

COVID-19: From USNORTHCOM to the next pandemic

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Disclaimer and disclosure

The views shared here are not those of the United States Government, Department of Defense, Department of the Air Force or McKinsey & Company. They are my views and mine alone.

I have no financial disclosures and I hold no individual equity investments.

I will not discuss any off-label medication use.

Agenda

My journey

COVID-19 and USNORTHCOM

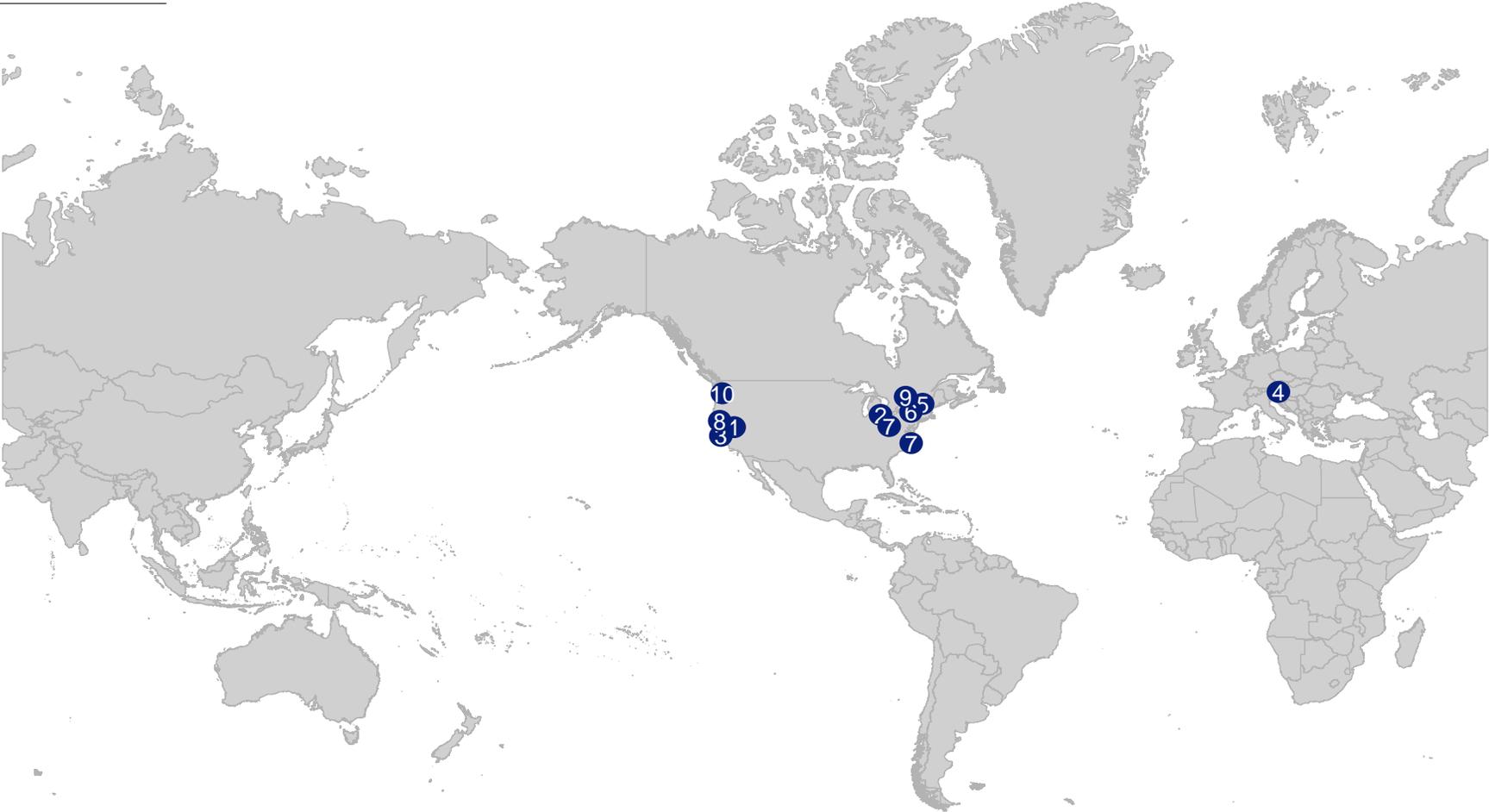
COVID-19 what happened?

COVID-19 where do we go from here?

The next pandemic

Journey to and through COVID-19

Non-exhaustive



- 1  KAISER PERMANENTE
- 2  MICHIGAN
- 3  UCSF  Berkeley  McKinsey & Company
- 4  World Health Organization
- 5  NEW YORK STATE  NYC
- 6  U.S. AIR FORCE
- 7  Ohio  VA  U.S. Department of Veterans Affairs  DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA
- 8  CALIFORNIA REPUBLIC
- 9  U.S. AIR FORCE
- 10  Washington

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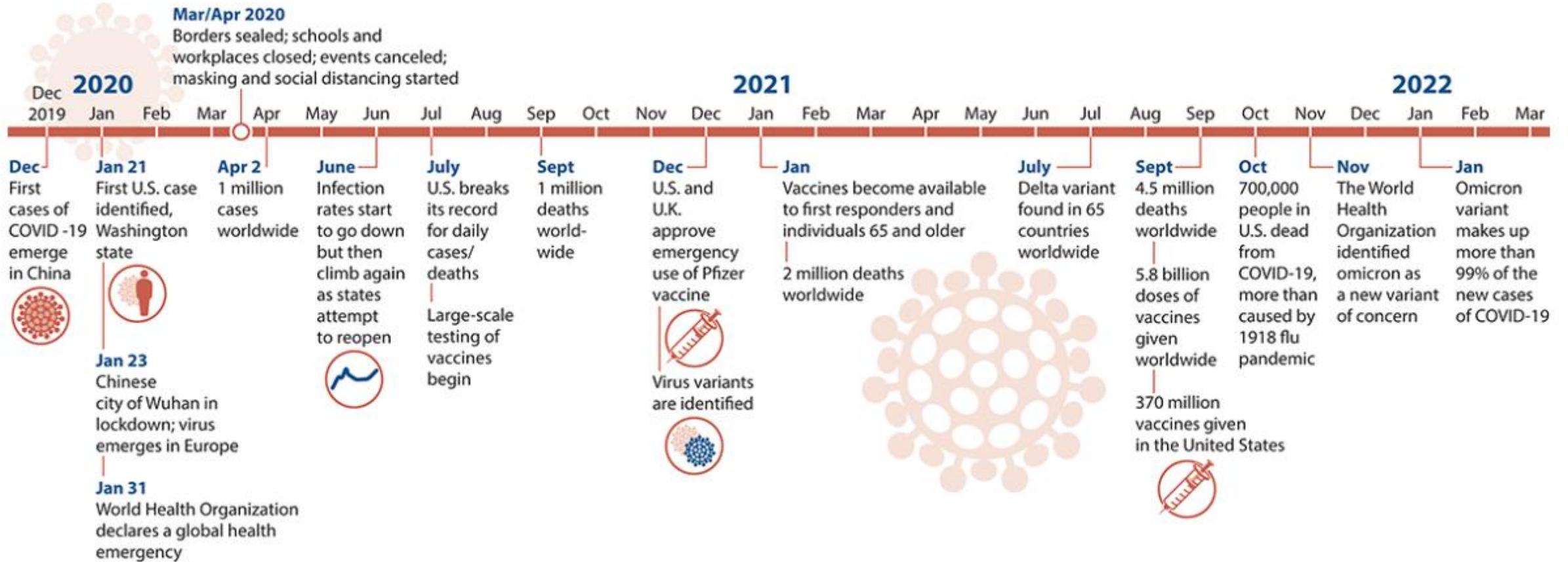
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COVID-19 timeline to the vaccine



DoD and COVID-19: a whole of government response

Non-exhaustive



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Was COVID-19 leaked from a lab?

Non-exhaustive

Lab - leaked

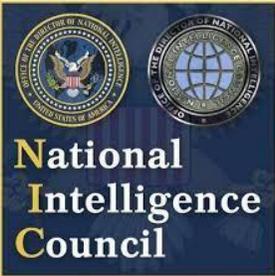
Animal origin

Not sure



Most scientists

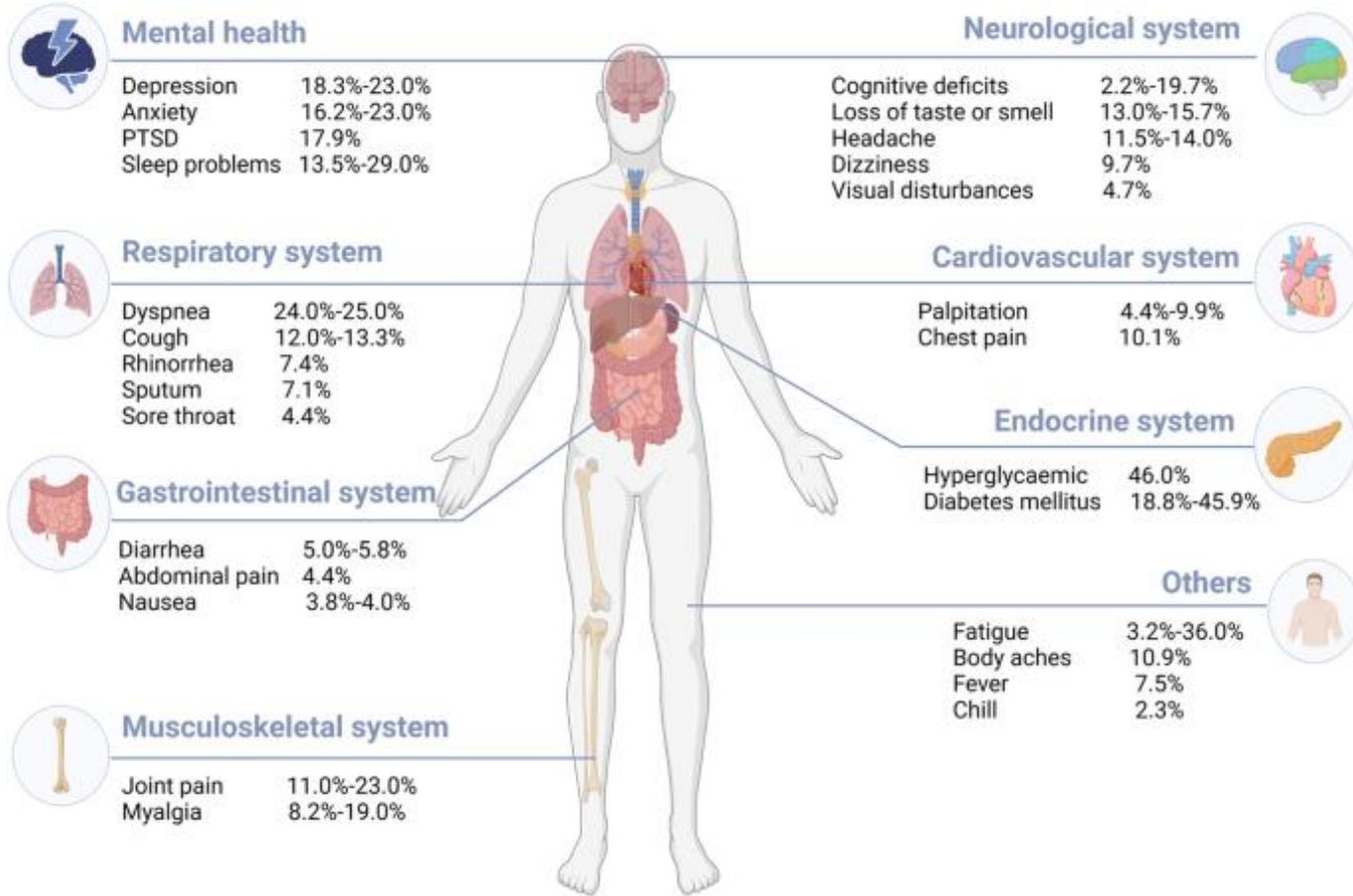
Most people



What about?

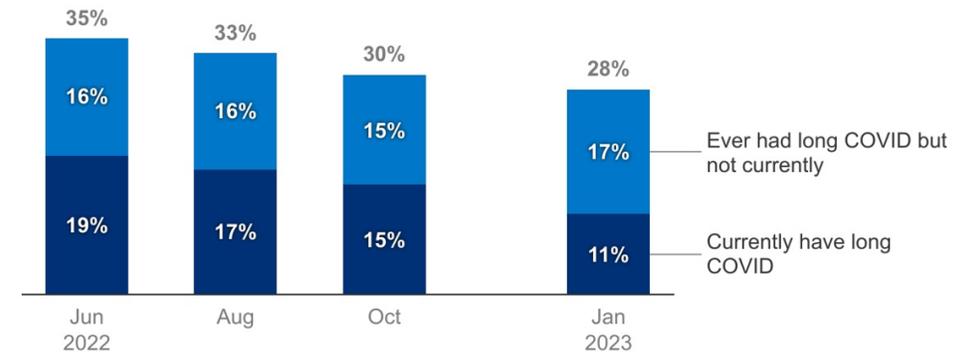


What will long COVID mean for people?



Among People Who Have Had COVID, the Percentage who Currently Have Long COVID is Declining

Percentage of people reporting that they currently have or ever had long COVID among those who have had COVID as of January 16, 2023



<https://www.nature.com/articles/s41380-023-02171-3>

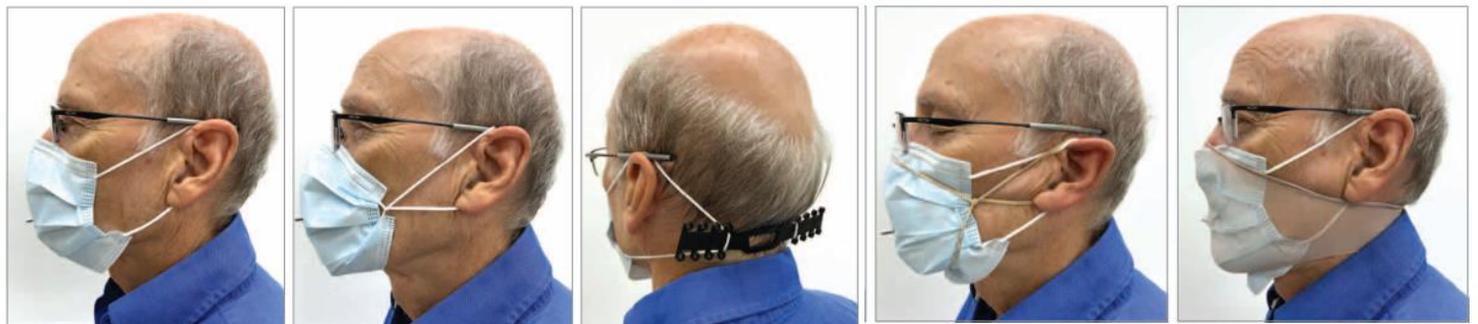
<https://www.kff.org/policy-watch/long-covid-what-do-latest-data-show/>

National Center for Health Statistics. Post-Covid Conditions. Jan 26, 2023. <https://data.cdc.gov/d/gsea-w83j>

What do masks do?

Table. Face Mask FFE Against Submicron Particle Penetration

Consumer-grade face masks	Condition	% FFE (SD) ^a
2-Layer nylon mask with ear loops		
Without aluminum nose bridge	New	44.7 (6.4)
With aluminum nose bridge	New	56.3 (6.5)
With aluminum nose bridge and 1 insert	New	74.4 (4.8)
With aluminum nose bridge, washed (no insert)	Washed 1 time	79.0 (4.3)
Cotton bandana		
Folded surgeon general style	New	49.9 (5.8)
Folded "bandit" style	New	49.0 (6.2)
Single-layer polyester gaiter/neck cover (balaclava bandana)	New	37.8 (5.2)
Single-layer polyester/nylon mask with ties	New	39.3 (7.2)
Polypropylene mask with fixed ear loops	New	28.6 (13.9)
3-Layer cotton mask with ear loops	New	26.5 (10.5)
Medical face masks and modifications		
3M 9210 NIOSH-approved N95 respirator	New	98.4 (0.5)
Surgical mask with ties	New	71.5 (5.5)
Procedure mask with ear loops	New	38.5 (11.2)
Procedure mask with ear loops		
Loops tied and corners tucked in	New	60.3 (11.1)
Ear guard	New	61.7 (6.5)
23-mm Claw hair clip	New	64.8 (5.1)
Fix-the-mask (3 rubber bands)	New	78.2 (3.3)
Nylon hosiery sleeve	New	80.2 (3.1)



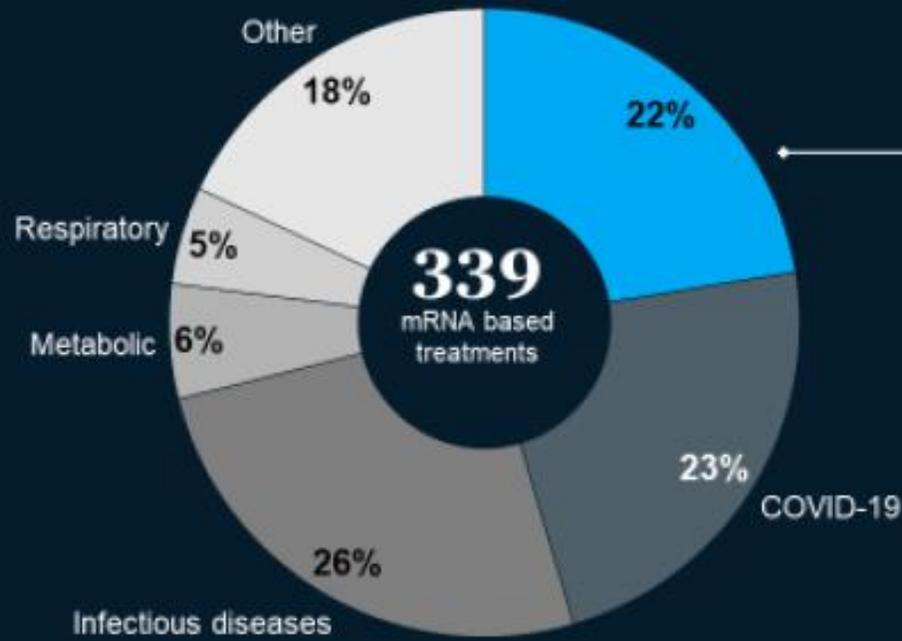
Abbreviations: FFE, fitted filtration efficiency; NIOSH, National Institute for Occupational Safety and Health.

Clapp PW, Sickbert-Bennett EE, Samet JM, et al. Evaluation of Cloth Masks and Modified Procedure Masks as Personal Protective Equipment for the Public During the COVID-19 Pandemic. *JAMA Intern Med.* 2021;181(4):463–469. doi:10.1001/jamainternmed.2020.8168

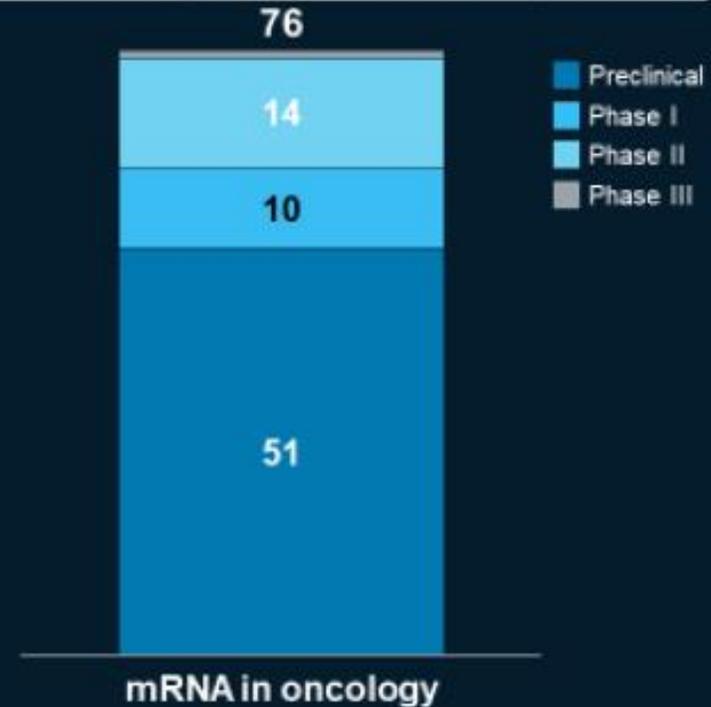
Are we done with mRNA?

Of the current mRNA vaccines under development, those targeting oncology indications represent ~22% of the global mRNA pipeline

RNA-based assets by therapeutic area, #



Oncology assets by development stage, #



Other questions?

Was lockdown effective?

What will happen with vaccines?

What are some other big takeaways?

Any other questions?

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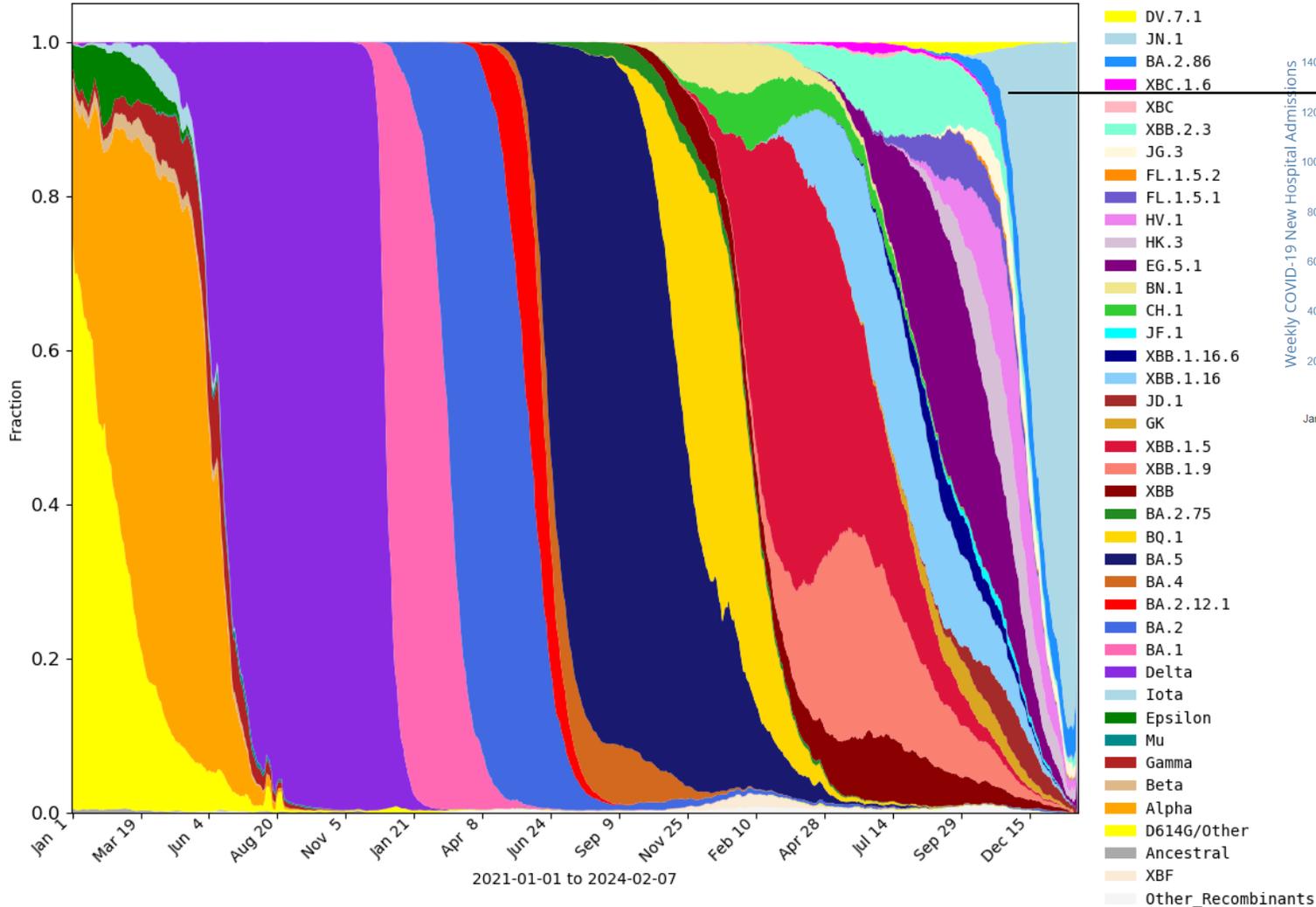
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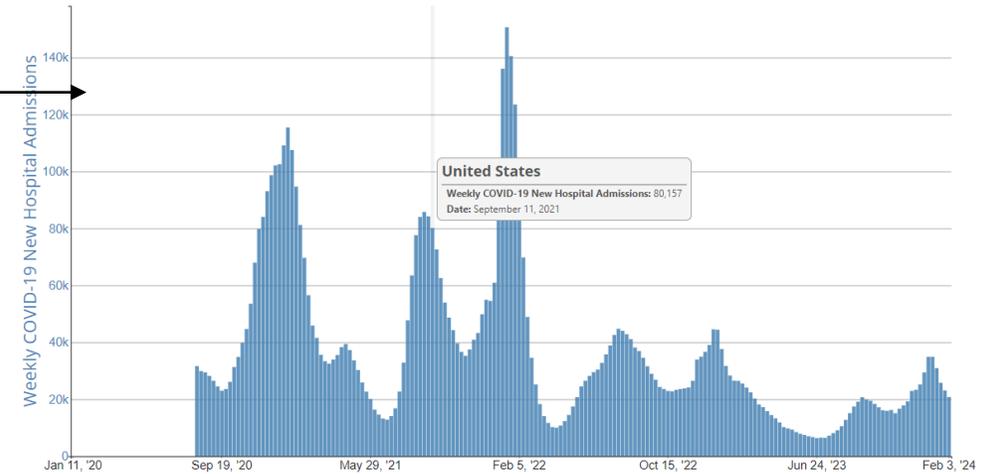
What is happening with COVID-19?

As of February 9, 2024

Global: 15210475 sequences



COVID-19 New Hospital Admissions, by Week, in The United States, Reported to CDC



This season was a good “level-set” for what to expect with our new normal with the world fully opened up and things mostly back to business as usual end of 2023

<https://cov.lanl.gov/content/index>

https://covid.cdc.gov/covid-data-tracker/#trends_weeklyhospitaladmissions_select_00

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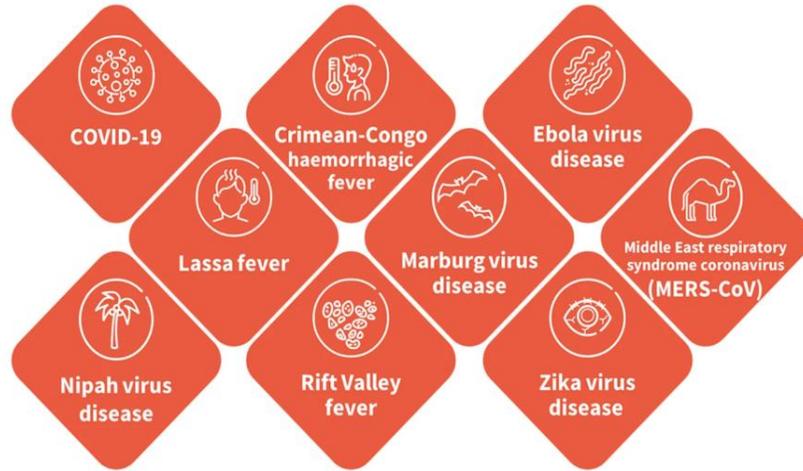
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What about the next pandemic?

There are many candidate viruses, but it may be something new altogether



OpenWHO.org

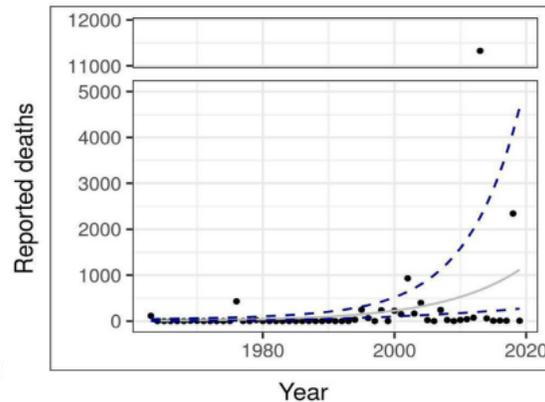
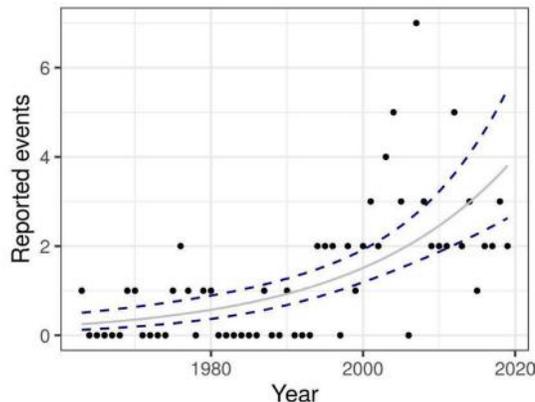
#LearningSavesLives

In many ways, we were lucky with COVID-19, “only” **5-10M** have died

If global mortality from COVID-19 was close to Spanish Flu in 1918, **160M or more people** could have died...

If global mortality from COVID-19 was close to the black death / plague, **1.2B or more people** could have died...

Taken together, extraordinary efforts are underway to better prepare for the next pandemic



Meadows AJ, Stephenson N, Madhav NK, *et al* Historical trends demonstrate a pattern of increasingly frequent and severe spillover events of high-consequence zoonotic viruses *BMJ Global Health* 2023;8:e012026.

Utunen, H., Tokar, A., Dancante, M. *et al*. Online learning for WHO priority diseases with pandemic potential: evidence from existing courses and preparing for Disease X. *Arch Public Health* 81, 61 (2023). <https://doi.org/10.1186/s13690-023-01080-9>
<https://www.archives.gov/exhibits/influenza-epidemic/>