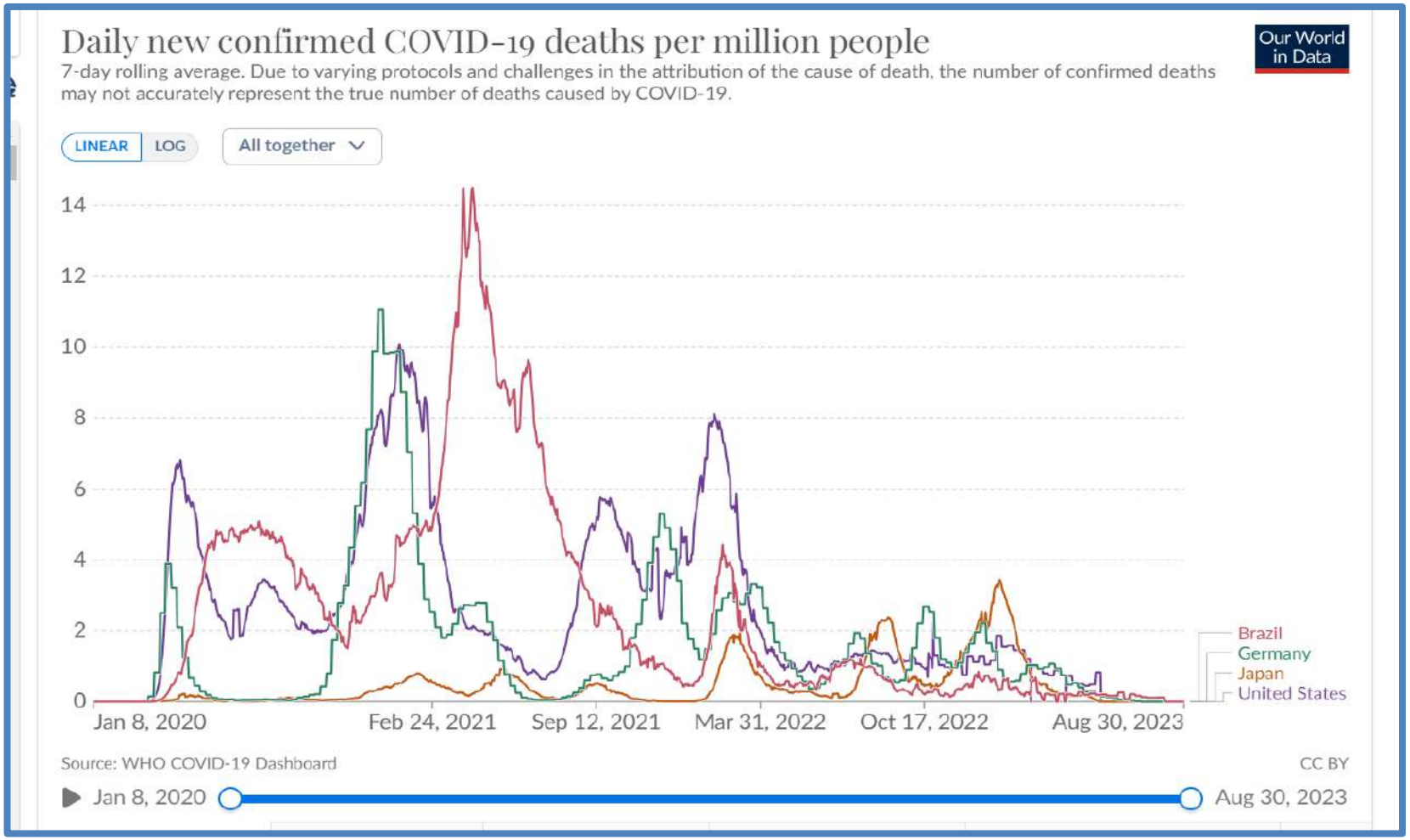
Estimated Effectiveness Against Lab-Confirmed Influenza of Standard Inactivated Seasonal Influenza Vaccine

Population, y	Level of Protection, %
Children (< 2)	66
Younger adults (18-64)	59-66
Older adults (≥ 65)	49-58

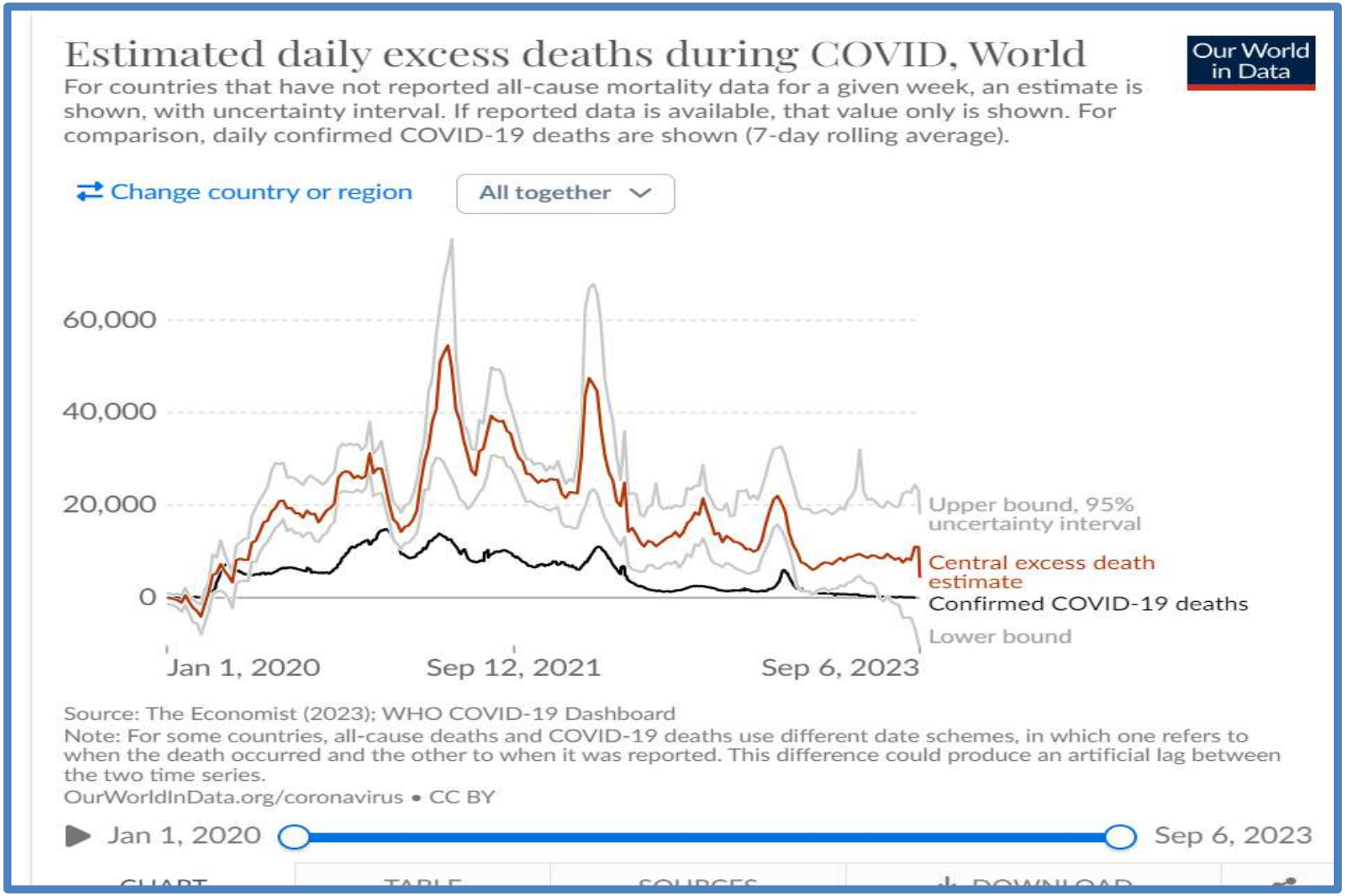
When full herd immunity cannot be achieved, and even with suboptimal vaccines, vaccination is still helpful for reducing community transmission of influenza

IAC. 2022. Accessed October 2022. https://www.influenza.org.nz/clinical-info/effectiveness-inactivated-influenza-vaccines

DÜNYADA DURUM-EYLÜL 2023
DÖRDÜNCÜ YIL



COVID-19 DÖNEMİNDE FAZLADAN ÖLÜMLER



Global Impact of COVID-19 Vaccination

During 2021, the first year of COVID-19 vaccine administration, the vaccination averted an estimated 19.8 million deaths from COVID-19, out of an estimated 31.4 million deaths

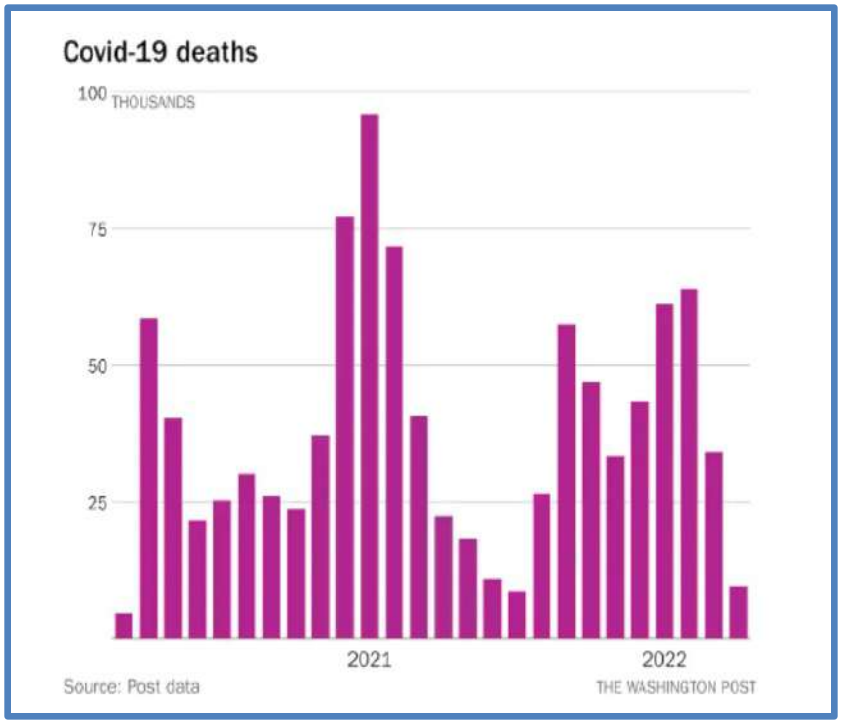
Watson OJ, et al. Lancet Infect Dis. 2022;22:1293-1302.

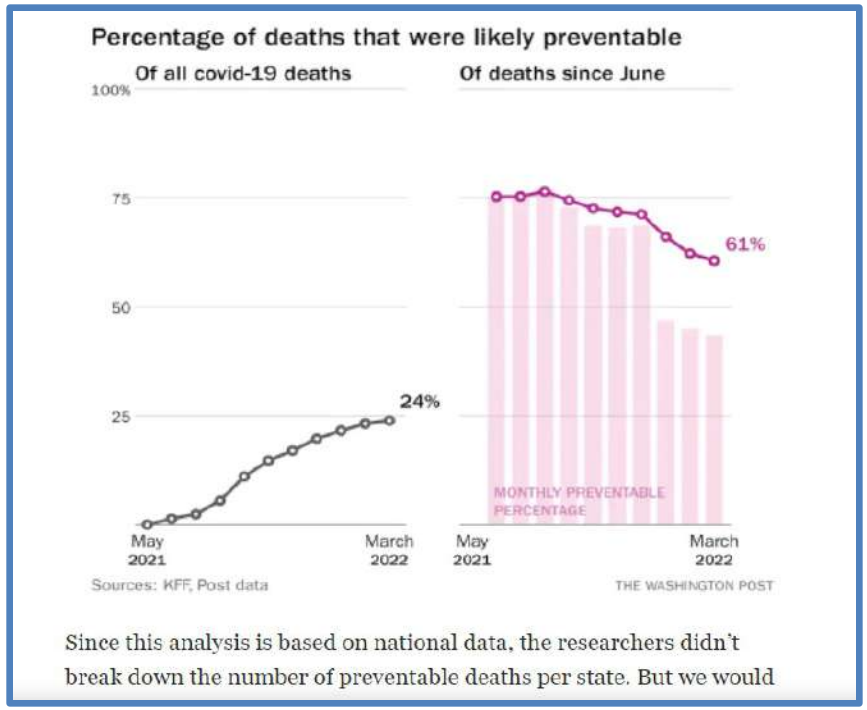
The Washington Post
Democracy Dies in Darkness

POLITICS

Quarter of U.S. covid deaths were probably preventable with vaccination

Over the course of the period during which vaccinations were broadly available, KFF has been assessing the partisan divide in vaccine uptake. There are gaps in the likelihood of being vaccinated by age and race. But the broadest gap seen in KFF's data is by party. Last November, it estimated that the unvaccinated were three times as likely to be Republican as to be Democrats.





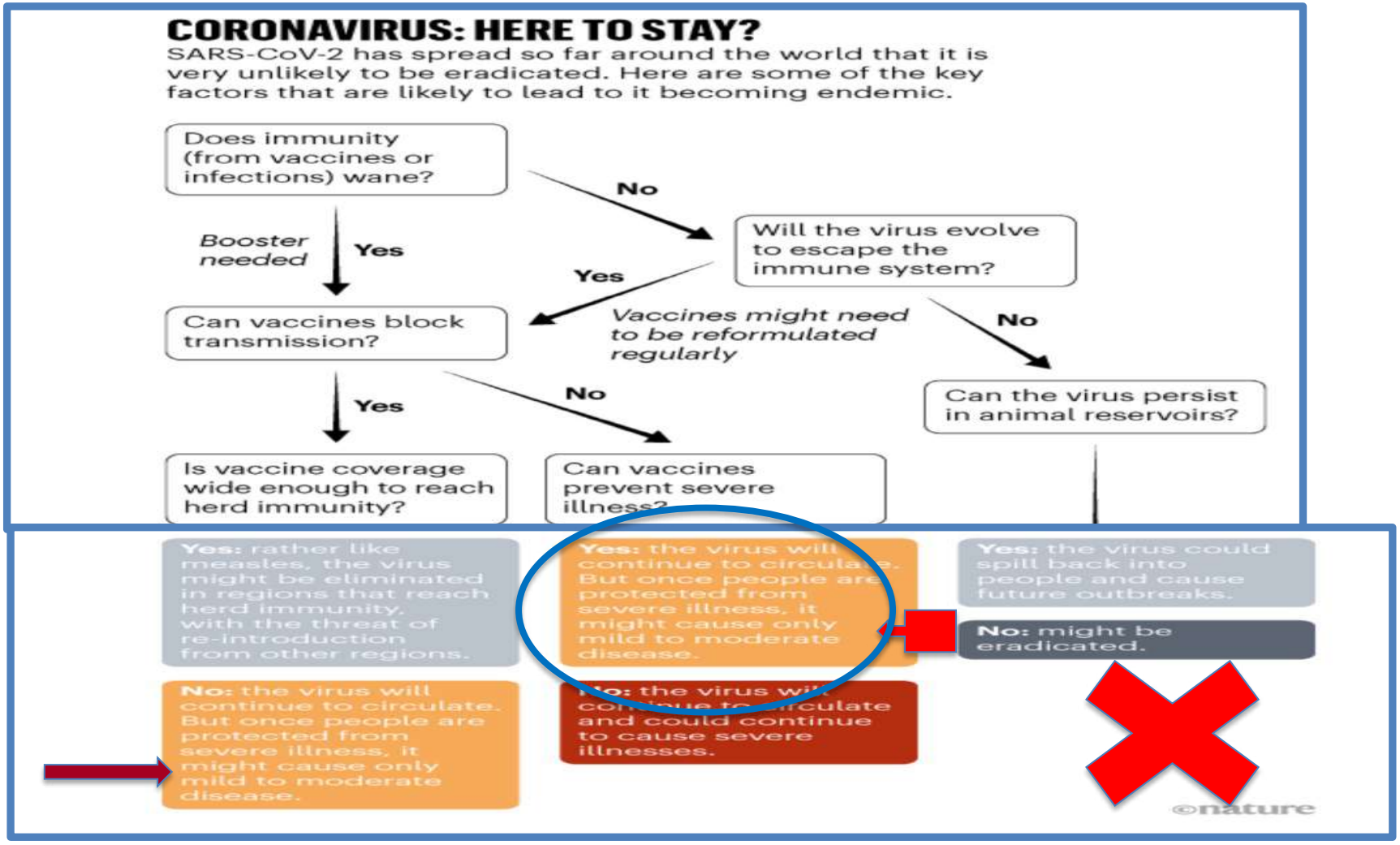
Since this analysis is based on national data, the researchers didn't break down the number of preventable deaths per state. But we would

NEWS FEATURE · 16 FEBRUARY 2021

The coronavirus is here to stay — here's what that means

A *Nature* survey shows many scientists expect the virus that causes COVID-19 to become endemic, but it could pose less danger over time.

Nicky Phillips



COVID-19 VE TOPLUMSAL BAĞIŞIKLIK

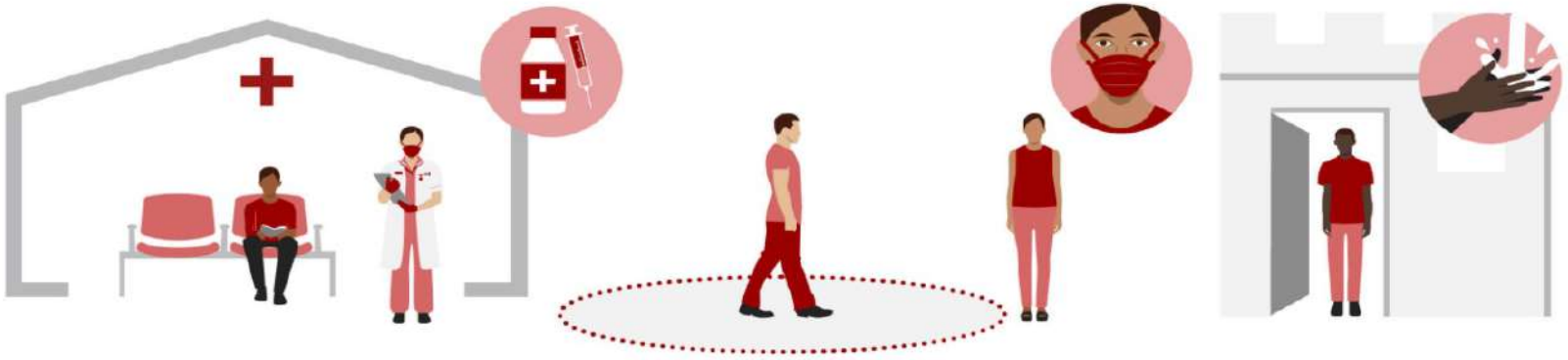
- Kitle Bağışıklığı-hesaplamaları aşıların bulaşı %100 önleyeceği varsayımına dayanıyordu
- Aşılar bulaşmayı önlemiyor azaltıyor
- İnfeksiyon ve aşı bağışıklığı zamanla azalıyor
- VARYANTLAR-daha bulaşıcı ve immun kaçış

How do pandemics end?

By the Visual Journalism Team 7 October 2020 | News

We are in the grip of a pandemic like none other in living memory. While people are pinning their hopes on a vaccine to wipe it out, the fact is most of the infections faced by our ancestors are still with us.

The end-game for the current pandemic is also likely to come from a combination of similar measures.



Although a "safe, highly-effective" vaccine could bring about its conclusion, says Prof Riley, finding one is "by no means a given".

Instead, we may have to get better at living with it while developing a level of resistance to the disease.

NEWS RELEASES

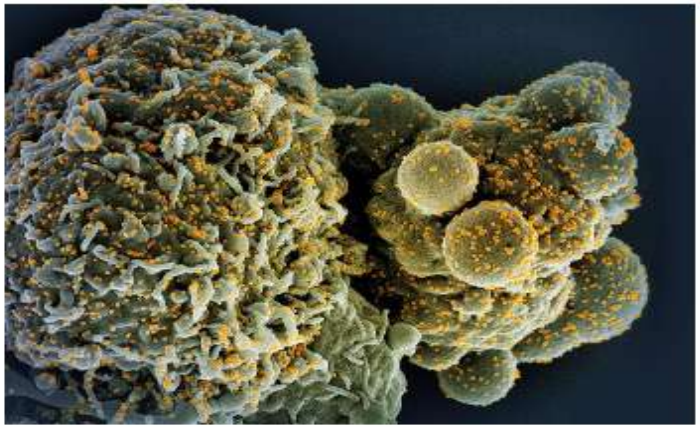
Media Advisory Friday, August 18, 2023

Severe COVID-19 may lead to long-term innate immune system changes

NIH-funded research links alterations to inflammatory protein, underscores vaccine importance.

What

Severe COVID-19 may cause long-lasting alterations to the innate immune system, the first line of defense against pathogens, according to a small study funded by the National Institute of Allergy and Infectious Diseases, part of the National Institutes of Health. These changes may help explain why the disease can damage so many different organs and why some people with long COVID have high levels of inflammation throughout the body. The findings were published online today in the journal *Cell*.



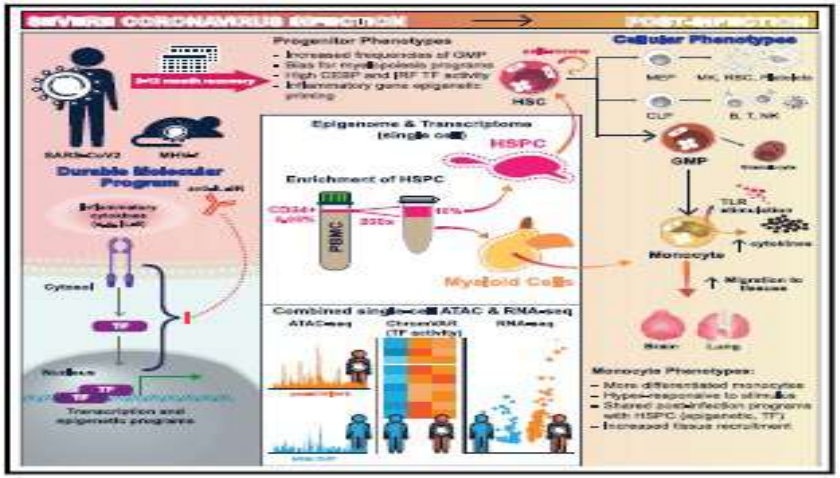
Colorized scanning electron micrograph of a cell (green) infected with the Omicron strain of SARS-CoV-2 virus particles (gold), isolated from a patient sample. *NIAID*

Researchers led by Steven Z. Josefowicz, Ph.D., of Weill Cornell Medicine in New York City examined immune cells and molecules in blood samples from 38 people recovering from severe COVID-19 and other severe illnesses, as well as from 19 healthy people. Notably, the researchers established a new technique for collecting, concentrating and characterizing very rare blood-forming stem cells that circulate in the blood, eliminating the need to extract such cells from bone marrow.

Cell

Epigenetic memory of coronavirus infection in innate immune cells and their progenitors

Graphical abstract



Highlights

- Severe COVID-19 programs durable epigenetic changes and hyper-activation in monocytes
- Circulating HSPC capture post-COVID-19 changes in hematopoiesis and stem cell programs
- Post-COVID-19 HSPC convey epigenetic and transcriptional memory to mature progeny cells
- IL-6 contributes to epigenetic reprogramming of mouse and human HSPC and myeloid cells

Authors

Jin-Gyu Cheong, Arjun Ravishankar, Siddhartha Sharma, ..., Joseph C. Sun, Duygu Ucar, Steven Z. Josefowicz

Correspondence

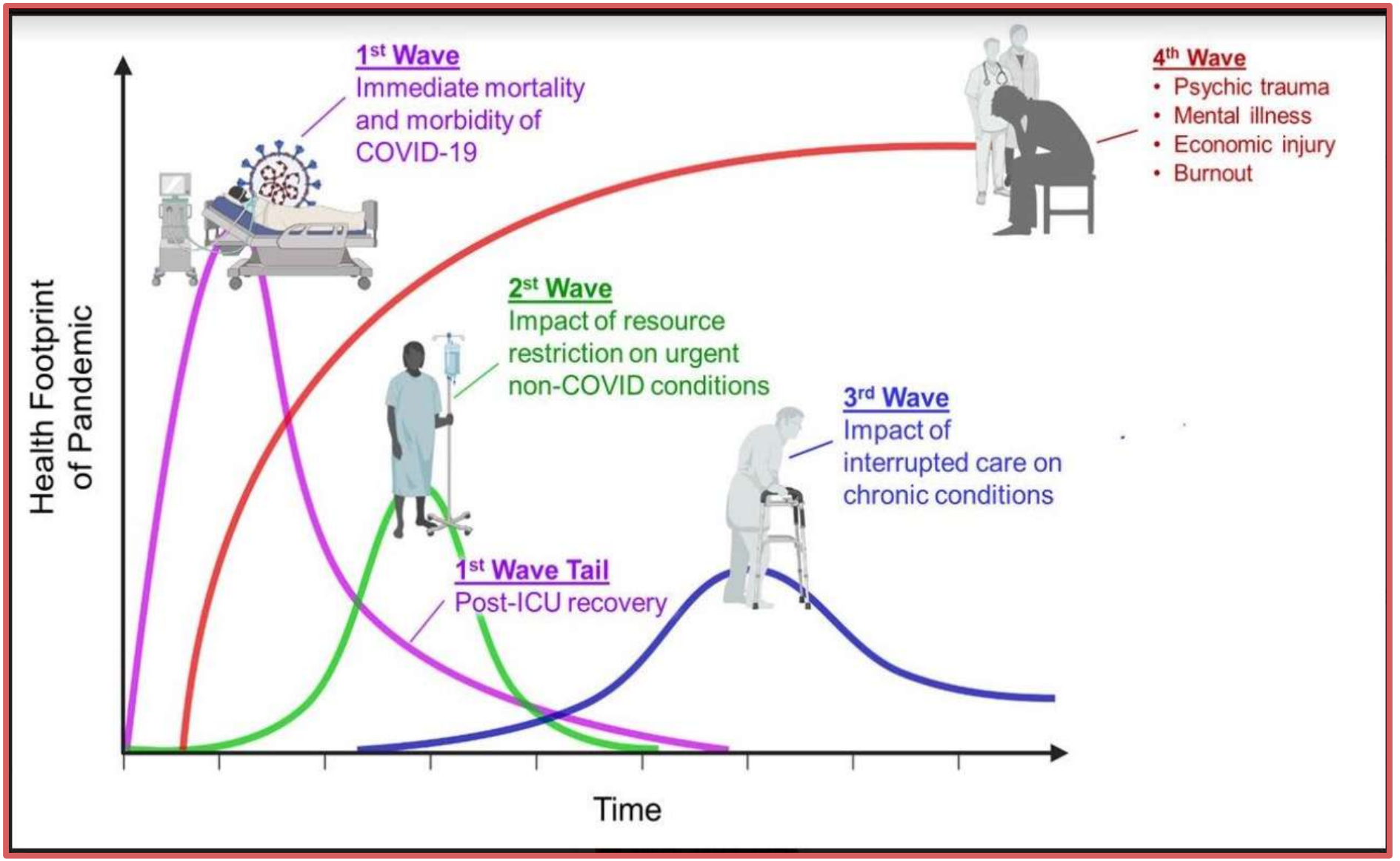
duygu.ucar@jax.org (D.U.), szj2001@med.cornell.edu (S.Z.J.)

In brief

Severe COVID-19 can reprogram hematopoiesis and establish epigenetic memory in hematopoietic stem and progenitor cells (HSPC) and progeny myeloid cells for up to 1 year. These durable alterations, which could affect post-infection immune responses and equilibrium, are controlled in part by the activity of IL-6 during acute disease.

Cheong et al., 2023, Cell *186*, 3882–3902
August 31, 2023
https://doi.org/10.1016/j.cell.2023.07.019

CellPress


1st Wave
Immediate mortality and morbidity of COVID-19
4th Wave
• Psychic trauma
• Mental illness
• Economic injury
• Burnout
2st Wave
Impact of resource restriction on urgent non-COVID conditions
3rd Wave
Impact of interrupted care on chronic conditions
1st Wave Tail
Post-ICU recovery
Health Footprint of Pandemic
Time

DİNLEDİĞİNİZ İÇİN TEŞEKKÜRLER…

SORULARINIZ?

Prof. Dr. Esin Şenol