The Response to COVID-19 in the United States: Lessons Learned (or Not)

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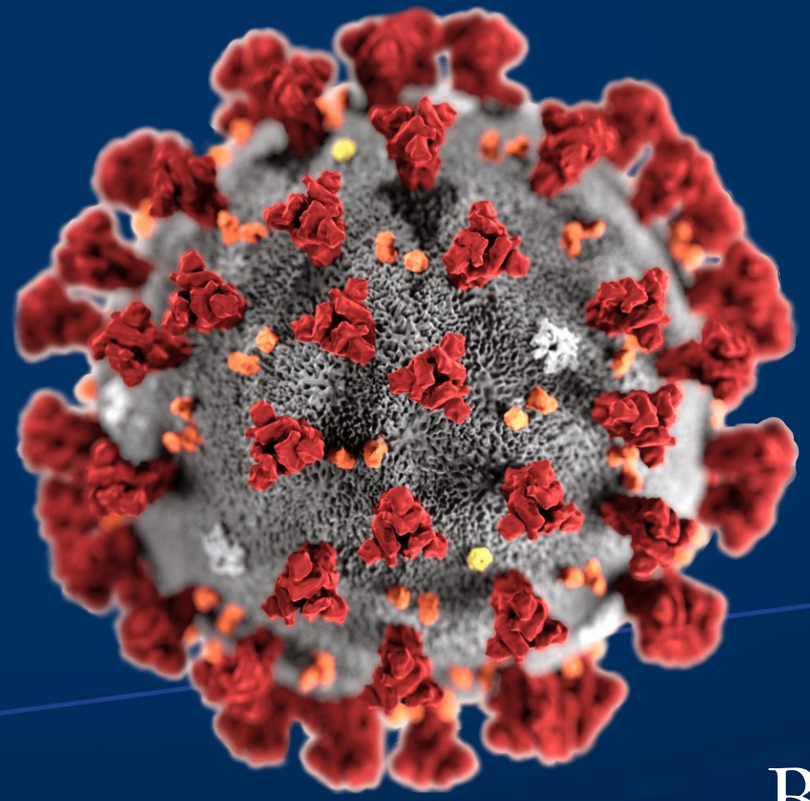


Berkeley Public Health

Lineage of SARS-CoV-2

- Disagreement re origin of the virus
- First Known Human Infection: ? Mid-November, 2019
- Molecular Clock Studies: suggest similar date of origin
- Phylogenetic Studies: transmission likely from a single infected animal

Etiologic Agent

- Novel coronavirus (SARS-CoV-2), a positive-sense, single-stranded RNA virus (Family: Betacorona virus, Coronaviridae)
- Multiple variants
- Little genetic diversity
- Genetic Sequence:
  - ~80% similar to SARS-CoV-1
  - 80-96% similar to coronavirus found in Intermediate Horseshoe Bat (Rhinolophus affinis)
  - 99% similar to coronavirus found in Sunda pangolin (M. javanica)

Intermediate Horseshoe Bat, Rhinolophus affinis

COVID-19 Cases in U.S. as of Feb. 6, 2020

12 confirmed cases	
California (LA-1, Orange Co.-1; San Benito-2; Santa Clara-2)	6
Illinois	2
Arizona, Massachusetts, Washington, Wisconsin:	1 each

SARS, November 1, 2002- August 7, 2003

Total Cases:	**8,422 (1,725 healthcare workers)**
Deaths:	916
CFR:	11%
Number of Countries with Cases:	32
U.S. Cases:	33

Source: WHO

Chronology of Selected Early Response Steps and Statements by WHO

Jan. 10, 2020:	"Preliminary investigation suggests there is not significant human-to-human transmission." Recommended no restrictions on international travel
Jan. 24 & 27, 2020:	Called for exit screening at international airports and ports in affected areas to "prevent exportation of the disease."
Feb. 29, 2020:	Continued advice against travel restrictions and called for regular handwashing, cough hygiene, isolation of cases, and identification and close mentoring of contacts; recommended against non-symptomatic individuals wearing masks.

Prevention/Control Methods Employed Before Vaccines Available

- Isolation of cases and protective gear for HCWs
- Quarantine of exposed individuals
- Cordon sanitaire and protective sequestration
- Masks and face coverings
- Travel restrictions and border closings
- Social distancing (e.g. closing schools, canceling sporting events)
- Handwashing
- Environmental decontamination
- ? Closing of live animal markets

Existing Treatments and Vaccines Deployed or Considered

Treatments

- Corticosteroids
- Diverse anti-viral drugs
- Hydroxychloroquine
- Ivermectin
- Vitamin D
- Convalescent serum

Vaccines

- BCG

Epidemiologic Features

- Incubation Period: 2-14 days
- Route of Transmission: Respiratory (droplets and aerosols)
  - ? Skin Contact
  - ? Fomites
  - ? Fecal-oral
- Virus present in nasopharynx 1-2 days prior to symptom onset
- Transmission while asymptomatic
- Ro estimated between 1.4 to 3.9

Current* Global and U.S. COVID-19 Situation

*As of 21 June 2023

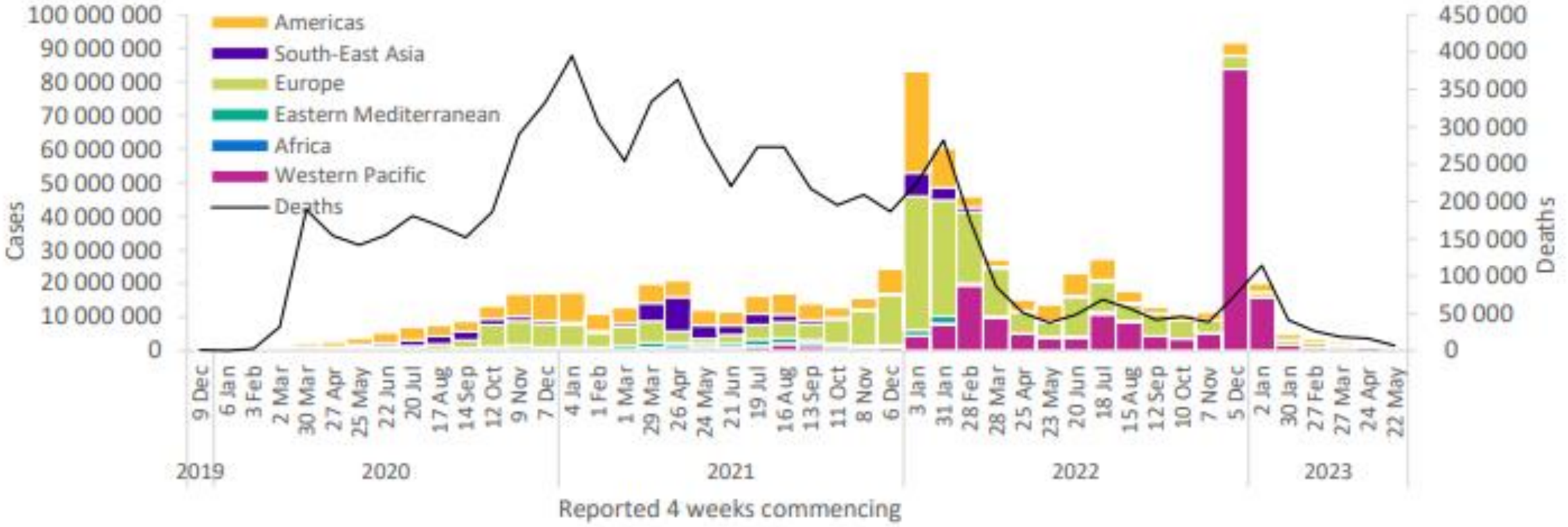
COVID-19 and Deaths Globally*

Cumulative Cases: > 103,436,829

Cumulative Deaths: > 1,127,152

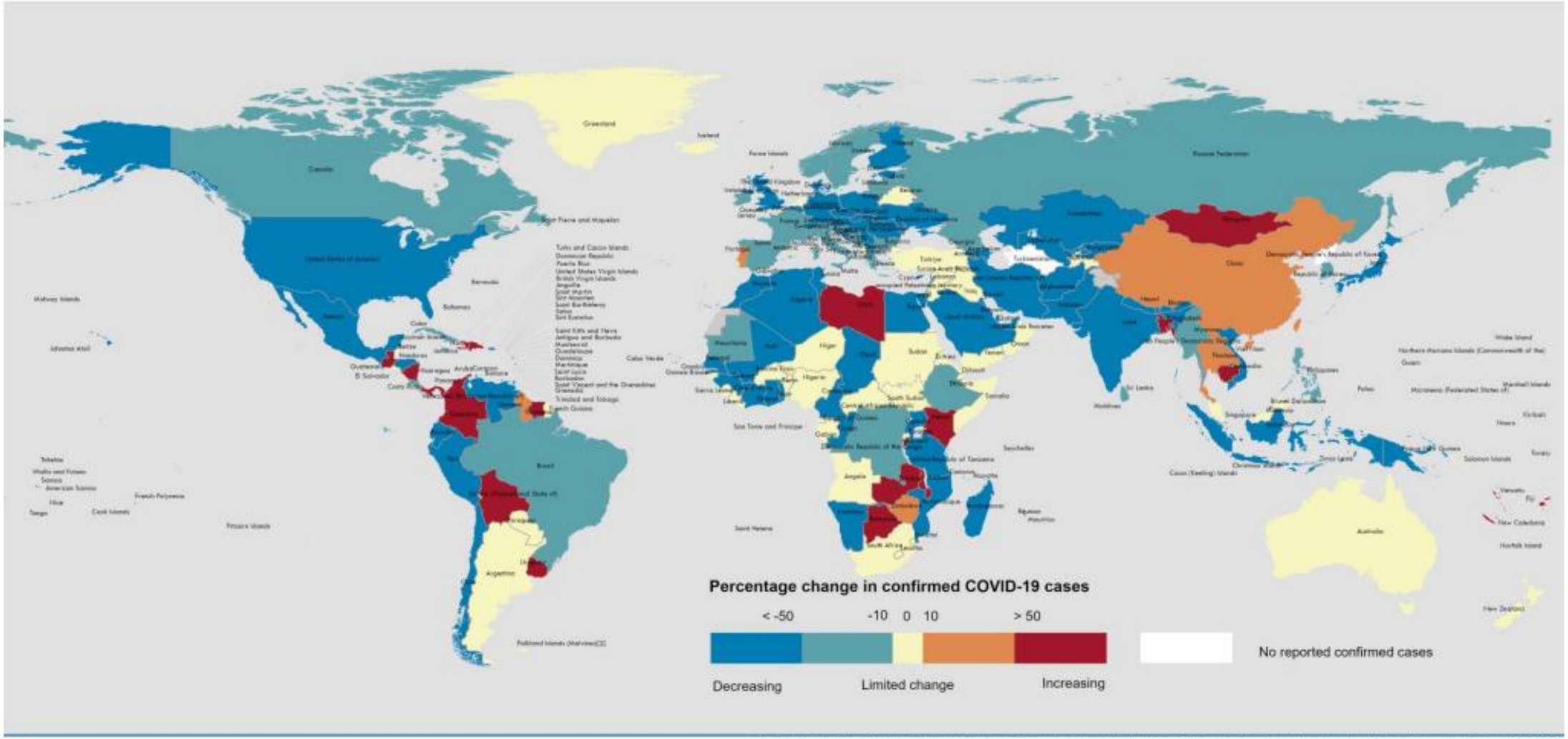
*WHO, 21 June 2023

Figure 1. COVID-19 cases reported by WHO Region, and global deaths by 28-day intervals, as of 18 June 2023**



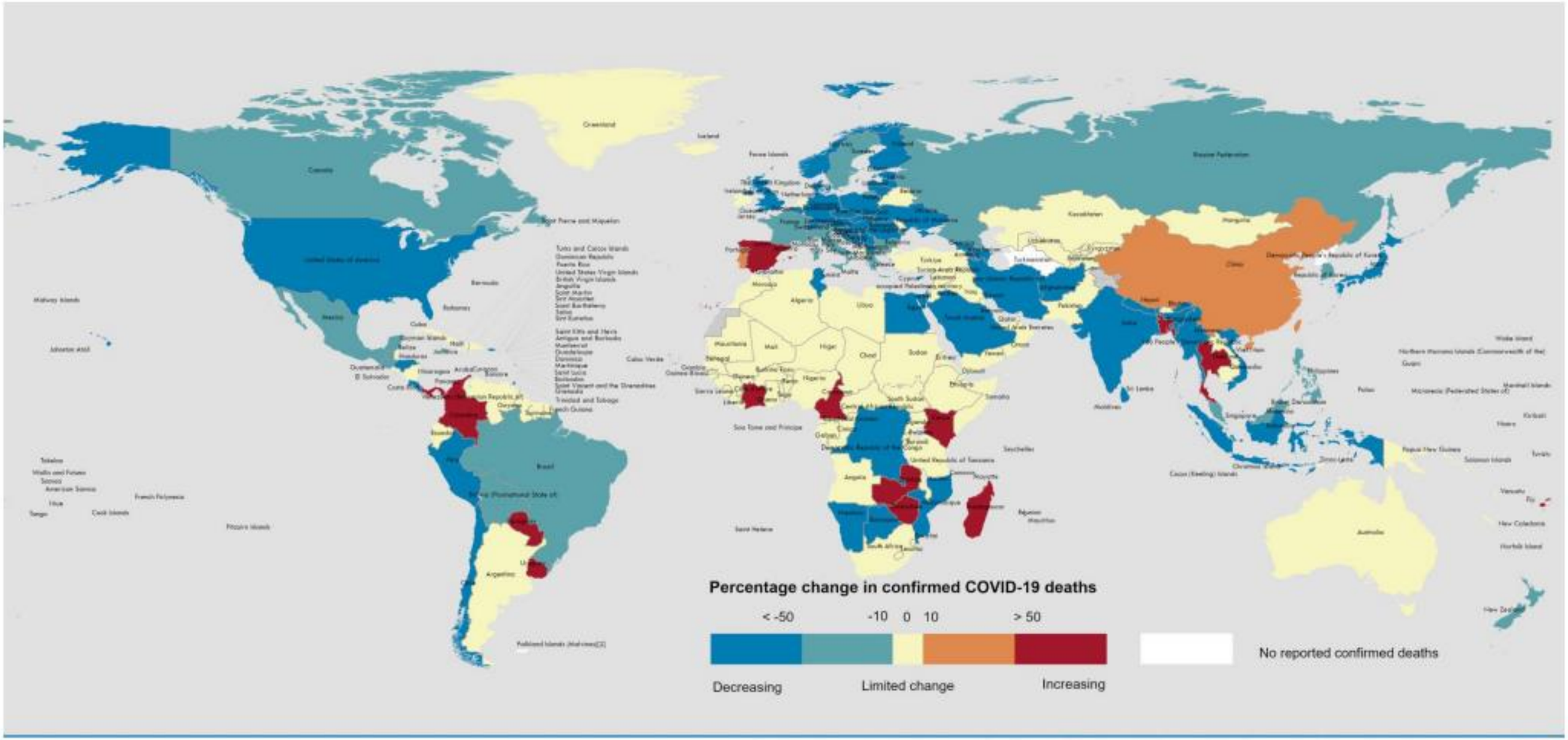
**See *Annex 1: Data, table, and figure note*

Figure 2. Percentage change in confirmed COVID-19 cases over the last 28 days relative to the previous 28 days, as of 18 June 2023**



**See *Annex 1: Data, table, and figure notes*

Figure 3. Percentage change in confirmed COVID-19 deaths over the last 28 days relative to the previous 28 days, as of 18 June 2023**



Data Source: World Health Organization
Map Production: WHO Health Emergencies Programme

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement. [1] All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999). Number of cases of Serbia and Kosovo (UNSCR 1244, 1999) have been aggregated for visualization purposes. [2] A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas). Data for Bonaire, Sint Eustatius and Saba have been disaggregated and displayed at the subnational level.

**See *Annex 1: Data, table, and figure notes*

Track Covid-19 in the U.S.

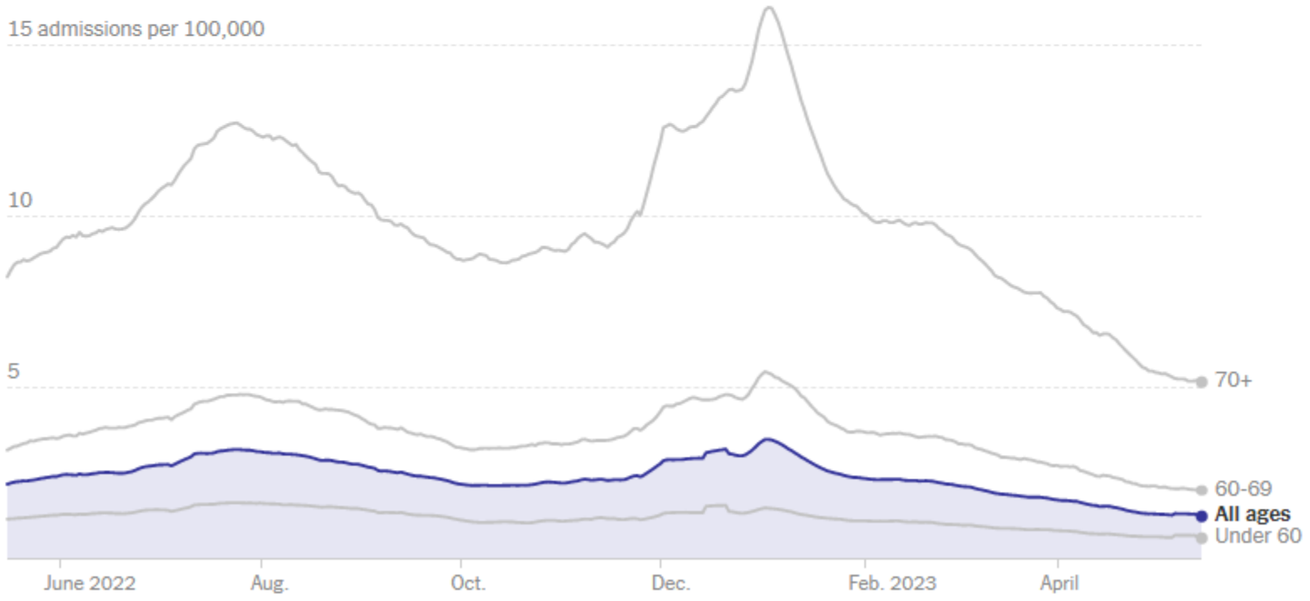
Updated May 15, 2023

With the end of the Covid-19 public health emergency in the United States, the C.D.C. is modifying what data it releases and ending some datasets. We are pausing data updates as we assess the impact of these changes.

Daily Covid hospital admissions

Avg. on May 15
4,073

14-day change
–5%



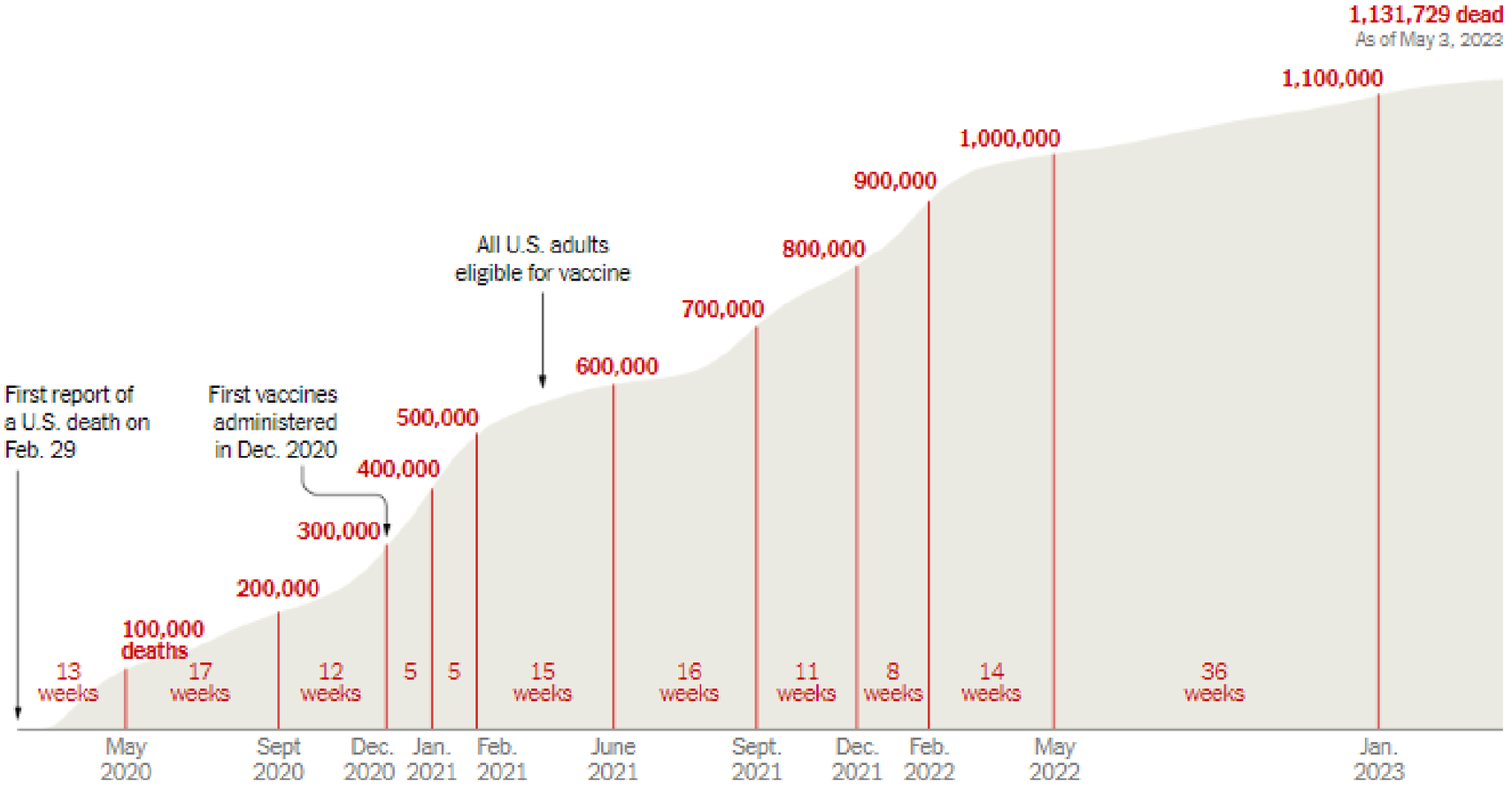
About the data

Data is from the Centers for Disease Control and Prevention.

The number of **daily hospital admissions** shows how many patients tested positive for Covid in hospitals and is more reliably reported than case counts at this stage of the pandemic. Age data can show how much of the vulnerable senior population is being affected by the virus.

Cases are typically updated weekly and are less consistently reported than earlier in the pandemic because of a lack of widespread testing. The **test positivity rate** is also less consistent, but both metrics can help to show how infections are trending. **Deaths** are a lagging but important ongoing indicator of the virus's toll.

The pace of deaths has slowed greatly since early last year, but the toll has continued to climb. More than 1.1 million people have died.

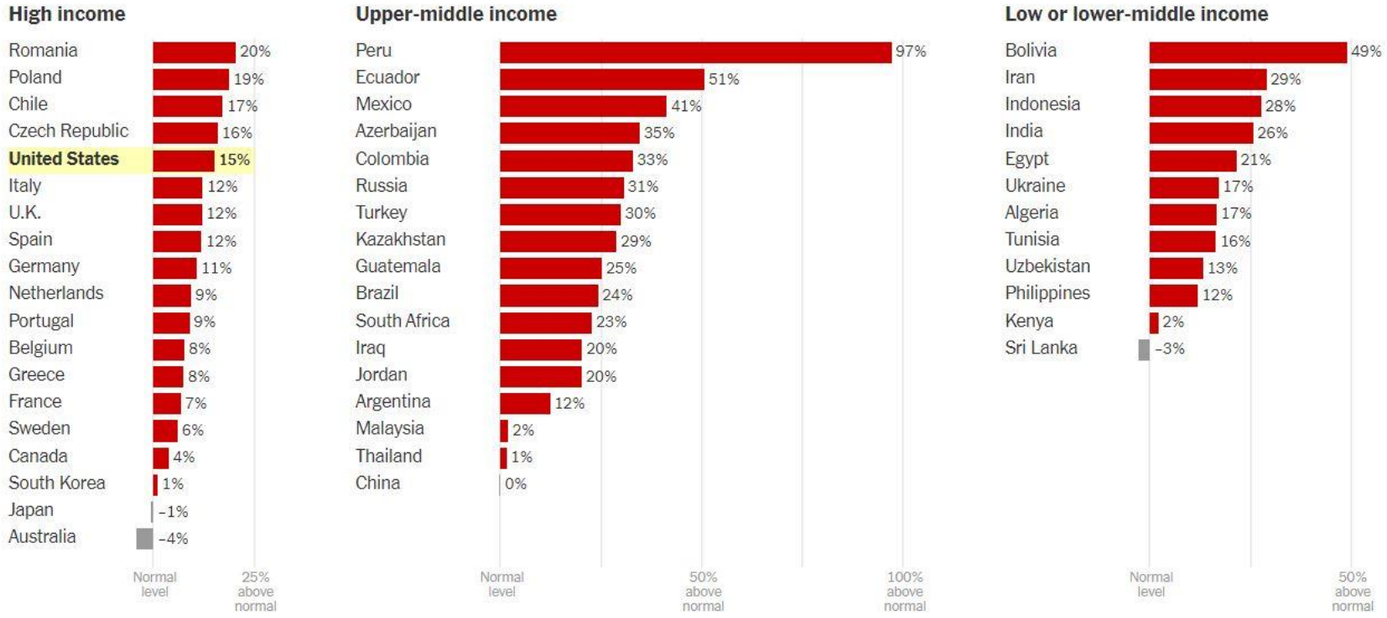


Where Death Rates Rose the Most During the Pandemic

By Denise Lu and Eleanor Lutz May 23, 2022

The United States had more deaths above normal levels during the pandemic than most other wealthy countries, according to data released by the World Health Organization this month. U.S. deaths were 15 percent above normal — a number surpassed by only four other large countries in the same income group: Chile, the Czech Republic, Poland and Romania.

Deaths above normal in 2020 and 2021, by income level of country



Notes: Only countries with populations greater than 10 million are included. Country income data is from the World Bank Atlas.

Examples of Negative Impacts of COVID-19 Pandemic

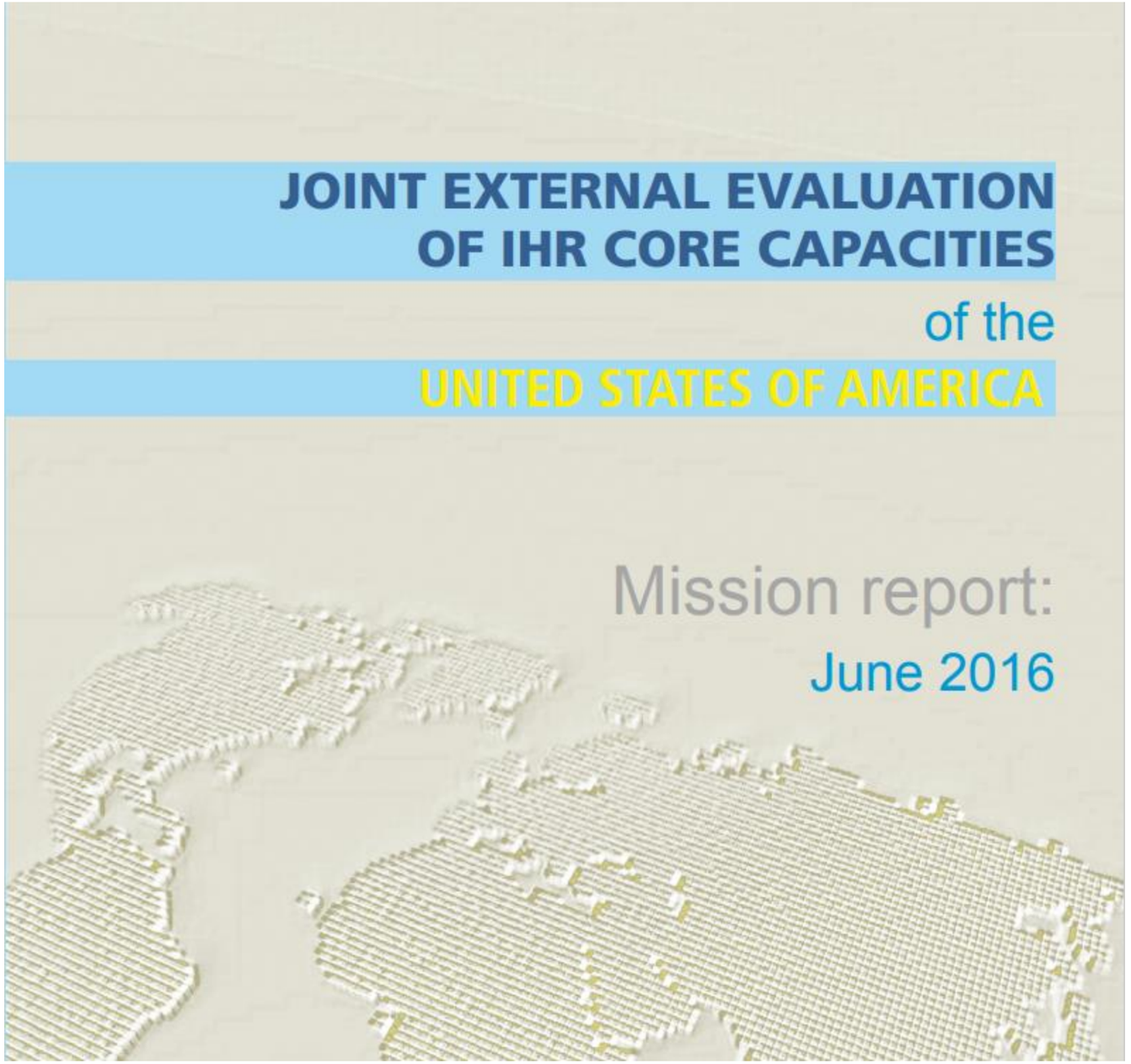
- Travel and Trade
- Educational Opportunities and Achievement
- Nutrition/Hunger
- Employment and Advancement
- Economic Growth and Development
- Migration
- Gender-based Violence
- Drug Use
- Preventative Health Services (e.g. vaccines)
- Treatment of other medical conditions
- Political Stability
- Privacy
- Stigma
- Industrial Espionage

Covid-19 Pushes India's Middle Class Toward Poverty

The pandemic sent 32 million people in India from the middle class last year. Now a second wave is threatening the dreams of millions more looking for a better life.

Ravaged by Covid, Brazil Faces a Hunger Epidemic

Tens of millions of Brazilians are facing hunger or food insecurity as the country's Covid-19 crisis drags on, killing thousands of people every day.


JOINT EXTERNAL EVALUATION
OF IHR CORE CAPACITIES
of the
UNITED STATES OF AMERICA
Mission report:
June 2016

Purpose of the JEE

The purpose of the external evaluation is to measure country-specific status and progress in developing capacity to prevent, detect, and rapidly respond to public health threats, be they naturally occurring, deliberate or accidental. The first external evaluation establishes a baseline measurement of the country's capacity and capabilities, and subsequent evaluations identify progress made and sustainability of improvements.

The United States of America scores

Capacities	Indicators	Score
National legislation, policy and financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR. (2005)	5
	P.1.2 The state can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005)	5
IHR coordination, communication and advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR (2005)	5
Antimicrobial resistance	P.3.1 Antimicrobial resistance (AMR) detection	4
	P.3.2 Surveillance of infections caused by AMR pathogens	4
	P.3.3 Healthcare associated infection (HCAI) prevention and control programmes	4
	P.3.4 Antimicrobial stewardship activities	3
Zoonotic diseases	P.4.1 Surveillance systems are in place for priority zoonotic diseases/pathogens	3
	P.4.2 Veterinary or animal health workforce	4
	P.4.3 Mechanisms for responding to infectious zoonoses and potential zoonoses are established and functional	4
Food safety	P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination.	4
Biosafety and biosecurity	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	4
	P.6.2 Biosafety and biosecurity training and practices	4
Immunizations	P.7.1 Vaccine coverage (measles) as part of the national programme	5
	P.7.2 National vaccine access and delivery	5
National laboratory system	D.1.1 Laboratory testing for detection of priority diseases	5
	D.1.2 Specimen referral and transport system	4
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	5
	D.1.4 Laboratory Quality System	5
Real-time surveillance	D.2.1 Indicator- and event-based surveillance systems	5
	D.2.2 Interoperable, interconnected, electronic real-time reporting system	3
	D.2.3 Analysis of surveillance data	5
	D.2.4 Syndromic surveillance systems	4
Reporting	D.3.1 System for efficient reporting to WHO, FAO and OIE	5
	D.3.2 Reporting network and protocols in country	4
Workforce development	D.4.1 Human resources are available to implement IHR (2005) core capacity requirements	5
	D.4.2 FETP[1] or other applied epidemiology training programme is in place	5
	D.4.3 Workforce strategy	4
Preparedness	R.1.1 Multi-hazard National Public Health Emergency Preparedness and response plan is developed and implemented	5
	R.1.2 Priority public health risks and resources are mapped and utilized	4

Questions

- Why did one of the world's best-prepared countries do so badly in responding to the COVID-19 pandemic and what lessons have been learned (or re-learned)?

Examples of:

- Lessons learned
- Lessons re-learned
- Lessons not-yet-learned

Examples of Lessons Learned

- New (and old) technology facilitates “rapid” development, testing, and deployment of new vaccines
- Deployment of existing vaccines to induce a non-specific immune response cannot be relied on
- Correctly and consistently worn “high quality” face masks can help reduce transmission of viruses transmitted via aerosols and droplets

Examples of Lessons Learned (cont.)

- “Mask mandates”, in the absence of a high level of compliance, are unlikely to have a demonstrable impact at the population level
- New approaches to viral surveillance (e.g. monitoring of sewage) can provide valuable information
- Young children have great difficulty learning remotely, especially those in poor households,

COVID-19 Vaccines

Examples of Approaches

- mRNA (e.g. Moderna; BioNTech/Pfizer)
- Viral Vectors (e.g. Oxford-Astra Zeneca; Janssen; Sputnik V)
- Inactivated Whole Virus (e.g. Sinopharm, Sinovac)
- Protein Subunit (e.g. Novavax; Sanofi)

A Century-Old Vaccine Fails to Protect Against Covid

Early in the pandemic, scientists began testing an old TB vaccine against the coronavirus. But the trial enrolled fewer participants than expected as new Covid vaccines were introduced, and no discernible effect was found.

National Wastewater Surveillance System (NWSS)

Español (Spanish) | Print

In response to the COVID-19 pandemic, CDC launched the National Wastewater Surveillance System (NWSS) in September 2020. CDC developed NWSS to coordinate and build the nation's capacity to track the presence of SARS-CoV-2, the virus that causes COVID-19, in wastewater samples collected across the country.

On This Page

What the New, Low Test Scores for 13-Year-Olds Say About U.S. Education Now

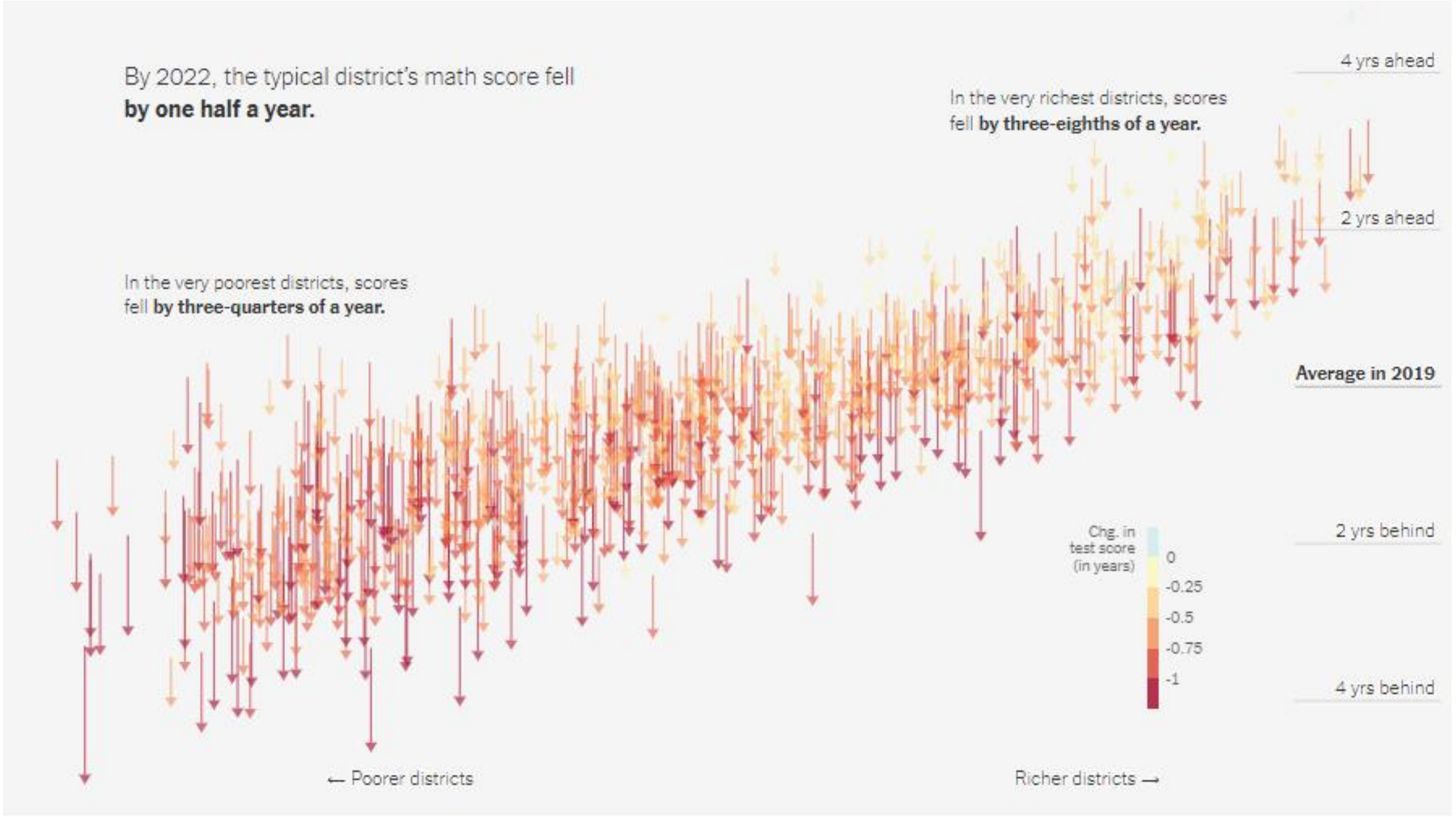
By Dana Goldstein

June 21, 2023

Give this article 785

What's New

The math and reading performance of 13-year-olds in the United States has hit the lowest level in decades, according to test scores released today from the National Assessment of Educational Progress, the gold-standard federal exam.


By 2022, the typical district's math score fell
by one half a year.
In the very richest districts, scores
fell by three-eighths of a year.
In the very poorest districts, scores
fell by three-quarters of a year.
4 yrs ahead
2 yrs ahead
Average in 2019
2 yrs behind
4 yrs behind
Chg. in
test score
(in years)
0
-0.25
-0.5
-0.75
-1
← Poorer districts
Richer districts →

Examples of Lessons Re-Learned

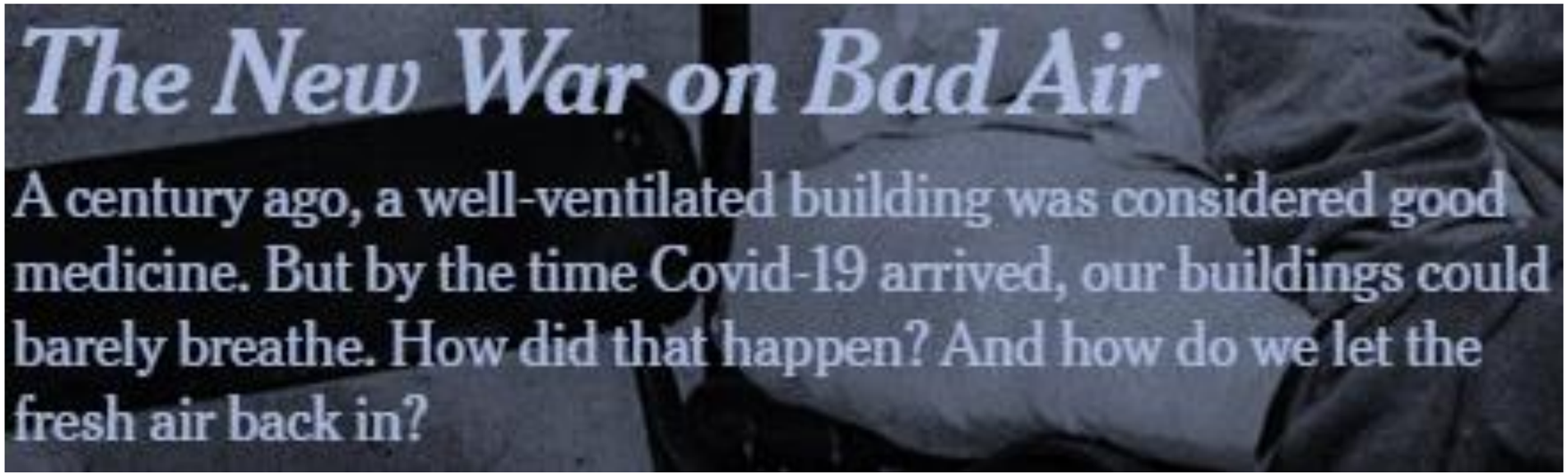
- Knowledge, and therefore prevention, control, and treatment approaches have to be continually re-assessed and updated
- Public health and disease prevention are intrinsically “political”
- Effective communication is necessary, but often not sufficient to change behaviors
- Sources of mis-information are difficult to combat
- Trust and mistrust influence actions (and lack thereof)

Examples of Lessons Re-Learned (cont.)

- Improved/increased ventilation in buildings can improve health and disease prevention
- International coordination and collaboration are essential in the context of a pandemic
- Vaccines don’t prevent illness and death, vaccinations do
- Life-saving resources such as access to healthcare, medications and vaccines, are unequally distributed within the U.S.
- Stockpiles of masks, respirators, and other supplies are important to maintain
- Vaccine mandates “work”, but are deeply unpopular

Public Health and Disease Prevention are Intrinsically “Political”

- Mr. DeSantis said. “I was the leader in this country in fighting back against Fauci. We bucked him every step of the way.”


The New War on Bad Air
A century ago, a well-ventilated building was considered good medicine. But by the time Covid-19 arrived, our buildings could barely breathe. How did that happen? And how do we let the fresh air back in?

Examples of Lessons not yet Learned

- Public health needs adequate, dependable, and predictable funding, rather than periodic infusion of resources
- The U.S. is, constitutionally, not one entity when it comes to key public health policies, activities, regulations, priorities, and funding
- How to combat misinformation in the modern era with its ubiquitous, ineradicable ocean of such misinformation
- How to re-configure work , mass transit, and other aspects of society as remote work and education expand
- The importance of assuring access to adequate healthcare and paid sick leave to all individuals

G.O.P. Targets Researchers Who Study Disinformation Ahead of 2024 Election

A legal campaign against universities and think tanks seeks to undermine the fight against false claims about elections, vaccines and other hot political topics.

As Covid Emergency Ends, U.S. Response Shifts to Peacetime Mode

The coronavirus public health emergency, declared by the Trump administration in 2020, will expire on Thursday. Interviews with senior health officials suggest the nation is not ready for a new pandemic.

White House Pushes to Save Key Covid Programs in Debt Ceiling Talks

The Biden administration has prioritized preserving a $5 billion vaccine development program in discussions with House Republicans on clawing back unspent Covid-19 funds.

Return to Office Enters the Desperation Phase

The next stage of getting workers back at their desks includes incentives like $10 to the charity of their choice — and consequences like poor performance evaluations if they don't make the trek in.

Experts See Lessons for Next Pandemic as Covid Emergency Comes to an End

The United States' struggle to respond to the virus has highlighted the importance of communicating with the public, sharing data and stockpiling vital supplies.

We Worked on the U.S. Pandemic Response. Here Are 13 Takeaways for the Next Health Emergency.

America Is Forgetting the Lessons of the Covid Health Emergency

Summary

- Despite its high level of preparedness, the U.S. performed poorly in responding to the COVID-19 pandemic
- While some lessons have been learned or re-learned, others have not