MARATHON COUNTY
BOARD OF HEALTH AGENDA

Date & Time of Meeting: **Tuesday, April 12, 2022, at 7:45 a.m.**

Meeting Location**: Courthouse Assembly Room, B-105, 500 Forest Street, Wausau WI**

Committees Members: John Robinson, Chair; Craig McEwen, Vice-Chair; Kue Her, Secretary; Sandi Cihlar; Dean Danner; Tiffany Lee; Corrie Norrbom, Tara Draeger, Helen Luce

Marathon County Mission Statement: *Marathon County Government serves people by leading, coordinating, and providing county, regional, and statewide initiatives. It directly or in cooperation with other public and private partners provides services and creates opportunities that make Marathon County and the surrounding area a preferred place to live, work, visit, and do business. (Last updated: 12-20-05)*

Marathon County Health Department Mission Statement: *To advance a healthy Marathon County community by preventing disease, promoting health, and protecting the public from environmental hazards. (Last updated: 5-7-13)*

The meeting site identified above will be open to the public. However, due to the COVID-19 pandemic and associated public health directives, Marathon County encourages Board of Health members and the public to attend this meeting remotely. Instead of attendance in person, Committee members and the public may attend this meeting by **telephone conference**. If Committee members or members of the public cannot attend remotely, Marathon County requests that appropriate safety measures, including adequate social distancing, be utilized by all in-person attendees. Persons wishing to attend the meeting by phone may call into the **telephone conference beginning five (5) minutes prior to the start time indicated above using the following number:**

Phone #: +1-408-418-9388 **Access Code:** 2497 486 2567

When you enter the telephone conference, **PLEASE PUT YOUR PHONE ON MUTE!**

1. **Call Meeting to Order**
2. **Public Comment (15 Minutes)** (*Any person who wishes to address the County Board, or one of its committees, during the "Public Comment" portion of meetings, must provide his or her name, address, and the topic he or she wishes to present to the Marathon County Clerk, or chair of the committee, no later than five minutes before the start of the meeting.)*
3. **Approval of the March 8, 2022, Board of Health Meeting Minutes**
4. **Policy Issues for Discussion and Possible Action**
5. **Operational Functions Required by Statute, Ordinance, or Resolution**
6. **Educational Presentations and Committee Discussion**
   - **A.** Presentation: Overview of U.S. Vaccine Safety Monitoring System by Director of Marshfield Clinic Research Institute's Center for Clinical Epidemiology and Population Health, Edward Belongia MD
   - **B.** Review Marathon County School-based Consortium for Youth Mental Health
   - **C.** Report From the Health & Human Services Committee Meeting on Policy Issues Impacting Public Health
7. **Next Meeting Date & Time, Location, Announcements and Future Agenda Items:**
   - **A.** Committee members are asked to bring ideas for future discussion.
   - **B.** Next Board of Health Meeting: **Tuesday, May 10, 2022, at 7:45 a.m.**
8. **Adjournment**

**Any person planning to attend this meeting who needs some type of special accommodation in order to participate should call the County Clerk's Office at 261-1500 or e-mail countyclerk@co.marathon.wi.us one business day before the meeting*

SIGNED: _____
Presiding Officer or Designee

EMAILED TO: Wausau Daily Herald, City Pages, and other Media Groups NOTICE POSTED AT COURTHOUSE

EMAILED BY: _____ BY: _____

DATE & TIME: _____ DATE & TIME: _____

Marathon County Board of Health Minutes

Meeting Date/Time:	**Tuesday, March 8th, 2022, at 7:45 AM**
Meeting Location:	**Marathon County Courthouse** **Assembly Room** **500 Forest Street** **Wausau, WI 54403**
Present - In Person:	Tara Draeger, Craig McEwen, John Robinson
Present - Via WebEx:	Sandi Cihlar, Dean Danner, Corrie Norrbom, Kue Her, Helen Luce
MCHD Staff:	Eileen Eckardt (Online), Dale Grosskurth, Rachel Klemp-North (Online), Becky Mroczenski (Online), Amanda Ostrowski (Online), Jon Schmunk (Online), Laura Scudiere, Kim Wieloch (Online), Kang Chu Yang (Online)
Others via WebEx:	Chris Dickinson, Jean Maszk
Committee Members:	John Robinson, Chair; Craig McEwen, Vice-Chair; Kue Her, Secretary; Sandi Cihlar; Dean Danner; Tara Draeger; Tiffany Lee; Helen Luce; Corrie Norrbom

1. Call to Order

John Robinson called the meeting to order at 7:45 AM.

John Robinson provided follow-up regarding questions relating to VAERS data. DHS was not available to meet with the board today. A representative that can speak to vaccine safety is being sought for a future meeting.

2. Public Comment Period (Limit to 15 Minute)

The following members of the public provided comments. Commenter voiced concerns regarding health system practices and vaccine safety.

Name	**Residence**
Melinda DeGier	Merrill, WI

Comments were limited to three minutes at the direction of the Chair and limited to the first 15 minutes.

3. Approval of the Minutes

A. **February 8, 2021, Board of Health Meeting**

Motion to approve the minutes of the February 8, 2022, Board of Health meeting made by Craig McEwen. Second by Sandi Cihlar. Motion approved.

4. Policy Discussion and Possible Action

A. None

5. Operational Functions Required by Statute, Ordinance, or Resolution

A. None

6. Educational Presentations/Outcome Monitoring Reports

A. Update on Wausau's ongoing PFAS mitigation efforts and the role of the health department

I. Environmental Health and Safety Director, Dale Grosskurth, gave a review of the PFAS sampling of Wausau and other municipalities.

PFAS is a chemical introduced in the 1940s for its water repellent qualities through consumer goods and manufacturing. There are two types, PFOA and PFOS. PFAS is currently not regulated but has set health advisory standards. The EPA and DNR has a guidance set at 70 parts per trillion and DHS at 20 parts per trillion. Marathon County Health Department's role has been to provide support and connect partners to DHS and DNR, provide education to residents and the impacted municipalities, and assist in strategies to reduce residents' levels of PFAS. United Way 211 received 54 calls with questions relating to what PFAS is, how to filter it, safety, and alternative water sources. A few restaurants also contacted the health department regarding how to use water and how to keep their water safe for customers. Grosskurth informed the board that there is currently three parts to the city's mitigation efforts:

1. Rapid response - ensuring point-of-use filters and bottled water is available to the community, including underserved populations. Water bottles are available from The Neighbor's Place and the Hmong American Center.
2. Conducting a small-scale pilot study to the treatment system and its associated cost with permeated treatments.
3. Conducting a bridge study for a larger scale application with a new water ION exchange treatment. In turn, the city is exploring filtering PFAS from 5 million gallons of water per day. Rothschild and Rib Mountain are working to adjust their water systems to current health advisory standards. Both municipalities have wells that were not affected by the chemical.

Chair John Robinson informed the board of health that Wausau Water Works Commission is meeting to talk about finances and how to rapidly respond. Emergency response and carbon filters have been placed. They are also working with DHS to look at the entire system, wastewater, and the Wisconsin rivers. Concentrated PFAS in bio solids can go into livestock and crops and is of concern. The EPA are also looking to review the DHS standards.

Grosskurth summarized that current standard are from DHS and DNR. The NFS NC 58 filter for certified osmosis systems meet PFAS filtering standards. Questions should be directed to the installer of the specific system. Certain systems are good at removing some but not all PFAS parts. Some municipalities have surveyed their water systems, and others have plans to test this year. Robinson also states that the EPA found PFAS in 2016 and set their standards at 70 parts per trillion. Other states such as MN and IL have set similar health

advisory standards. Based on the number of factors PFAS is causing in multiple counties, the State of WI has included funding to act on municipal drinking and wastewater treatment for PFAS.

B. Review of data relative to suicide rates in Marathon County

I. Marathon County's Medical Examiner, Jessica Blahnik, provided a data on suicide deaths in the county from 2018 to 2021, which was reviewed by Laura Scudiere

Health Officer Laura Scudiere reiterated the health priority definition and key indicators selected in previous meetings. The health department is looking to the Board of Health to support the prevention strategies. Mental health is a key health priority for the Marathon County Health Department and is being actively addressed through the Community Health Improvement Plan process. An update on The CHIP process was given at the February 2021 Board of Health Meeting.

Western Marathon Coalition expanded services through telehealth but has reported a decrease in service usage after implementation. Telehealth has not been an effective mode in reaching patients. Robinson asked the Board of Health about strategies that could address the backlog and expansion of mental health services to the teenage population. What role can the Health Department and Board of Health play to help obtain funding for these sorts of services? Robinson also confirmed that school systems outreach continues.

Board members questioned the affordability of the program for underserved or rural students. Scudiere indicated that the services some programs have a sliding fee scale, and many students qualify for Medicaid. Board member Tara Draeger shared that the health consortium has funding specifically for students who may have barriers, such as rural students with high insurance deductibles.

County Board Supervisor Chris Dickenson commented that COVID stressors were a factor in poor youth mental health and suggested holistic approaches in addition to medical or behavioral health approaches. Board of Health members expressed that most teenagers may not always need a mental health professional, but the stress of life during teen years can be difficult and that this was true prior to COVID. County support in early childhood programs can support the child's environmental factors but is not a quick fix. Board of Health Members discussed that mental health initiatives cannot focus on just COVID or suicide. The focus must be on prevention. The Community Health Improvement Program process involves the key factors in turning the curve.

Board of Health member, Kue Her, suggested that key stake holders must help normalize this initiative within the Hmong community. Culture barriers will play a role in the Hmong community's ability to accept such programs and services.

Scudiere noted that the next update on CHIPP progress will be in June.

C. Marathon County Health Department COVID Status Review

I. John Robinson reminded the board that the COVID status review was provided in written form in the board packet. No further updates were given at this time.

D. Report From the Health & Human Services Committee Meeting on Policy Issues Impacting Public Health

I. John Robinson shared the North Central Health Care metro ride project is moving forward and waiting for a response from Conservation, Planning, and Zoning.

7. Next Meeting Date & Time, Location, Announcements and Future Agenda Items:

A. Committee members are asked to bring ideas for future discussion.

B. Next Board of Health Meeting: **Tuesday, April 12, 2022, at 7:45 a.m.**

8. Adjournment

Motion to adjourn made by Craig McEwen; second by Tara Draeger. Motion approved. Meeting was adjourned at 8:39 AM.

Respectfully submitted,

Kue Her, Secretary
Kang Chu Yang, Recorder

Marathon County
Health Officer Notes

A. Presentation: Overview of U.S. Vaccine Safety Monitoring System by Director of Marshfield Clinic Research Institute's Center for Clinical Epidemiology and Population Health, Edward Belongia, MD

- **I.** In response to requests from Marathon County Board members and other residents, Dr. Belongia will be present to review the Vaccine Safety Monitoring System within the United States. He is an adjunct professor to the Department of Population Health Sciences at the University of Wisconsin and the Senior Epidemiologist and Director of the Center for Clinical Epidemiology and Population Health at Marshfield Clinic Research Institute. Dr. Belongia has extensive experience with the vaccine safety mechanisms and structure.

B. Review Marathon County School-based Consortium for Youth Mental Health

- **I.** Marathon County Health Department provides backbone support for the Youth School-based Consortium, which provides mental health services to several Marathon County school systems. Amanda Ostrowski will give an overview on the consortium's work, discuss successes, and give an overview of where the project is headed.

C. PFAS

- **I.** Wausau, Rothschild, Rib Mountain, and Weston have sampled for PFAS and found sample results exceeding DHS-recommended levels in one or more wells. Kronenwetter also sampled and did not find levels that exceeded standards. Rothschild and Wausau continue to work to find solutions and have been encouraging residents to reduce their PFAS exposure by using bottled water or filtering the tap water for use as drinking water, in making infant formula, and preparing foods where water is a primary ingredient or is absorbed by the food. Rib Mountain and Weston were able to shut wells off in effort to mitigate ongoing PFAS concerns.

  The Marathon County Health Department surveyed the municipalities within the county to determine their intent to sample.

Here are the results we received as of 4/5/22:

Municipality	Sampling Status	PFAS Detected above DHS Guidelines
City of Mosinee Water Utility	Yes, plans to sample	Unknown
City of Wausau	Sampled January 2022; previously sampled June 2019	Yes
Maine Water Utility	Yes, plan to sample	Unknown
Marathon City Waterworks	Yes, plan to sample	Unknown
Rib Mountain	Sampled November and December 2021	Yes
Schofield Water	Yes, plan to sample	Unknown
Village of Athens	Not sampling	Unknown
Village of Edgar	To Be Determined	Unknown
Village of Hatley	Not sampling	Unknown
Village of Kronenwetter	Sampled	No
Village of Marathon	Yes, plan to sample	Unknown
Village of Rothschild	Sampled February 2022	Yes
Village of Weston	Sampled March 2022; previously sampled in 2014 and 2015	Yes

D. Start Right Program

I. The MCHD continues to evaluate home visiting programming to determine if an existing program may meet required evidenced-based standards. Cost comparison, program comparison, and implementation recommendations are being developed for Board of Health review.

E. Northern Mobile Home Park

I. For background, an Order to remove Human Health Hazards was issued on May 20, 2021 against Sustainable Resources, the operator of Northern Mobile Home Park. After efforts to gain voluntary compliance were unsuccessful, a Summons and Complaint was filed on September 30, 2021 in Marathon County Circuit Court. It was discussed that Human Health Hazard violations were uncorrected despite efforts to gain voluntary compliance. Marathon County Health Department's involvement since then has included a Circuit Court order that an inspection be performed before March 31, 2022. This inspection was performed on January 24, 2022 involving Sara Brown, Environmental Health Sanitarian and Dale Grosskurth, Environmental Health and Safety Director, along with representatives of Sustainable Resources. A site-by-site inspection was performed, and report was provided. Sustainable Resources has made some progress, but violations remain. Because there was snow cover during the most recent inspection, it was understood that some potential remaining hazards and/or mitigation could not be reviewed.

As of March 21, 2022, MCHD is aware that all the residents have moved, and no one is currently living in the park. The property posted "No Trespassing" signs, and the owner has indicated that a gate will be installed to prevent vehicular access. Sustainable Resources is in communication with the City of Schofield regarding the future of the property.

F. Communities for Just Response Grant

I. The Marathon County Health Department was funded $100,000 to support efforts to educate key stakeholders on the social determinants of health. This work coincides with the identified health priority of Health Equity that was chosen by the Board of Health and Healthy Marathon County during the current Community Health Improvement Plan process. (The other health priorities are Substance Use and Mental Health.) Amanda Ostrowski and Laura Scudiere from the MCHD, in collaboration with a team of key community stakeholders, will be participating in coaching sessions funded by the granting partners which are aimed at providing groundwork relative to understanding how to address diversity and inclusion to improve health outcomes.

G. COVID-19 Update

I. A data dashboard is provided in the packet for your review. The data included in this packet reflects when the packet was posted. Up to date data can be reviewed on the online Marathon County Health Department dashboard here: https://www.co.marathon.wi.us/Departments/HealthDepartment/COVID19/Dashboard.aspx
Due to the time lag between when the data is posted in the packet and when the data is reviewed by the board, this data will be available at the above link and will no longer be provided in the board packet going forward.

II. As of 4/5/22, Marathon County's 7-day average is 5 cases.

III. DHS has downgraded the Disease Activity rate from "very high" to "high." https://www.dhs.wisconsin.gov/covid-19/local.htm

IV. CDC lists Marathon County's Community Level as "low" https://www.cdc.gov/coronavirus/2019-ncov/science/community-levels.html

V. AMI continues to provide vaccinations at NTC, though the vaccination rates at this site are decreasing each month. There are many vaccine providers in addition to AMI providing this service. Vaccine providers in Marathon County can be accessed through vaccines.gov.

VI. Updated testing availability can be accessed here https://www.co.marathon.wi.us/Departments/HealthDepartment/COVID19/TestingInformation.aspx UW Stevens Point and the National Guard testing events have both ended. In partnership with the Wisconsin Department of Health Services, free community testing is available Mondays at East Gate Hall from 8 am to 4 pm as well as at the Hmong American Center every Friday from 12:00 pm to 4:00 pm through Accelerated Labs. Other community partners continue to provide testing, including Aspirus Health, Marshfield Clinic, Bridge Community Health Clinic, and various pharmacies. Partners are reporting that testing volume continues to decrease.

COVID-19 mRNA Vaccines: The Science Behind the Shots

Edward Belongia, MD

Center for Clinical Epidemiology & Population Health
Marshfield Clinic Research Institute

April 12, 2022

Marshfield Clinic Health System

Outline

- Coronavirus and COVID-19 pandemic
- Virus evolution and immunity
- Vaccine development and regulatory review
- Vaccine effectiveness
- Vaccine safety monitoring
- Misinformation and vaccine hesitancy

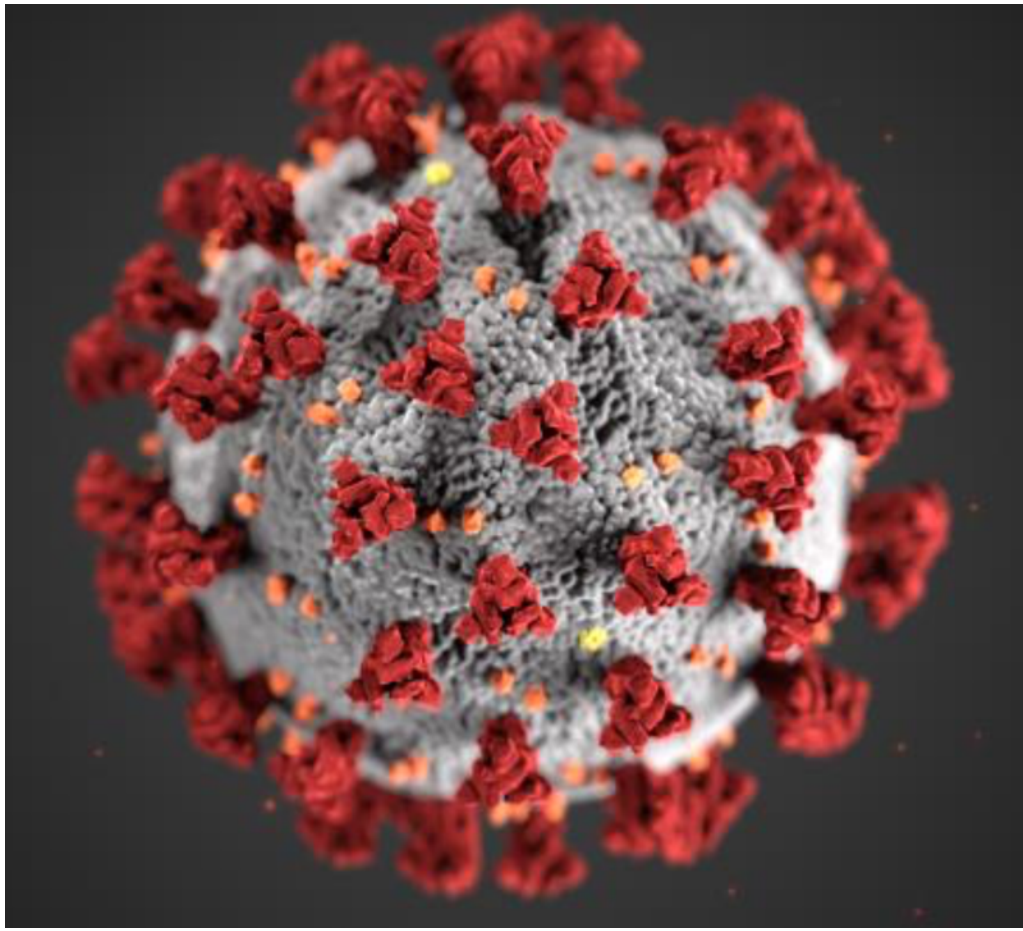
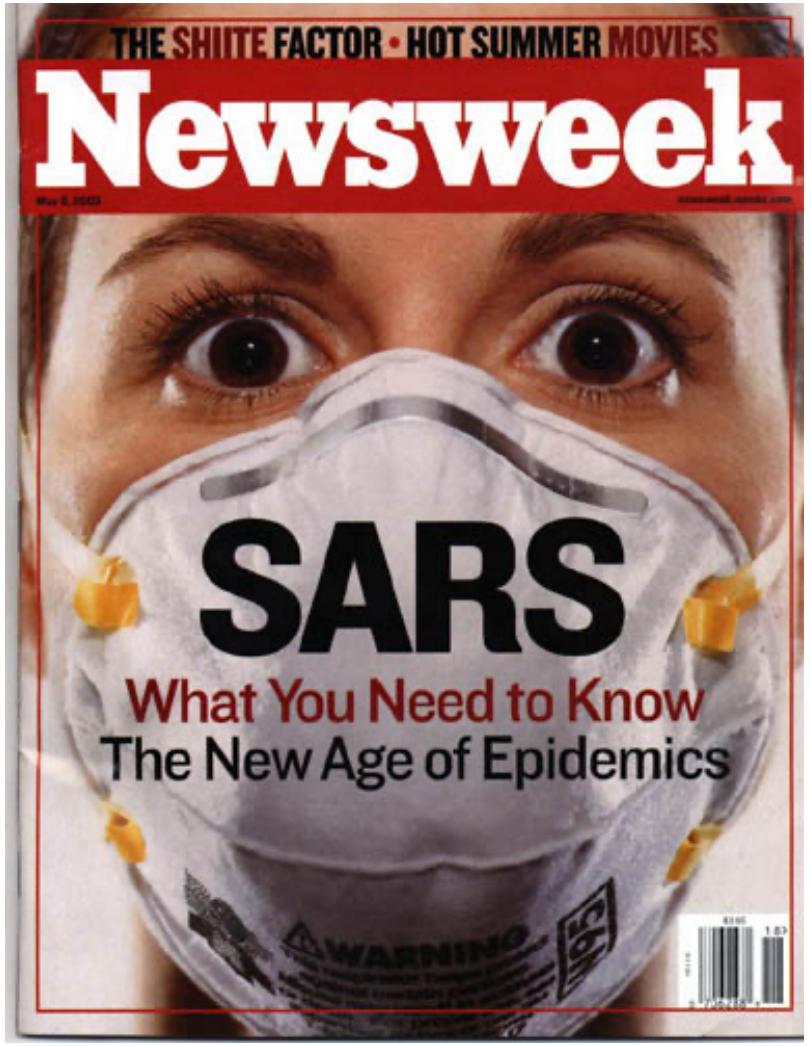


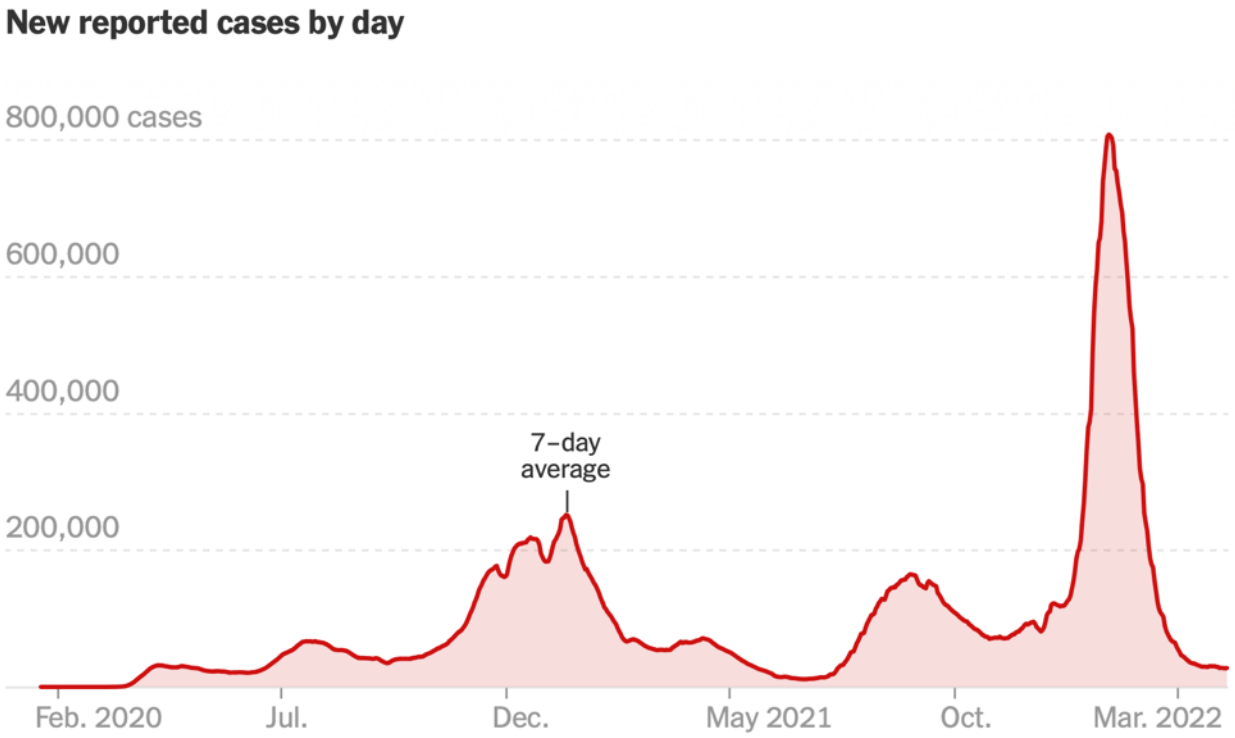
Image Credit: Centers for Disease Control and Prevention

Brief History of Coronavirus Disease

- 4 subtypes cause mild seasonal respiratory illness
- Many coronaviruses circulate in bats and other animals
- **2003**: SARS epidemic in 28 countries
    - >8000 cases and 774 deaths (15% case fatality)
- **2012**: Middle Eastern Respiratory Syndrome (MERS)
- **Dec 2019**: Novel coronavirus in Wuhan, China. Global health emergency declared January 30, 2020.



Current Status: COVID-19 in US



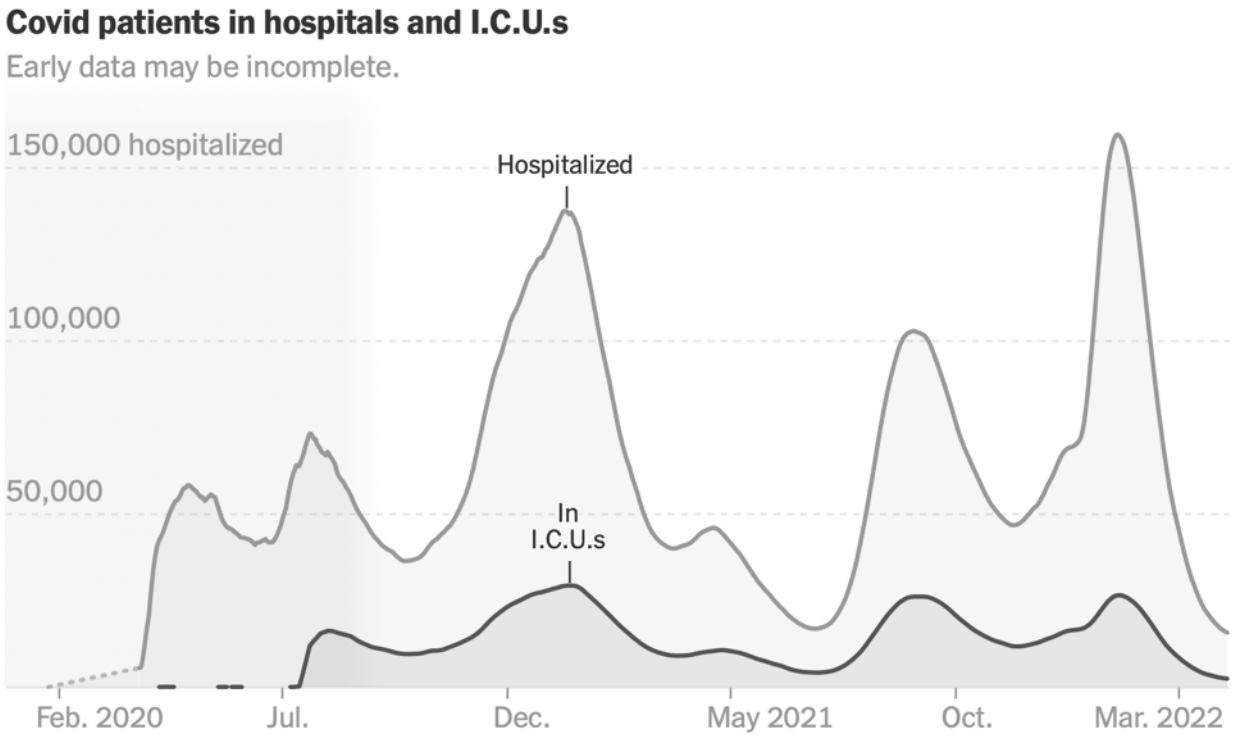
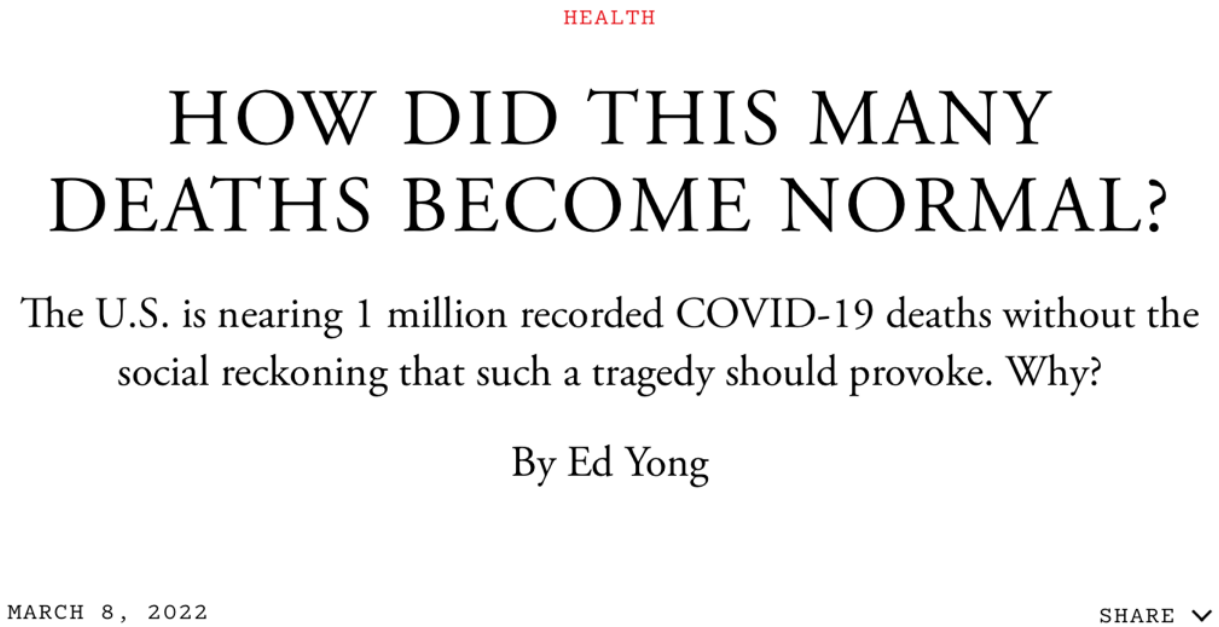


Image Credit: www.nytimes.com/interactive/2021/us/covid-cases.html

- **Approaching 1 million deaths in US and > 6 million globally**
- **Actual COVID-related deaths likely higher**
- **3rd leading cause of death in US**



HEALTH

HOW DID THIS MANY DEATHS BECOME NORMAL?

The U.S. is nearing 1 million recorded COVID-19 deaths without the social reckoning that such a tragedy should provoke. Why?

By Ed Yong

MARCH 8, 2022

SHARE

https://www.theatlantic.com/health/archive/2022/03/covid-us-death-rate/626972/

9x Increased Risk of Death in Unvaccinated (Jan 2022)

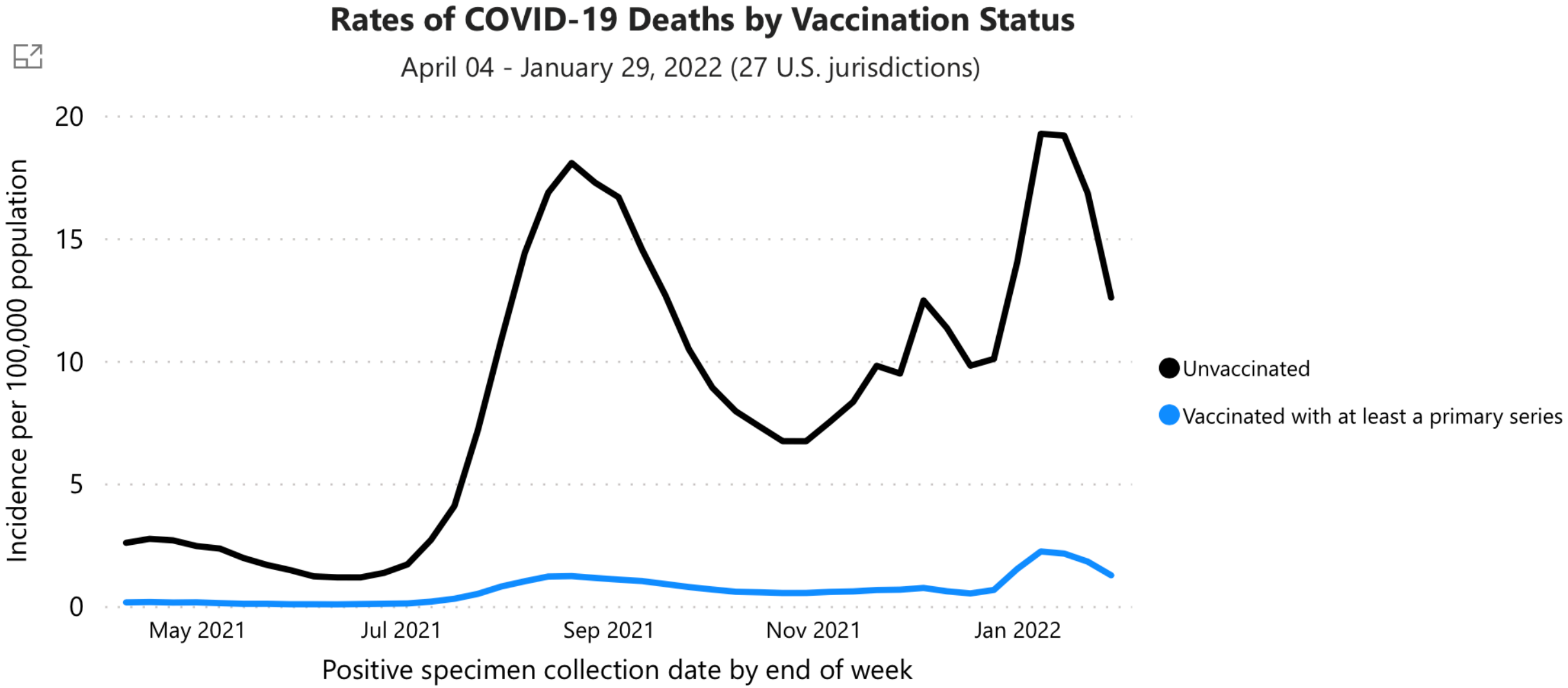
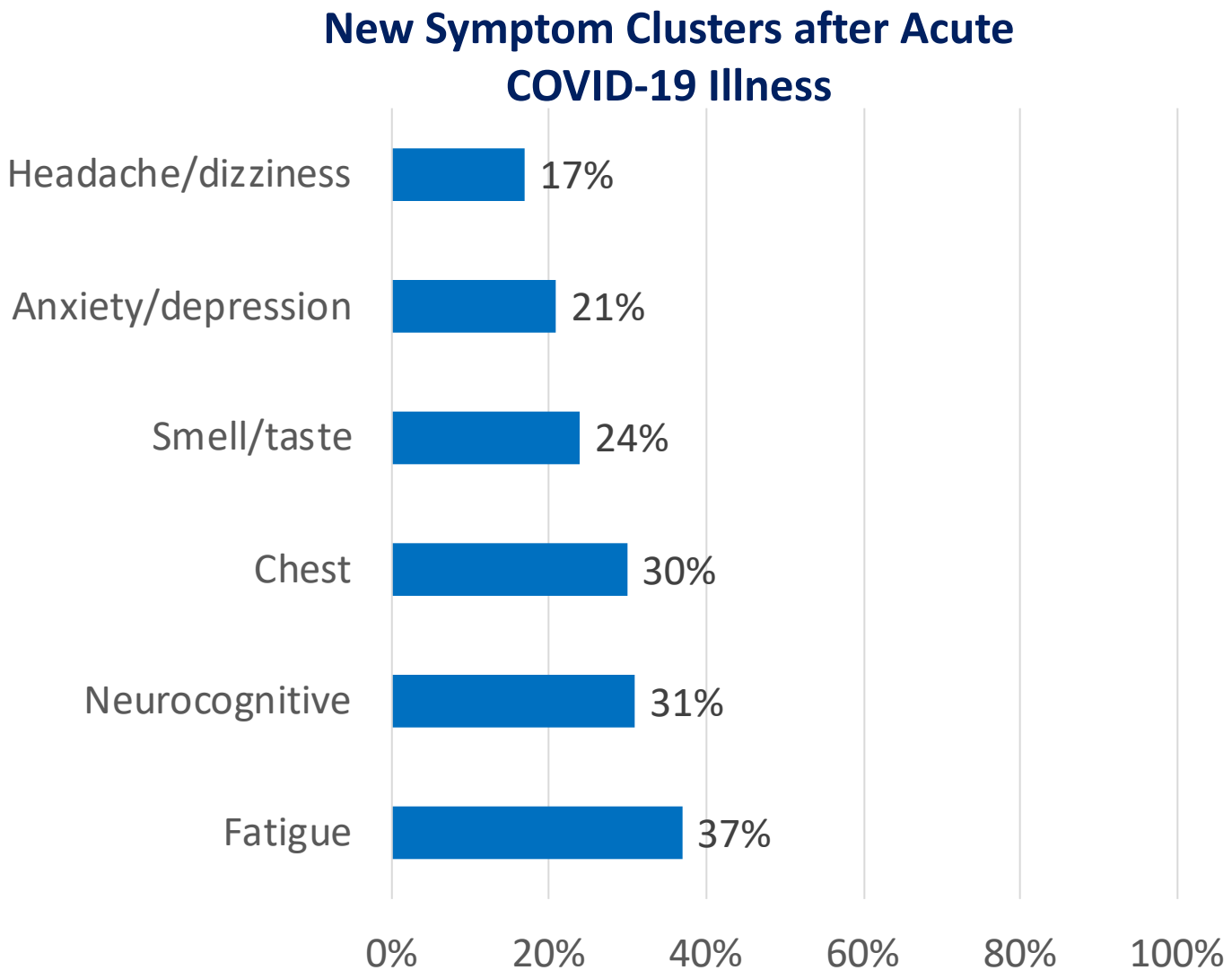


IMAGE CREDIT: covid.cdc.gov/covid-data-tracker/#rates-by-vaccine-status

Long COVID

- Cohort study of 11,710 adults 18-65 with PCR-confirmed COVID-19
- Baseline symptom survey and follow-up at 6-12 months (mean 8.5 mo)
- Long term symptoms occur even in young and middle-age adults with mild acute COVID-19 illness



Peter RS. Preprint March 15, 2022
https://www.medrxiv.org/content/10.1101/2022.03.14.22272316v1

Global SARS-CoV-2 Variant Circulation

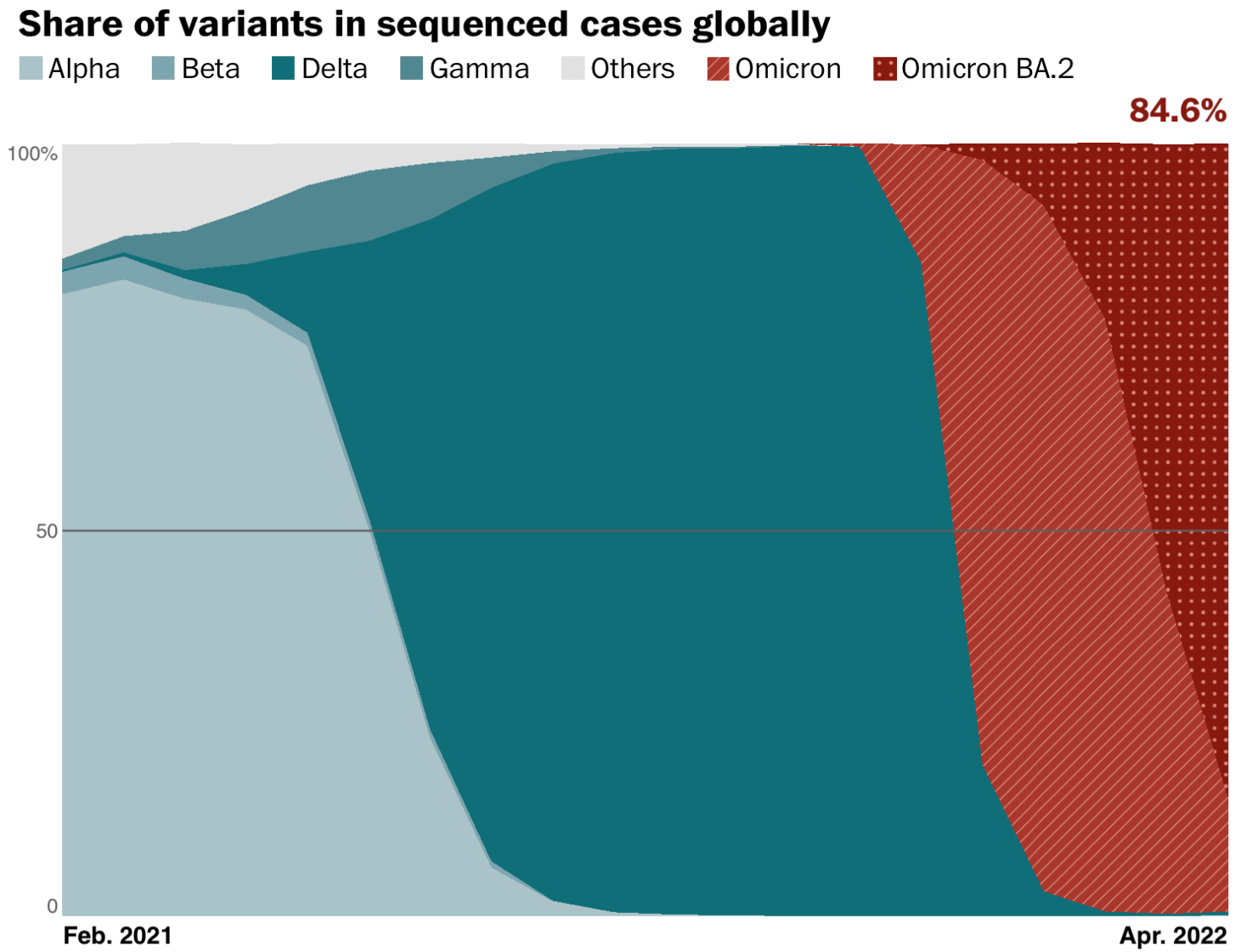


Image Credit: Washington Post, April 6, 2022
www.washingtonpost.com/health/interactive/2021/tracker-omicron-spread/?itid=sf_coronavirus_dontmiss

COVID-19 in Children

- Similar risk of infection compared to adults
- Mostly mild illness, but increased hospital admission rate during Omicron wave
- Profound social impact and educational disruption
- Transmission to older people at higher risk for severe COVID-19

FIGURE. Weekly COVID-19–associated hospitalization rates* among children and adolescents aged 0–17 years, by age group — COVID-NET, 14 states,† July 3, 2021–January 22, 2022

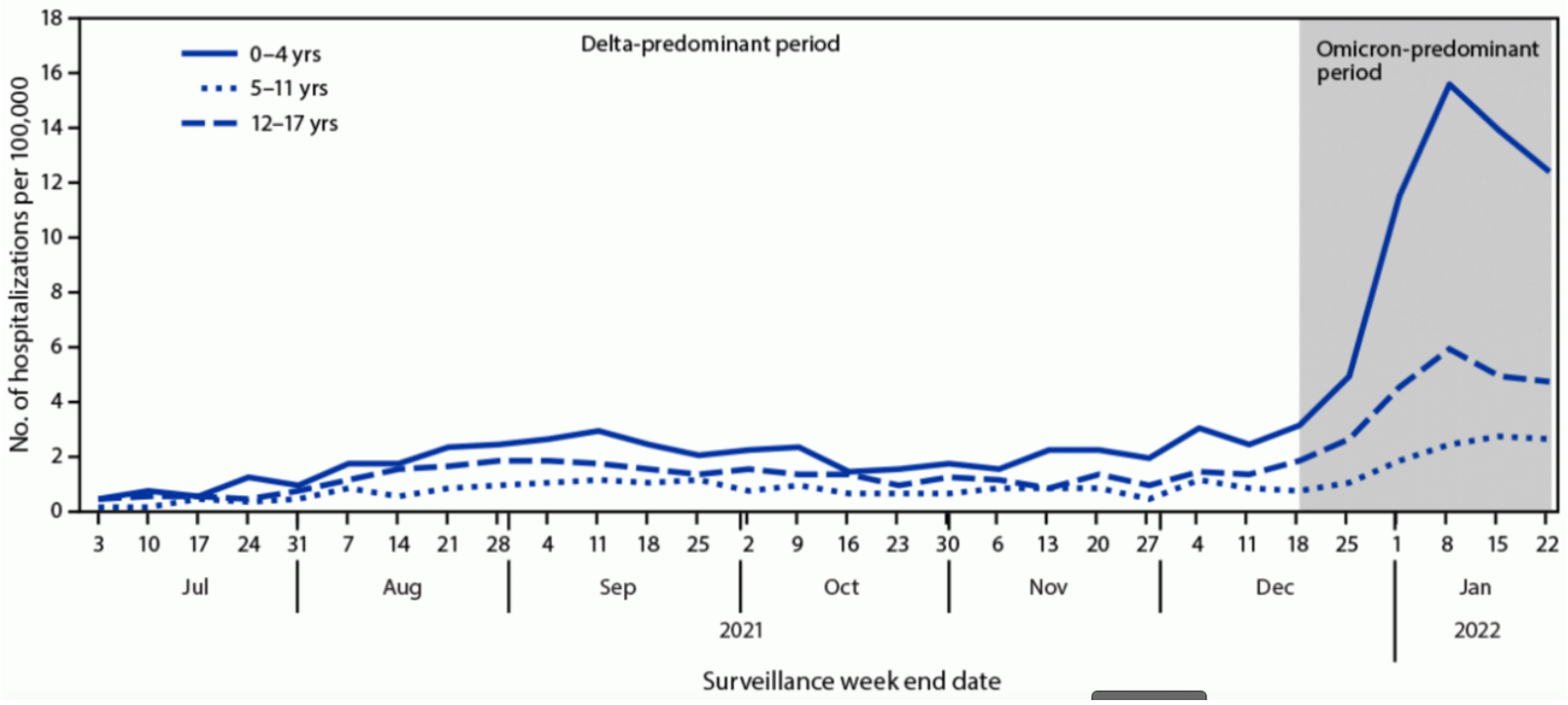
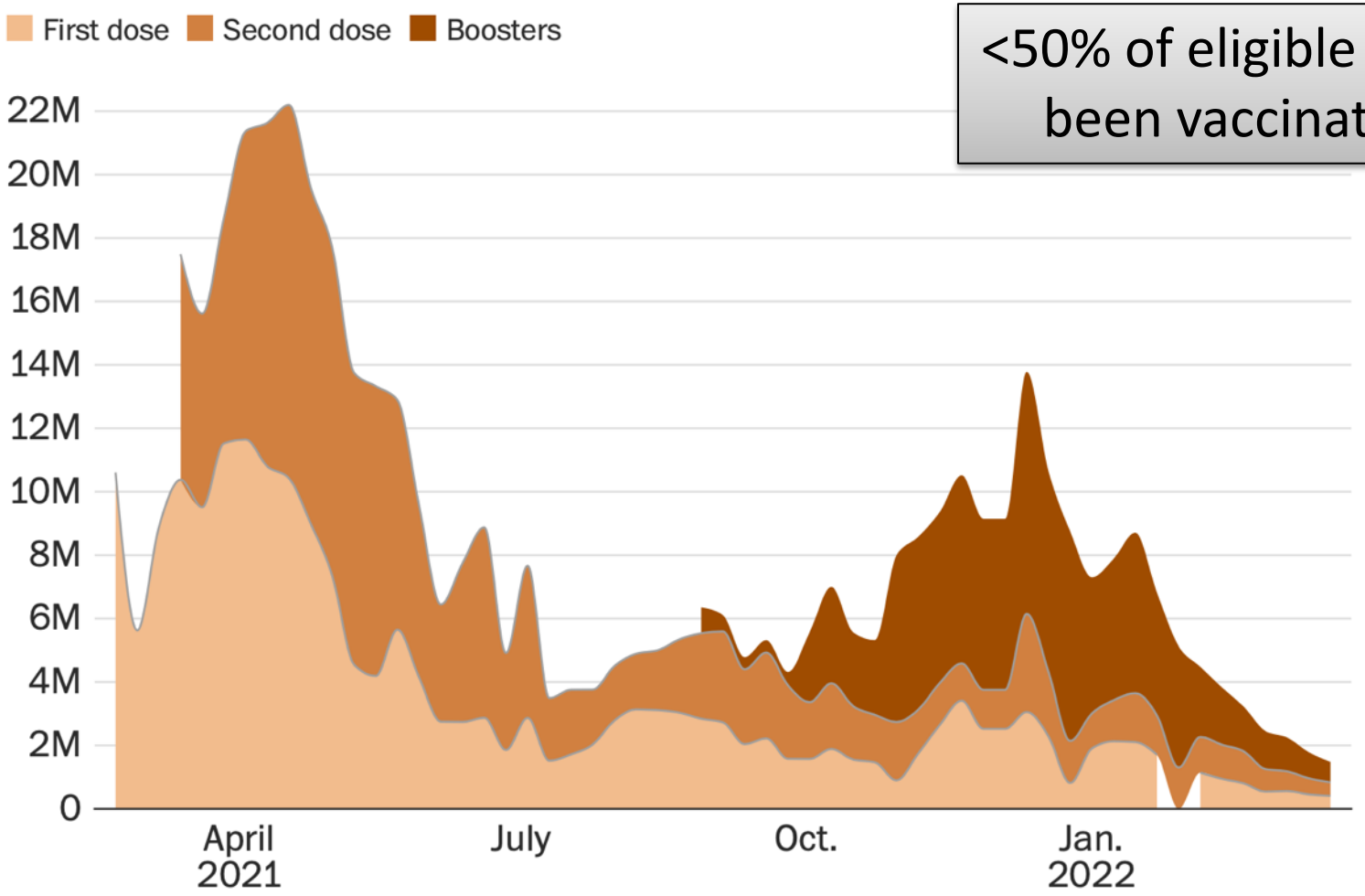


Image Credit: Marks KJ. MMWR, Feb 18, 2022

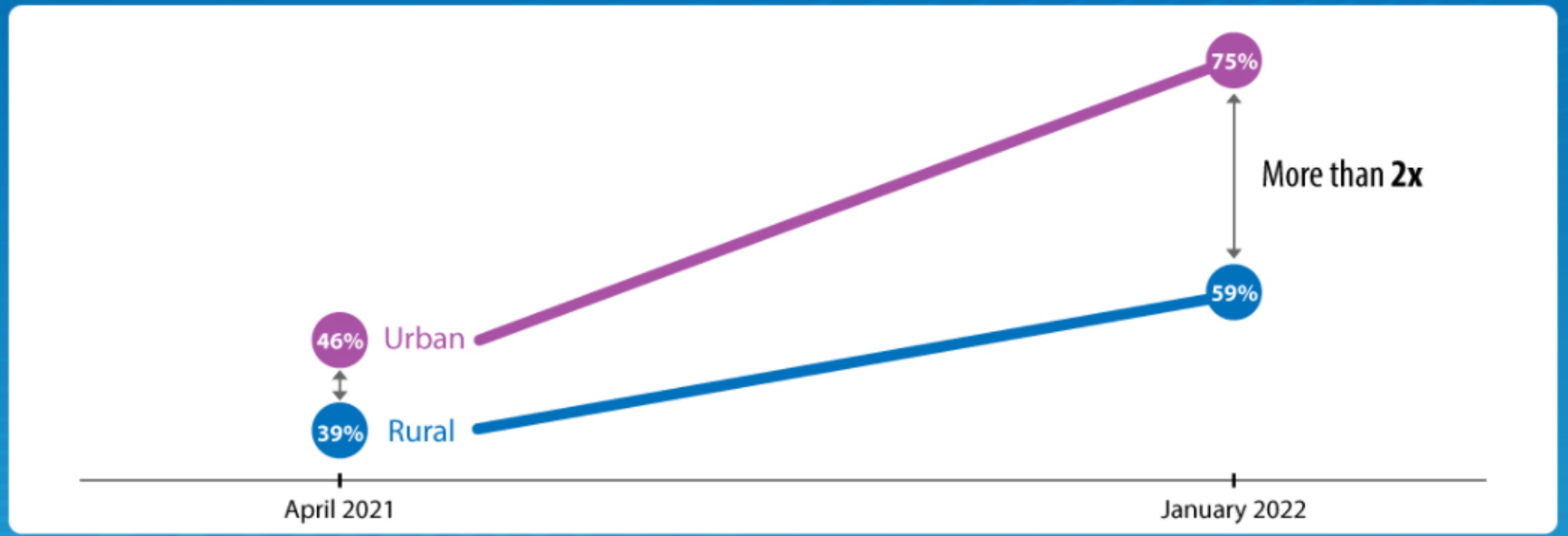
COVID-19 vaccinations are declining



<50% of eligible US population has been vaccinated and boosted

Image Credit: www.washingtonpost.com/health/2022/03/25/covid-boosters-vaccines/

The gap in COVID-19 vaccination coverage between urban and rural areas* has **more than doubled** since April 2021



Addressing barriers to vaccination in rural areas can help achieve vaccine equity and decrease COVID-19 illness and death

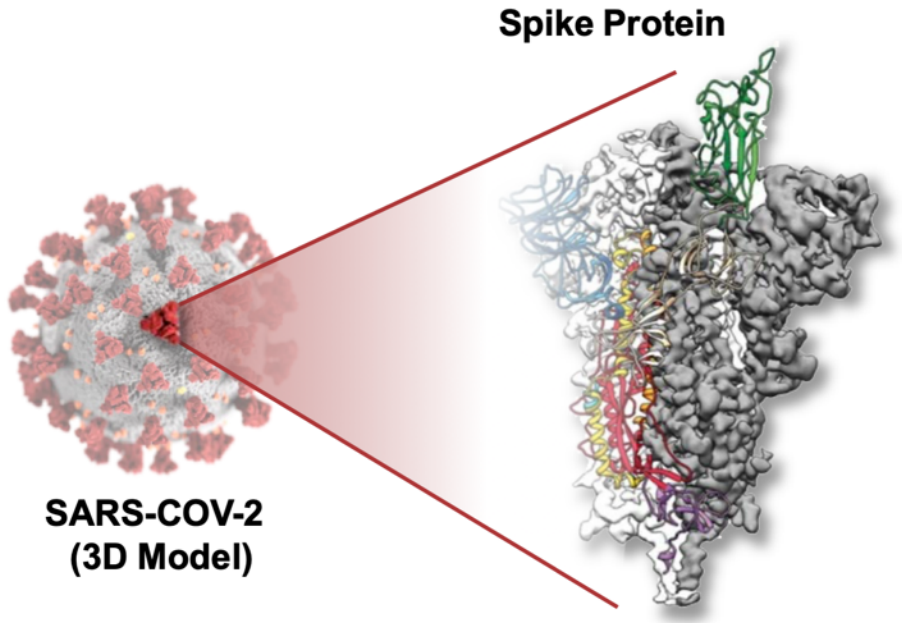
* Among people aged 5 years and older who received a dose of a COVID-19 vaccine during December 14, 2020–January 31, 2022

bit.ly/MMWR7109a2

MMWR

SARS-CoV-2 Virus Evolution and Immunity

Spike Protein Triggers Primary Immune Response



1. Wrapp et al., 2020, *Science*.

Image Credit: K Jansen, Pfizer. FDA VRBPAC Meeting Dec 10, 2020
3D structure from Fig 1, Wrapp D, Science, March 13, 2020

Major Variants: Delta and Omicron

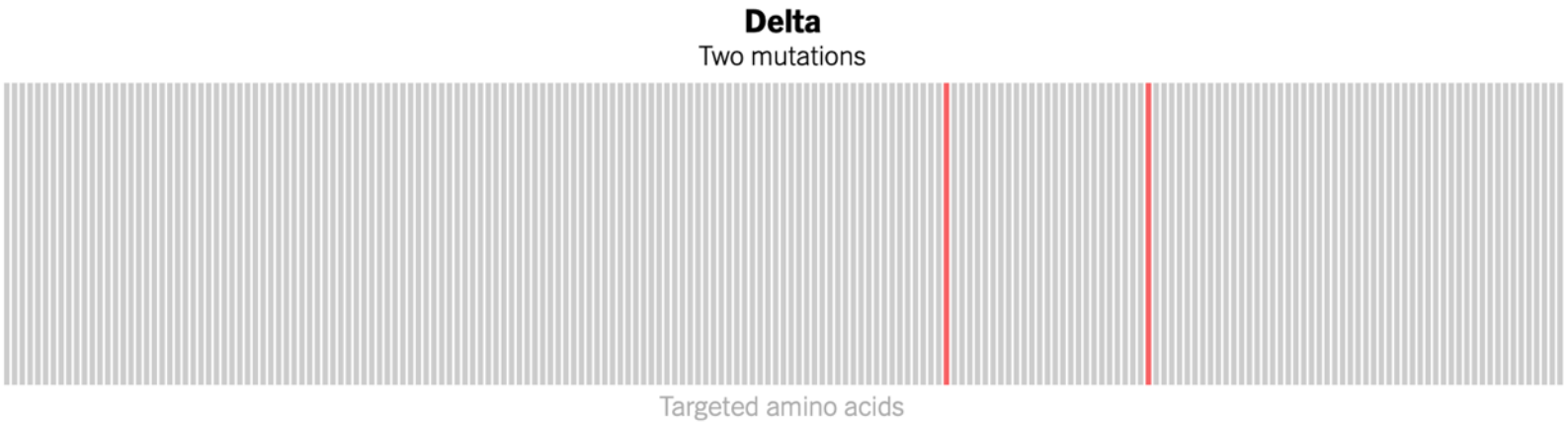


Image Credit: Sarah Cobey et al, New York Times, March 28, 2022
www.nytimes.com/interactive/2022/03/28/opinion/coronavirus-mutation-future.html

Variants have evolved to be more infectious and escape antibodies

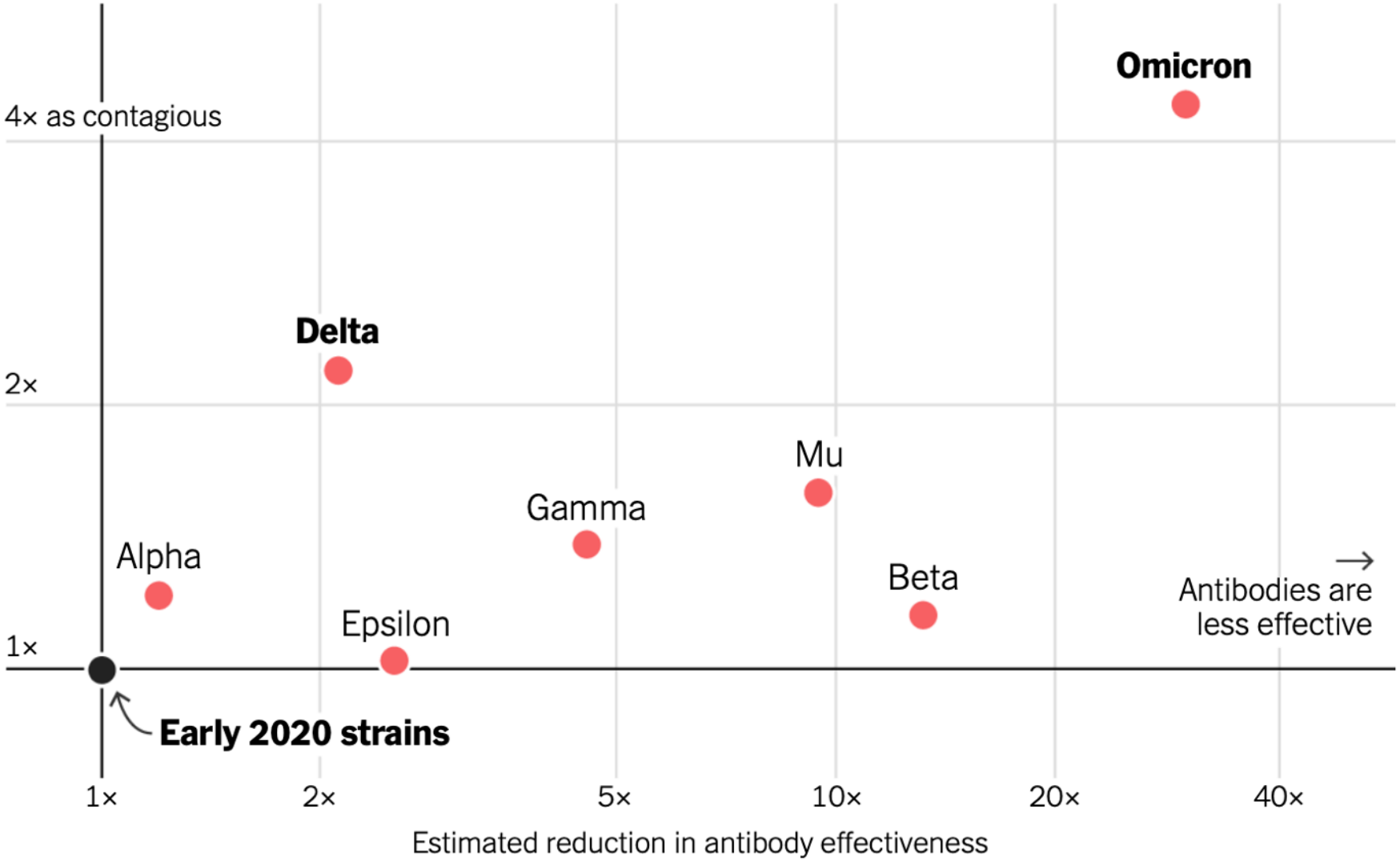


Image Credit: Sarah Cobey et al, New York Times, March 28, 2022
www.nytimes.com/interactive/2022/03/28/opinion/coronavirus-mutation-future.html

Vaccine Development and Regulatory Review

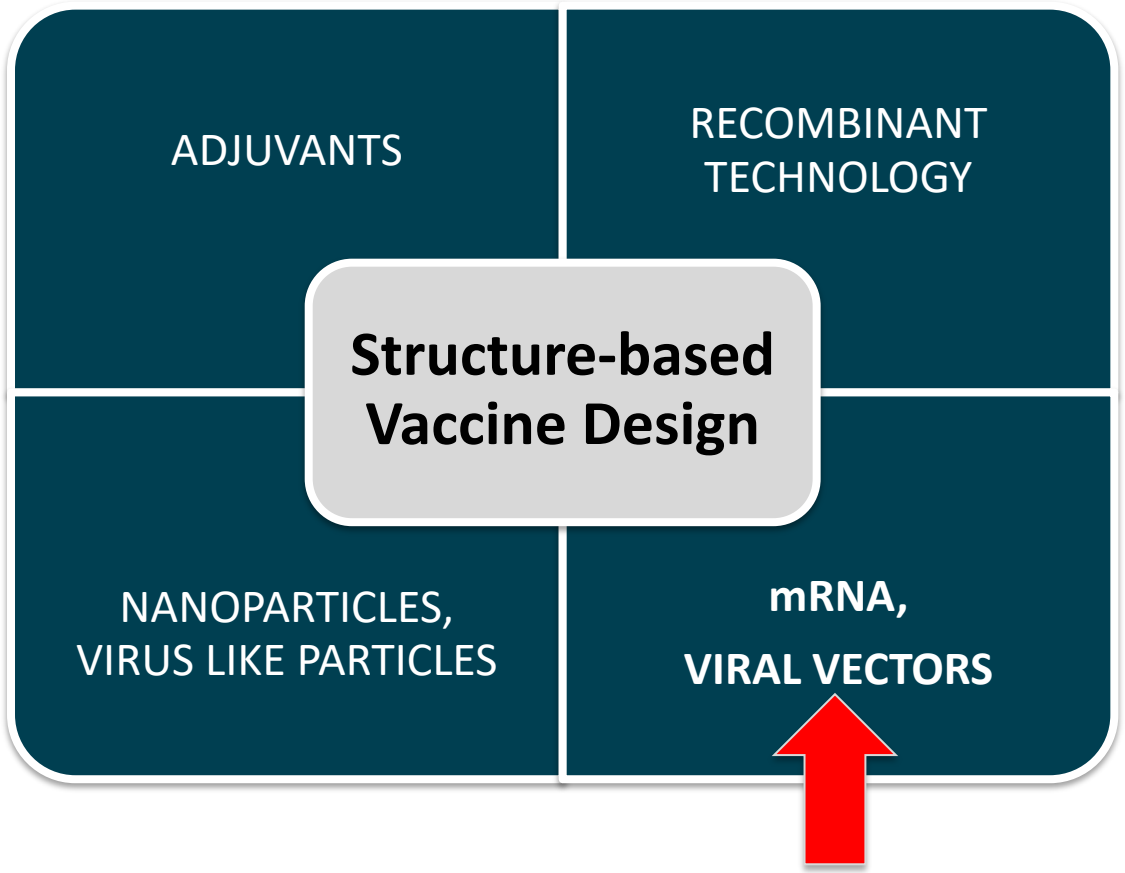
Vaccine Platforms and Strategies

Inactivated

- Rabies
- Influenza
- Polio
- Hepatitis A

Live attenuated

- Smallpox
- MMR
- Varicella
- Yellow fever



Messenger RNA (mRNA) Vaccines

- mRNA is genetic ‘blueprint’ to make proteins.
- Synthetic mRNA is delivered to cells in lipid nanoparticle.
- Cells translate mRNA into spike protein that triggers immune response.
- mRNA is rapidly degraded and does not replicate (unlike viral infections)

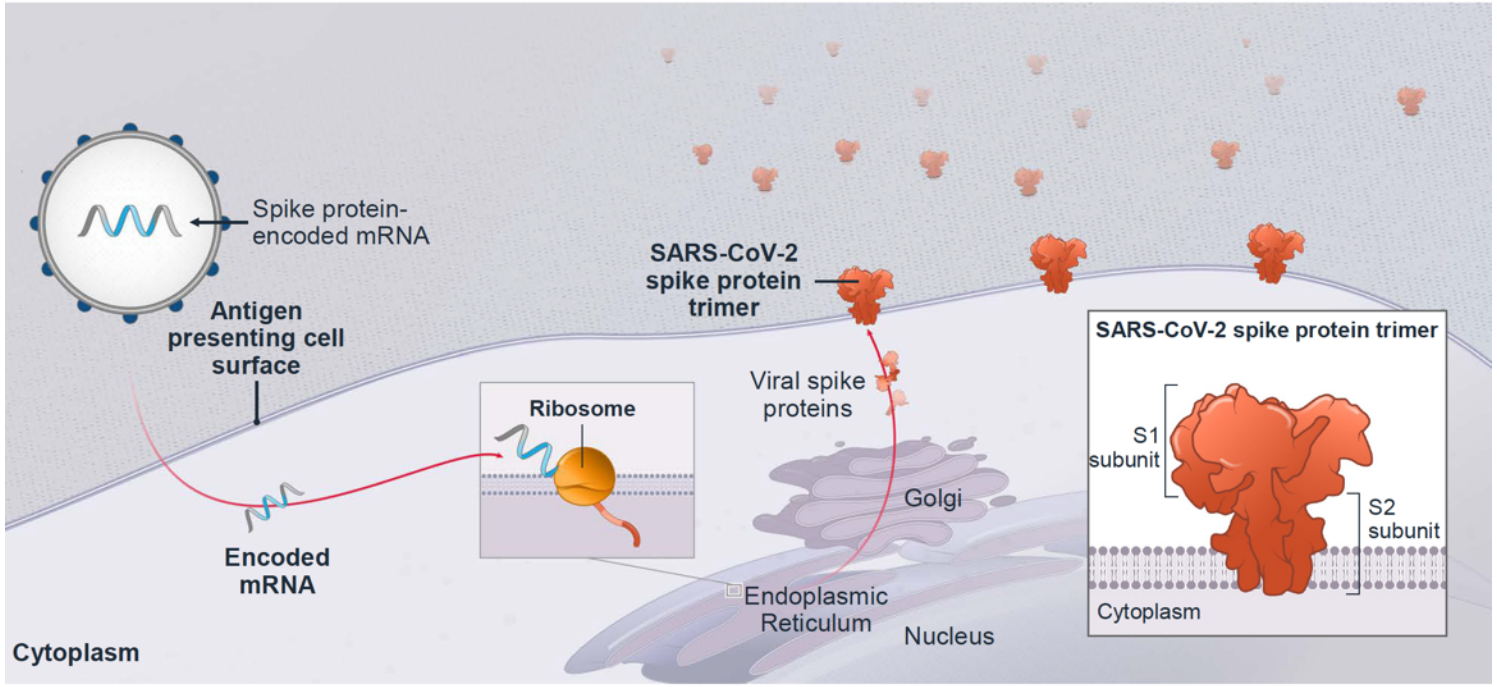


Image Credit: M. Moore, Moderna. FDA VRBPAC Meeting Dec 17, 2020

Early Challenges

- mRNA injection triggered inflammatory reactions
- mRNA rapidly degraded after injection

Solutions

- Naturally-occurring uridine modification reduced inflammation and improved RNA stability
- Lipid nanoparticle delivery system

Weissman and research partner Katalin Kariko in an undated photo. Their research on mRNA undergirds two coronavirus vaccines. (Courtesy of Katalin Kariko)

Image Credit: Washington Post, Oct 1, 2021
www.washingtonpost.com/health/2021/10/01/katalin-kariko-covid-vaccines/

Immunity August 2005:

Immunity, Vol. 23, 165–175, August, 2005, Copyright ©2005 by Elsevier Inc. DOI 10.1016/j.immuni.2005.06.008

Suppression of RNA Recognition by Toll-like Receptors: The Impact of Nucleoside Modification and the Evolutionary Origin of RNA

Katalin Karikó,[1,*] Michael Buckstein,[2] Houping Ni,[2] and Drew Weissman[2]

thetic antiviral compound R-848 (Jurk et al., 2
a natural ligand has not been identified.

Molecular Therapy Nov 2008:

Incorporation of Pseudouridine Into mRNA Yields Superior Nonimmunogenic Vector With Increased Translational Capacity and Biological Stability

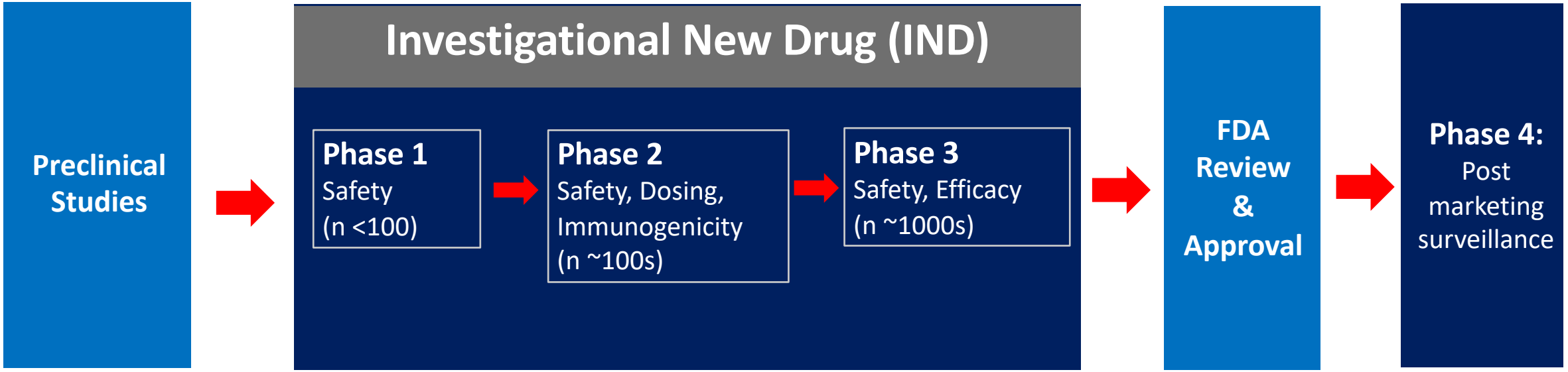
Katalin Karikó[1], Hiromi Muramatsu[1], Frank A Welsh[1], János Ludwig[2], Hiroki Kato[3], Shizuo Akira[3] and Drew Weissman[4]

Nature March 2017:

Zika virus protection by a single low-dose nucleoside-modified mRNA vaccination

Norbert Pardi[1*], Michael J. Hogan[1*], Rebecca S. Pelc[2], Hiromi Muramatsu[1], Hanne Andersen[3], Christina R. DeMaso[2], Kimberly A. Dowd[2], Laura L. Sutherland[4], Richard M. Scearce[4], Robert Parks[4], Wendeline Wagner[3], Alex Granados[3], Jack Greenhouse[3], Michelle Walker[3], Elinor Willis[5], Jae-Sung Yu[4], Charles E. McGee[4], Gregory D. Sempowski[4], Barbara L. Mui[6], Ying K. Tam[6], Yan-Jang Huang[7], Dana Vanlandingham[7], Veronica M. Holmes[1], Harikrishnan Balachandran[8], Sujata Sahu[8], Michelle Lifton[8], Stephen Higgs[7], Scott E. Hensley[5], Thomas D. Madden[6], Michael J. Hope[6], Katalin Karikó[9], Sampa Santra[8], Barney S. Graham[10], Mark G. Lewis[3], Theodore C. Pierson[2], Barton F. Haynes[4] & Drew Weissman[1]

Vaccine Development and Regulatory Pathway



SAFETY

EFFICACY

MANUFACTURING CONSISTENCY

Emergency Use Authorization (EUA) vs. Licensure

Emergency Use Authorization

- Declared emergency where benefits outweigh risks
- FDA reviews application and re-analyzes data
- Requires safety follow-up for 2 months
- Requires efficacy >50%

Biologic License Application

- Expanded clinical trial data with longer safety and efficacy follow-up (6 months)
- Additional review of manufacturing practices and facilities
- Re-analysis of trial data by FDA

Independent FDA and CDC advisory panels (VRBPAC and ACIP) conduct transparent and rigorous review of scientific evidence for safety/efficacy

Accelerated COVID-19 Vaccine Development

- Prior research on SARS-like viruses and immune response
- mRNA vaccines already in development
- Public-private partnerships and industry collaboration
- Combined clinical trial phases (phase 2/3)
- Government support for manufacturing scale-up before human trials completed
- **11 months from virus sequence to FDA authorization**

December 16, 2020

Licensed Vaccines

Manufacturer	Type	Dose & Administration	Population	Approval Date
Pfizer/BioNTech	mRNA (Comirnaty)	Two 30 µg doses 3 weeks apart	16+ years	Aug 23, 2021
Moderna	mRNA (Spikevax)	Two 100 µg doses 4 weeks apart	18+ years	Jan 31, 2022

Vaccines Available Under Emergency Use Authorization

Manufacturer	Type	Dose & Administration	Population
Pfizer/BioNTech	mRNA	Two 30 µg doses 3 weeks apart	Ages 5-11 (10 µg) & 12-15 years; adult booster (mix & match)
Moderna	mRNA	Two 100 µg doses 4 weeks apart	12-17 years; adult booster (mix & match)
Janssen (J&J)	Adenovirus vector	Single IM dose	18+ years (additional mRNA dose recommended)

Vaccine Effectiveness

Measuring Vaccine Effectiveness

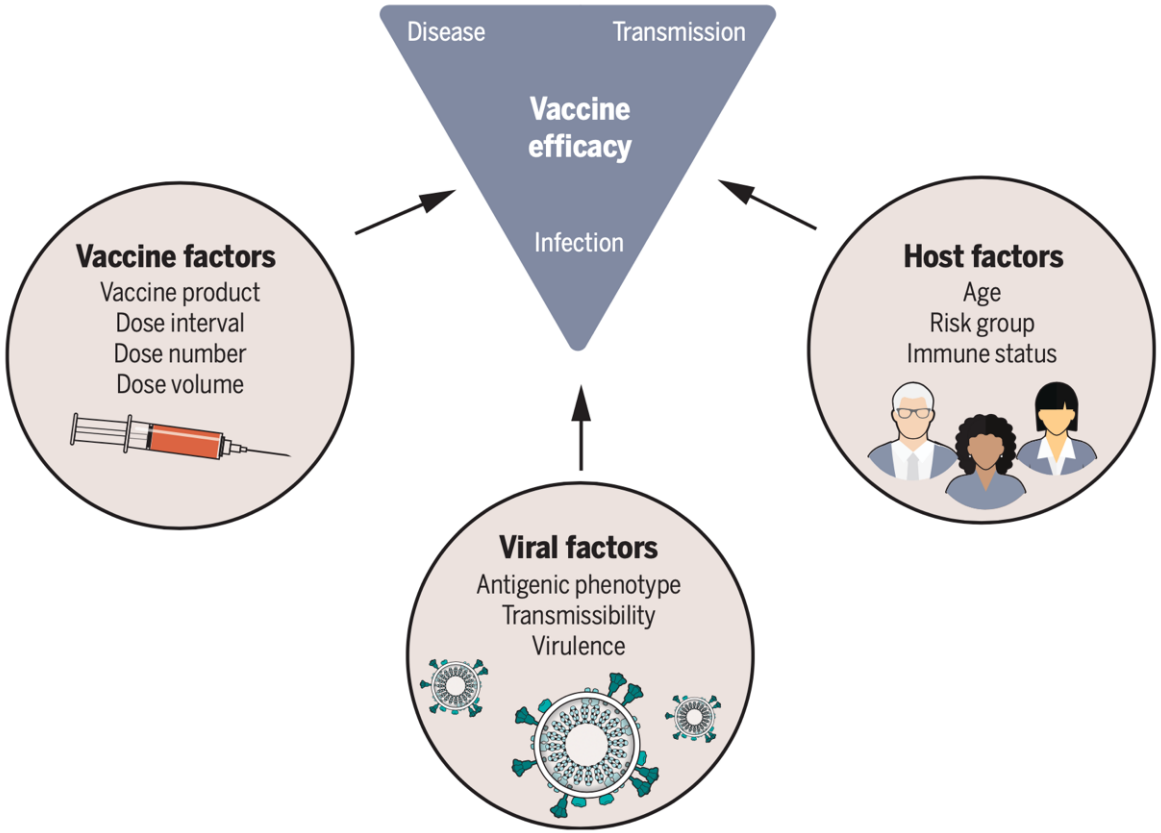


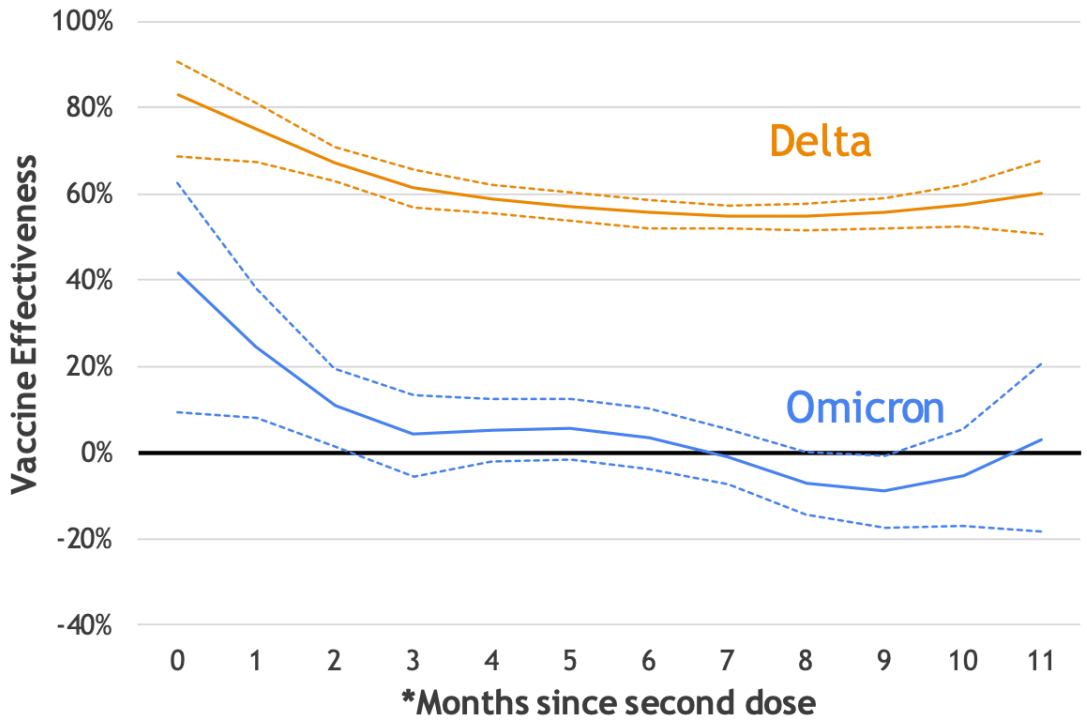
Image Credit: Figure 4, Koelle K. Science, March 11, 2022

Vaccine Effectiveness Endpoints

- Symptomatic SARS-CoV-2 infection
- Urgent care or ED visit
- Hospital admission
- Life-threatening illness (ICU admission or mechanical ventilation)
- Death

Endpoint: infection | Population: adults

ICATT: Pfizer-BioNTech 2-dose VE against symptomatic infection by variant and time since 2nd dose receipt, adults aged ≥18 years, Dec 10, 2021-Jan 1, 2022



- VE for 2 doses of Pfizer-BioNTech against symptomatic Omicron infection:
  - Starts lower than 2-dose VE against Delta infection
  - No longer significant by 3 months after second dose receipt

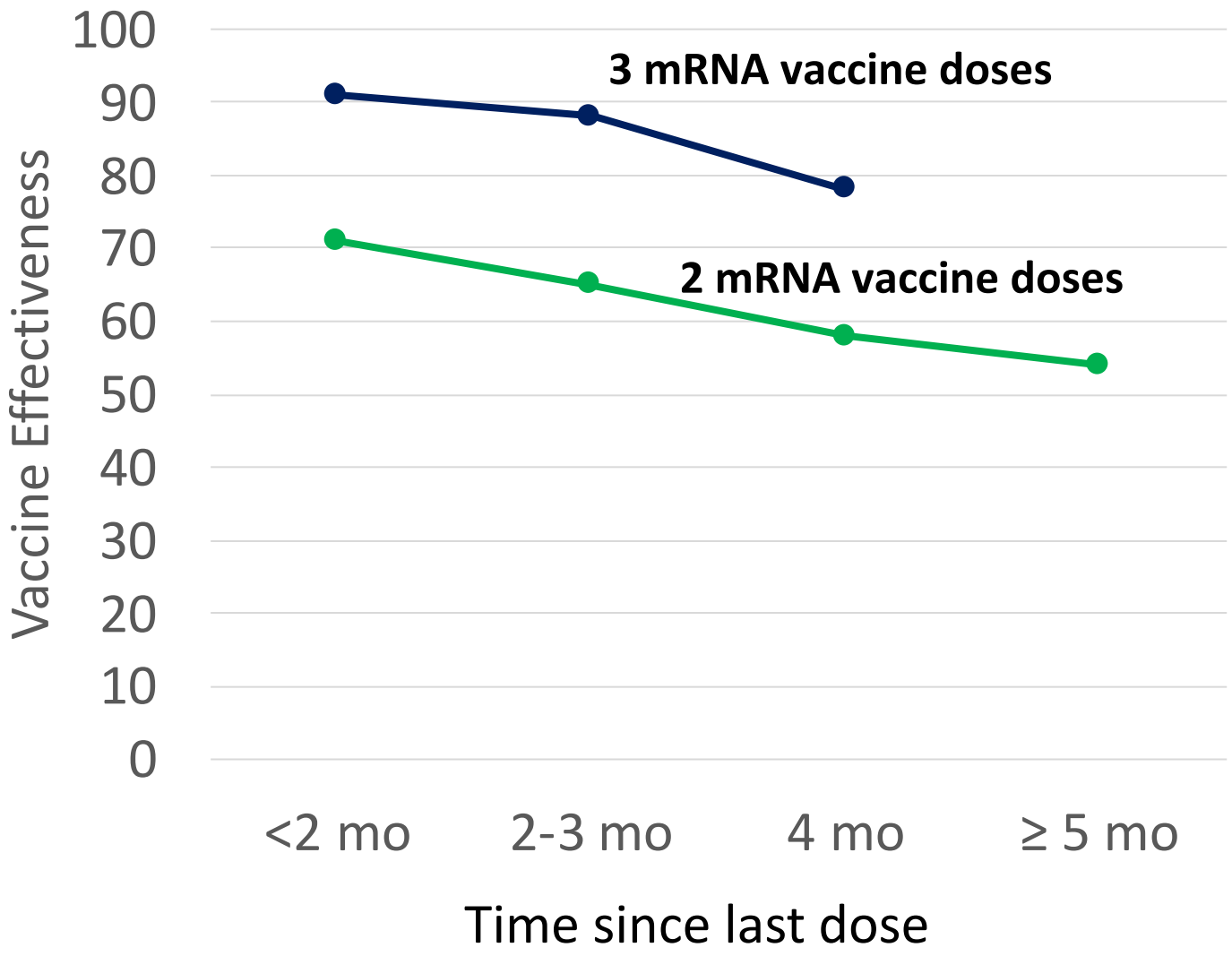
VE for Delta
95% CI for Delta
VE for Omicron
95% CI for Omicron

*Vaccination dose dates are collected as month and year. Month 0 represents tests in the same month as 2nd dose (at least 2 weeks after 2nd dose). For all months greater than or equal to 1 the value represents the difference between calendar month of test and calendar month of 2nd dose receipt (at least 2 weeks after 2nd dose).

Accorsi EK, Britton A, Fleming-Dutra KE, et al. Association Between 3 Doses of mRNA COVID-19 Vaccine and Symptomatic Infection Caused by the SARS-CoV-2 Omicron and Delta Variants. JAMA. 2022;327(7):639-651. doi:10.1001/jama.2022.0470

Image Credit: R. Link-Gelles (CDC). FDA VRBPAC Meeting, April 6, 2022

Vaccine Effectiveness Against Hospitalization—Omicron Period



	Vaccine Effectiveness (95% CI)
2 doses	55% (50-60)
3 doses	88% (86-90)

Ferdinands JM. MMWR Feb 18, 2022

Hybrid Immunity and "Natural Immunity"

- SARS-CoV-2 infection provides substantial protection for several months, but antibody response varies
- Vaccination after infection strongly boosts neutralizing antibody levels (hybrid immunity)
- Hybrid immunity increases protection against variants
- No safety concerns
- Increased risk of reinfection in people who remain unvaccinated
  - **82% vaccine effectiveness** against **reinfection** in people 16-64 years*
  - **60% effectiveness** in people 65+*

TABLE 2. Association of SARS-CoV-2 reinfection* with COVID-19 vaccination status — Kentucky, May–June 2021

Vaccination status	No. (%) Case-patients	No. (%) Control participants	OR (95% CI)†
Not vaccinated	179 (72.8)	284 (57.7)	2.34 (1.58–3.47)
Partially vaccinated¶	17 (6.9)	39 (7.9)	1.56 (0.81–3.01)
Fully vaccinated§	50 (20.3)	169 (34.3)	Ref
Total	**246 (100)**	**492 (100)**	—

Image Credit: Cavanaugh AM. MMWR, August 13, 2021 https://www.cdc.gov/mmwr/volumes/70/wr/mm7032e1.htm

*Hammerman A. New Eng J Med, Feb 16, 2022

Booster Increases Vaccine Effectiveness Against Hospitalization

- Case-control study at 21 US hospitals
- Reduced 2-dose vaccine effectiveness against Omicron vs Delta variant
- 3rd dose restored high protection (86%) against Omicron hospitalization

Delta period (4 July to 25 December 2021) - 3 doses			
Overall	61/2932 (2.1)	333/1453 (22.9)	94 (92 to 95)
Immunocompromised	45/330 (13.6)	165/375 (44.0)	87 (78 to 92)
Immunocompetent	16/2602 (0.6)	168/1078 (15.6)	97 (95 to 98)
Omicron period (26 December to 14 January 2022) - 2 doses			
Overall	211/479 (44.1)	158/247 (64.0)	65 (51 to 75)
Immunocompetent only	156/382 (40.8)	116/191 (60.7)	66 (49 to 77)
Omicron period (26 December to 14 January 2022) - 3 doses			
Overall	80/348 (23.0)	135/224 (60.3)	86 (77 to 91)
Immunocompetent only	39/265 (14.7)	76/151 (50.3)	86 (75 to 92)

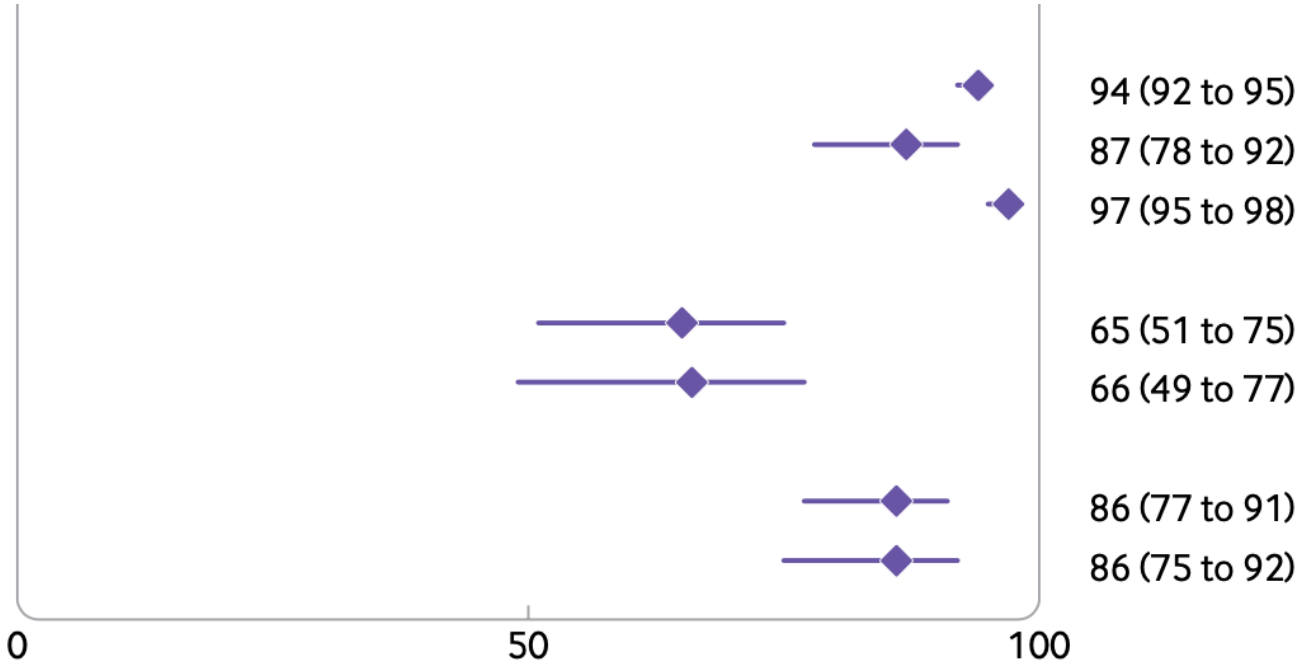


Image Credit: Figure 2, Lauring AS. BMJ, Feb 24, 2022

Endpoint: hospitalization | Population: adults

IVY: VE against critical illness or in-hospital death, by variant, Jul 4, 2021-Jan 24, 2022

	No. vaccinated cases/ Total no. case (%)	No. vaccinated controls/ Total no. controls (%)	Adjusted VE % (95% CI)
Pre-Delta, 2 doses	13/259 (5.0)	893/1,738 (51.4)	95 (90-97)
Delta	235/1,027 (22.9)	2,741/3,865 (70.9)	89 (87-91)
2 doses, median 159 days after dose 2	218/1,010 (21.6)	2,402/3,526 (68.1)	88 (86-90)
3 doses, median 35 days after dose 3	17/809 (2.1)	339/1,463 (23.2)	95 (91-97)
Omicron	59/154 (38.3)	396/501 (77.0)	86 (79-91)
2 doses, median 256 days after dose 2	46/141 (32.6)	193/308 (62.7)	79 (66-87)
3 doses, median 60 days after dose 3	13/108 (12.0)	193/308 (62.7)	94 (88-97)

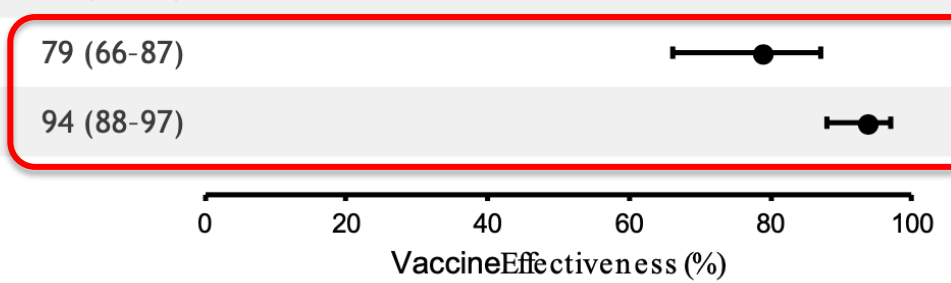


Image Credit: R. Link-Gelles (CDC). FDA VRBPAC Meeting, April 6, 2022

Booster Dose Effectiveness Against COVID-19 Death in Israel

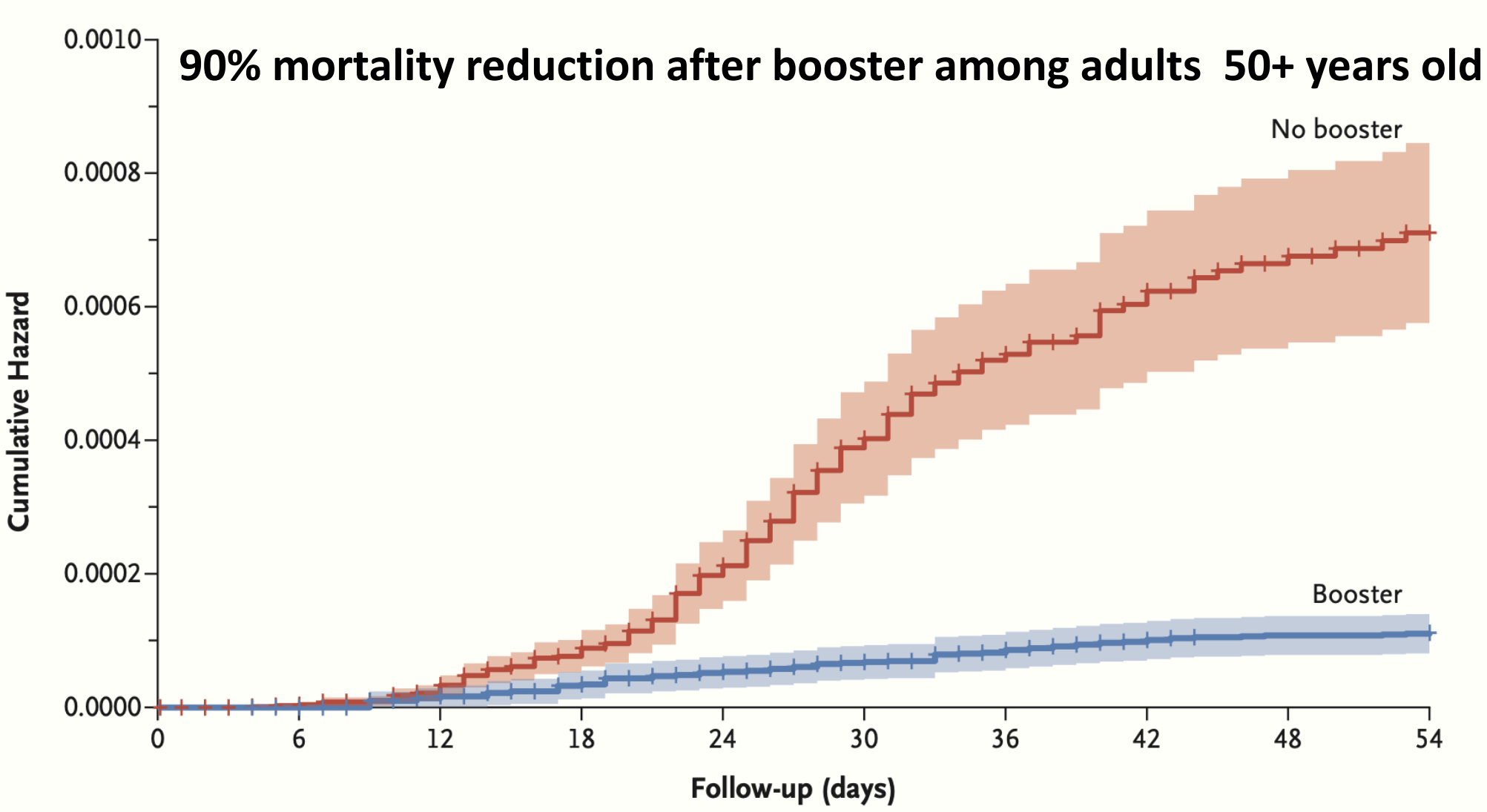


Image Credit: Figure 2, Arbel R. NEJM Dec 23, 2021

CDC Second Booster Dose Guidance

- Adults 50+ may receive 2nd booster dose of mRNA vaccine at least 4 months after first booster dose.
- People 12+ years old with moderate/severe immunodeficiency may receive 2nd booster dose at least 4 months after first booster dose.
- People 18-49 who received Janssen as primary vaccine and booster may receive second booster with mRNA vaccine (at least 4 months after first Janssen booster dose).

F.D.A. Allows Second Coronavirus Boosters for Everyone 50 and Older

People in the age group can get the additional shot at least four months after their first booster. Those 12 and older with certain immune deficiencies are also eligible.

Give this article

Many experts now acknowledge that the government's decision to authorize the first round of boosters saved lives during the Omicron wave this winter. Kenny Holston for The New York Times

Image Credit: www.nytimes.com/2022/03/29/us/politics/second-coronavirus-booster-shot.html

2nd Booster Effectiveness Against COVID-19 Death in Israel

78% mortality reduction after 4 doses vs 3 doses in people 60+

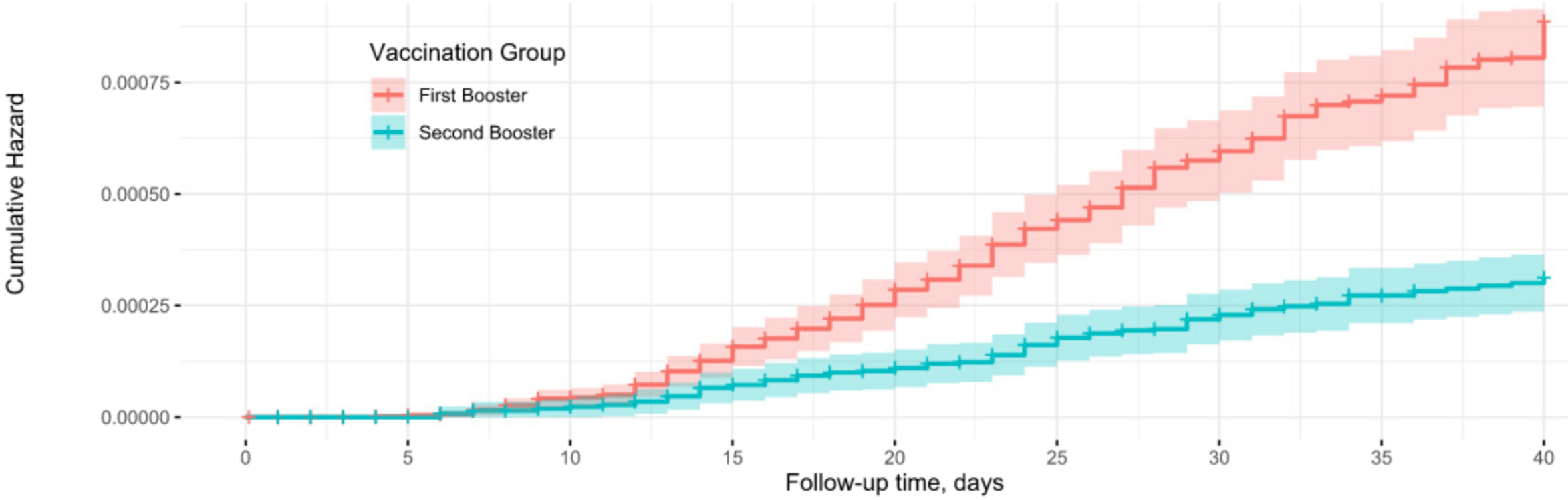


Image Credit: Figure 2, Arbel R. NEJM Dec 23, 2021

Vaccine Safety

COVID-19 Vaccine Safety

- **COVID-19 vaccine safety is tracked in near-real time by multiple monitoring systems.**
- Nearly 200 million Americans have been fully vaccinated without major safety concerns.
- **Real vaccine-related adverse events will be detected within 8 weeks after vaccine receipt.** There is no biological basis for adverse health effects to occur months or years later.
- mRNA vaccines are associated with increased risk of rare myocarditis, primarily in males under 40 and after 2nd dose.
- Janssen (J&J) vaccine has been associated with rare risk of serious blood clots (thrombotic thrombocytopenic syndrome) and Guillain-Barre syndrome.

Vaccine Adverse Event Reporting System (VAERS)

- Accepts reports from everyone
- Hypothesis generating system to identify possible safety concerns
- Not designed to assess causality
- Reporting bias and incomplete data

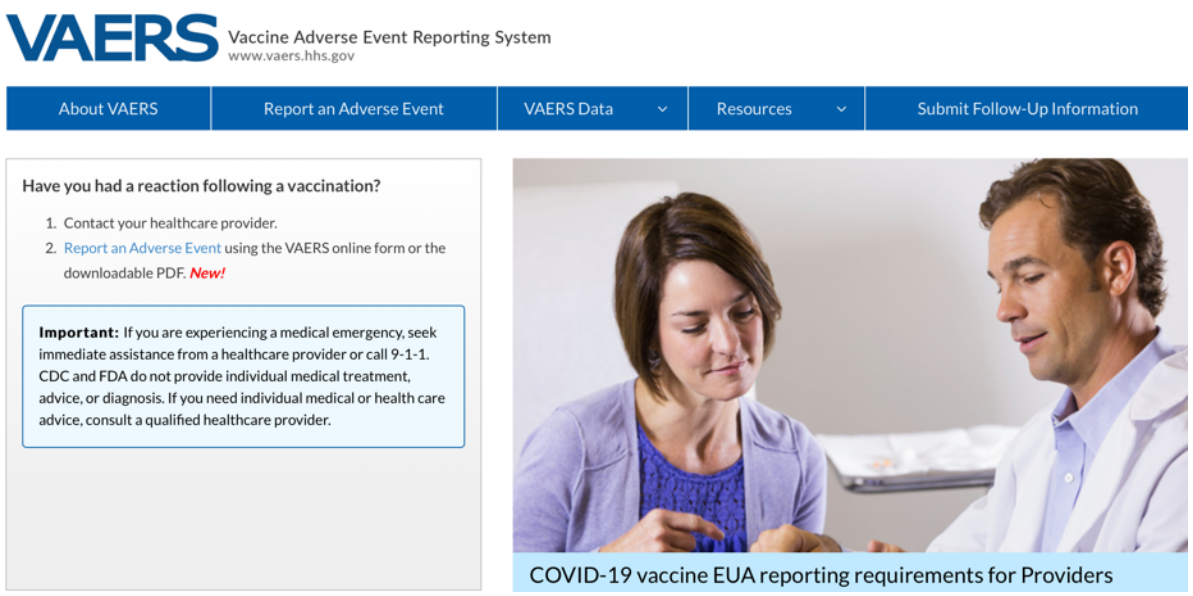
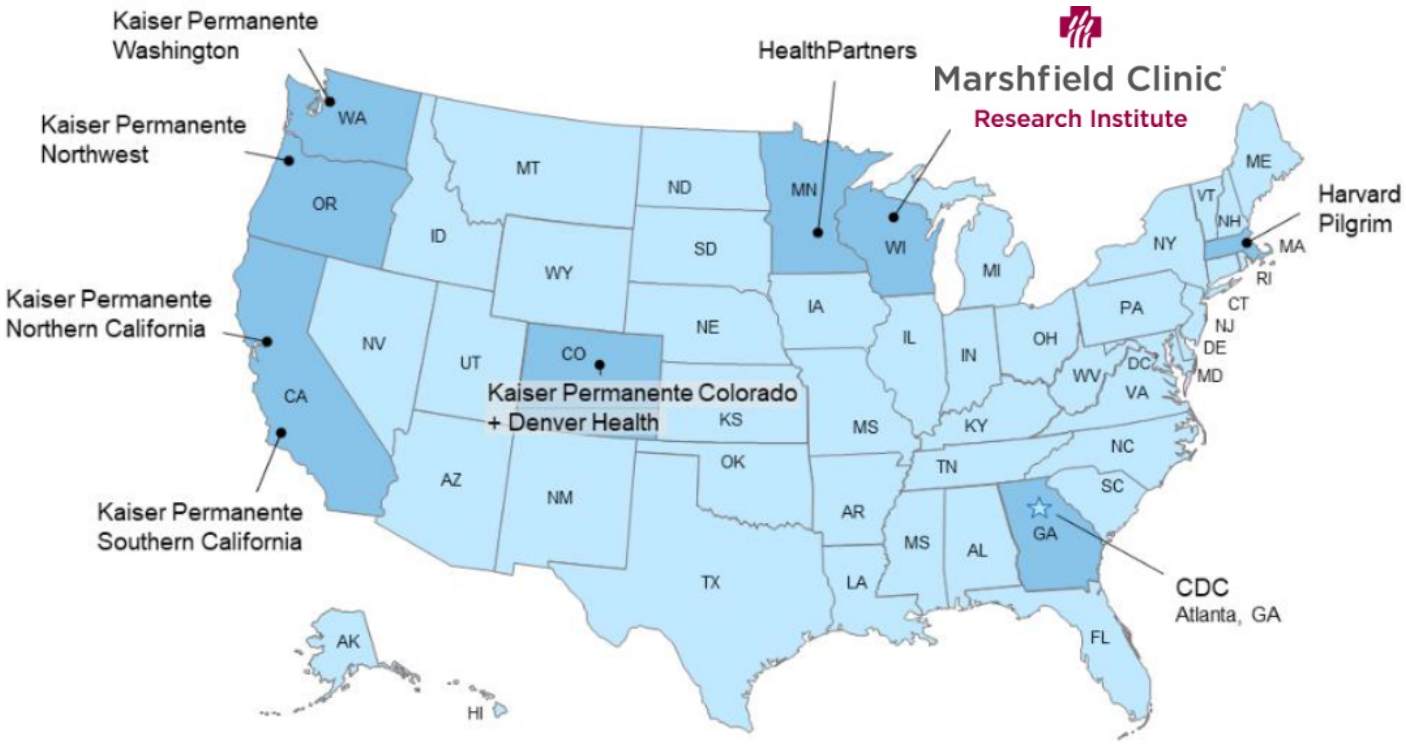


Image Credit: https://vaers.hhs.gov

Vaccine Safety Datalink:
Linked health and immunization records for safety research in large populations

VSD

Vaccine Safety Datalink



9 participating integrated healthcare organizations

Data on over 12 million persons per year

VSD Rapid Cycle Analysis

- 19 prespecified events monitored weekly for safety signal
- Compares **observed vs expected** events in 21 day risk window after either dose
- Vaccinated comparison group (22-42 days after vaccination)

Outcome	Events in risk interval (events/million person-years)[a]	Events in comparison interval (events/million person-years)[a,b]	Adjusted rate ratio[c] (95% CI)[d]	*P* value		Signal, 1-sided *P* < .0048[e]
				2-Sided[d]	1-Sided	
Thrombotic thrombocytopenic purpura	6 (9.1)	2 (5.5)	2.60 (0.47-20.66)	.29	.23	No
Cerebral venous sinus thrombosis[g]	7 (10.6)	3 (8.2)	1.55 (0.37-8.17)	.59	.41	No
Transverse myelitis[g]	2 (3.0)	1 (2.7)	1.45 (0.10-47.73)	.82	.64	No
Encephalitis/myelitis/ encephalomyelitis	16 (25.7)	5 (13.7)	1.27 (0.45-4.10)	.69	.44	No
Myocarditis/pericarditis	87 (131.7)	39 (106.9)	1.18 (0.79-1.79)	.44	.25	No
Venous thromboembolism	626 (951.9)	327 (895.9)	1.16 (1.00-1.34)	.05	.03	No
Immune thrombocytopenia	48 (72.6)	23 (63.0)	1.12 (0.65-1.97)	.70	.40	No
Convulsions/seizures	285 (431.3)	150 (411.0)	1.04 (0.84-1.29)	.74	.39	No
Acute myocardial infarction	613 (935.3)	375 (1030.2)	1.02 (0.89-1.18)	.75	.39	No
Pulmonary embolism	503 (762.8)	290 (794.6)	1.01 (0.86-1.19)	.92	.48	No
Bell palsy	535 (821.8)	301 (824.7)	1.00 (0.86-1.17)	.99	.52	No
Stroke, ischemic	1059 (1611.8)	650 (1780.9)	0.97 (0.87-1.08)	.61	.70	No
Stroke, hemorrhagic	240 (364.7)	149 (408.2)	0.90 (0.72-1.13)	.37	.83	No
Thrombosis with thrombocytopenia syndrome	73 (112.0)	53 (145)	0.86 (0.58-1.27)	.45	.81	No
Appendicitis	762 (1178.9)	491 (1345.2)	0.82 (0.73-0.93)	.002	>.99	No
Guillain-Barré syndrome[g]	10 (15.1)	6 (16.4)	0.70 (0.22-2.31)	.53	.83	No
Disseminated intravascular coagulation	30 (45.4)	25 (68.5)	0.70 (0.39-1.28)	.25	.91	No
Kawasaki disease	0	2 (5.5)	0.00 (0.00-2.52)	.16	.16	No
Acute disseminated encephalomyelitis[g]	2 (3.0)	0	NE (0.07-NE)	.66	.66	No

Image Credit: Table 3. Klein NP. JAMA, Sept 3, 2021 https://jamanetwork.com/journals/jama/fullarticle/2784015

No Increased Risk of non-COVID-19 Death After Vaccination

TABLE 3. Adjusted relative risks for mortality of COVID-19 vaccine recipients and unvaccinated comparison groups*— seven integrated health care organizations, United States, December 14, 2020–July 31, 2021

	Vaccine type, aRR, (95% CI)				
	Pfizer-BioNTech		Moderna		Janssen
Characteristic	After dose 1	After dose 2	After dose 1	After dose 2	After dose 1
Overall†	0.41 (0.38–0.44)	0.34 (0.33–0.36)	0.34 (0.32–0.37)	0.31(0.30–0.33)	0.54 (0.49–0.59)
Age group,§ yrs					
12–17	0.85 (0.38–1.90)	0.73 (0.33–1.64)	NA	NA	NA
18–44	0.37 (0.24–0.57)	0.36 (0.28–0.46)	0.46 (0.31–0.69)	0.38 (0.29–0.50)	0.55 (0.36–0.82)
45–64	0.35 (0.29–0.42)	0.28 (0.25–0.31)	0.31 (0.26–0.37)	0.33 (0.29–0.37)	0.40 (0.34–0.49)
65–74	0.39 (0.33–0.47)	0.32 (0.29–0.35)	0.32 (0.27–0.37)	0.28 (0.26–0.32)	0.50 (0.39–0.63)
75–84	0.38 (0.33–0.46)	0.32 (0.29–0.35)	0.32 (0.27–0.38)	0.29 (0.26–0.32)	0.58 (0.48–0.71)
≥85	0.46 (0.39–0.54)	0.39 (0.36–0.43)	0.38 (0.32–0.45)	0.35 (0.31–0.39)	0.68 (0.56–0.82)
Sex¶					
Male	0.41 (0.37–0.46)	0.35 (0.33–0.38)	0.36 (0.32–0.40)	0.33 (0.31–0.35)	0.52 (0.46–0.60)
Female	0.41 (0.36–0.45)	0.33 (0.31–0.36)	0.33 (0.29–0.37)	0.30 (0.28–0.32)	0.56 (0.49–0.64)

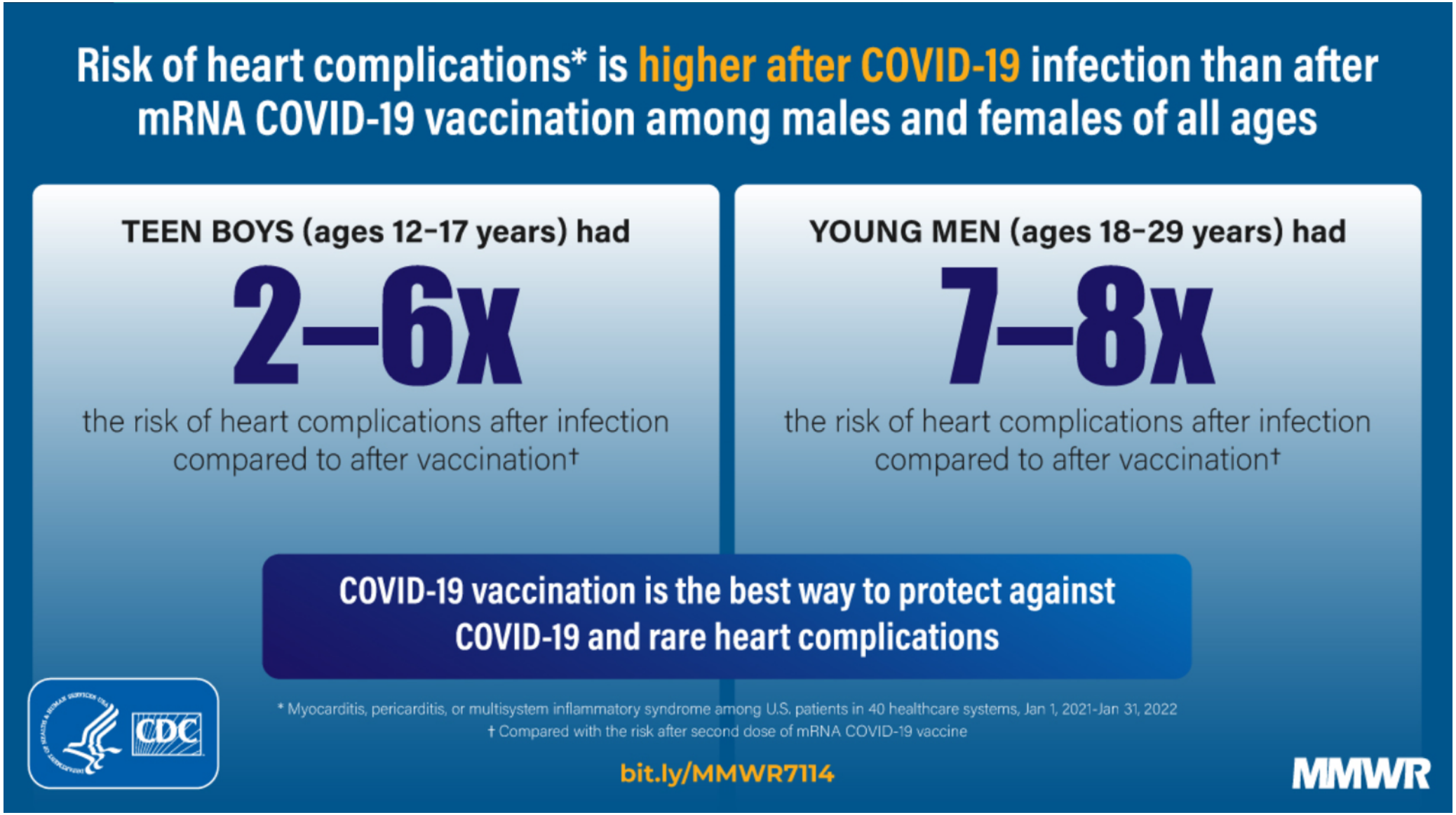
Image Credit: Table 3. Xu S. MMWR, Oct 29, 2021

Increased Myocarditis Risk After mRNA Vaccine, Age 12-39 Years in VSD

Table 4. Confirmed Myocarditis/Pericarditis After Receipt of mRNA Vaccines Compared With Vaccinated Comparators Among Individuals Aged 12-39 Years by Dose and Risk Interval, December 14, 2020-June 26, 2021

Risk interval, d[a]	Dose	Events in risk interval (events/million person-years)[b]	Events in 21-d comparison interval[b,c] (events/million person-years)[b,c]	Adjusted rate ratio (95% CI)[d]	2-Sided *P* value	Excess cases in risk interval per million doses (95% CI)[e]
0-21	Both	34 (141.2)	4 (35.0)	3.75 (1.38 to 12.84)	.007	6.2 (2.3 to 7.8)
	1	9 (70.4)	4 (35.0)	3.67 (0.92 to 17.35)	.07	3.1 (-0.4 to 4.0)
	2	24 (221.3)	4 (44.6)	4.07 (1.45 to 14.18)	.005	10.1 (4.1 to 12.4)

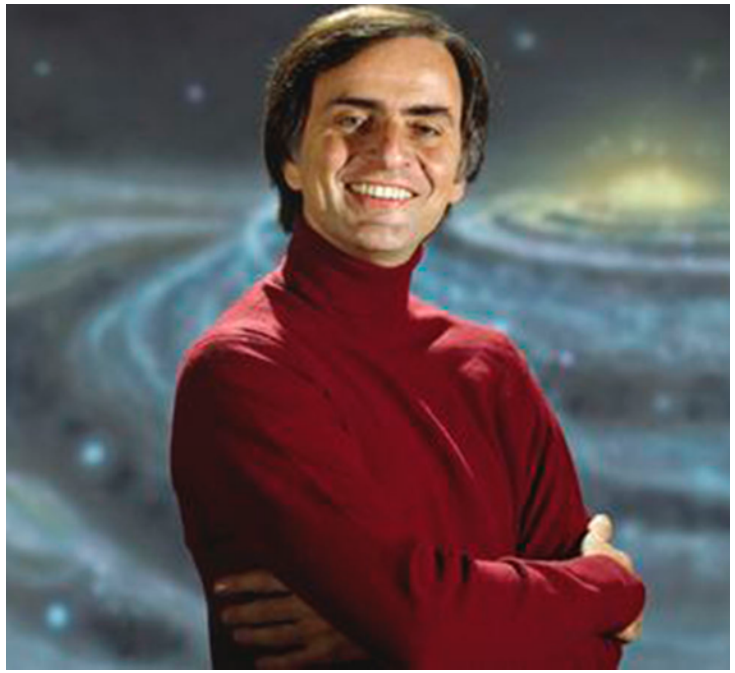
Image Credit: Table 4. Klein NP. JAMA, Sept 3, 2021
https://jamanetwork.com/journals/jama/fullarticle/2784015


Risk of heart complications* is higher after COVID-19 infection than after mRNA COVID-19 vaccination among males and females of all ages
TEEN BOYS (ages 12–17 years) had
2–6x
the risk of heart complications after infection compared to after vaccination†
YOUNG MEN (ages 18–29 years) had
7–8x
the risk of heart complications after infection compared to after vaccination†
COVID-19 vaccination is the best way to protect against COVID-19 and rare heart complications
CDC
* Myocarditis, pericarditis, or multisystem inflammatory syndrome among U.S. patients in 40 healthcare systems, Jan 1, 2021-Jan 31, 2022
† Compared with the risk after second dose of mRNA COVID-19 vaccine
bit.ly/MMWR7114
MMWR

Misinformation and Vaccine Hesitancy

False Claims and Misinformation

- **False claim** that vaccines alter human DNA
- **Misrepresenting** VAERS data on deaths
- **False claim** that vaccines do not protect against infection, transmission or delta variant
- **False claim** that spike protein is toxic
- **False claim** that vaccines cause 'antibody dependent enhancement'
- **False claim** that vaccines cause infertility
- **False claim** that vaccines contain toxic ingredients, microchips, magnetic particles



"Extraordinary claims require extraordinary evidence."

Carl Sagan

Making an Informed Choice

- Be skeptical. Anyone can publish anything on the internet. Do your own fact checking.
- Anecdotes and videos are not scientific evidence.
- Correlation is not causation.
- Distinguish real experts from fake experts.
- Avoid confirmation bias.
- Trust scientific consensus from high quality studies and credible experts.

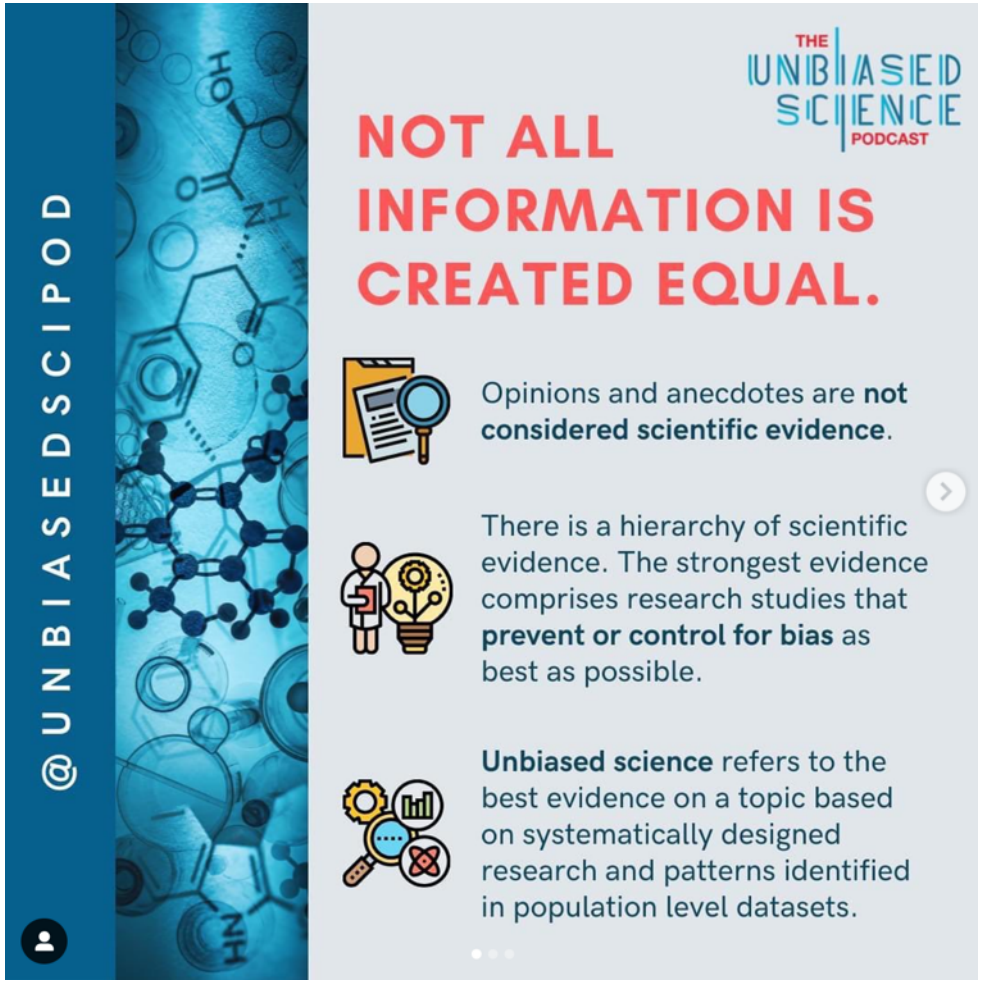


Image Credit: @unbiasedscipod
www.unbiasedscipod.com

www.factcheck.org/covid-misconceptions/
Nonpartisan, not for profit service by Annenberg Public Policy Center, Univ Pennsylvania

Take Home Points

- mRNA vaccines are safe and highly effective. Three doses are needed for optimal protection against variants.
- A new wave or variant is likely, and half of US population does not have adequate vaccine protection.
- Vaccine effectiveness against **infection** declines over time, but protection against **severe COVID-19** is maintained at a high level.
- Hybrid immunity is stronger than immunity from infection alone.
- Vaccine Safety Datalink and other networks will continue to monitor adverse events and investigate safety concerns.
- Optimal booster frequency and composition remains to be defined.

Thank you!

Image Credit: www.flickr.com/photos/jbsapublicaffairs/50887834833/in/faves-186702251@N08/

Milestones in the History of mRNA Vaccines

1980s	mRNA synthesized in lab	mRNA delivered to human cells in liposomes
1990s	mRNA tested as treatment in rats	First mRNA vaccine tested in mice (influenza)
2000s	Discovery that modified RNA reduces inflammation and improves stability	Scalable method to manufacture lipid nanoparticles
2010-19	First mRNA vaccine in lipid nanoparticles tested in mice	1st human trials of mRNA vaccines in lipid nanoparticles (influenza, rabies, Zika, CMV)

Community Changemakers for Behavioral Health

Strategies

Increase accessibility and utilization to on-site mental health counseling services in all 10 Marathon County public school districts.

Increase knowledge and awareness of student population needs among school districts, community agencies, local government agencies, and parents through data sharing.

All 10 Marathon County public school districts and Marathon County community organizations utilize local data to more effectively allocate resources to address youth needs within schools and community organizations to improve behavioral health outcomes.

Teens Who Reported Feeling Depressed (High School)

County: Marathon ▼ Measurement Period: 2019 ▼

Percentage of high school students who felt so sad or hopeless almost every day for two or more weeks in a row that they stopped doing some usual activities during the 12 months before the survey.

County: Marathon

26.0%

percent of high school students

Source: Marathon County Youth Risk Behavior Survey

Measurement period: 2019
Maintained by: Marathon County Health Department
Last update: October 2019

COMPARED TO

WI Value	US Value	Prior Value
(28.5%)	(31.5% in 2017)	(25.2%)

Technical note: 2015 & 2017 data is from the following school districts: Abbotsford, Athens, Colby, D.C. Everest, Edgar, Marathon, Mosinee, Spencer, Stratford Wausau 2019 data does not include Abbotsford & Colby school districts

Graph Selections

INDICATOR VALUES

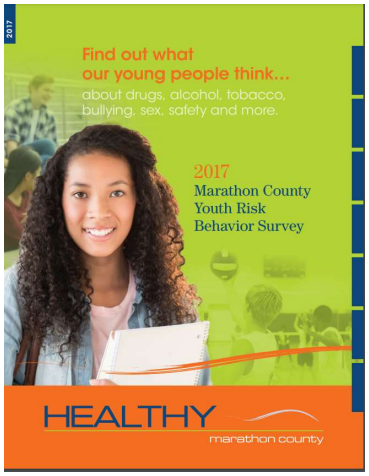
☑ Change over Time

VIEW BY SUBGROUP

Increase accessibility and utilization to on-site mental health counseling services in all 10 Marathon County public school districts

Program Measure	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Number of signed agreements between school districts and mental health providers	4	20	23	22	24
Total number of schools that provide on-site mental health counseling services	11	59	56	57	55
Total number of days per week in schools in which a licensed mental health therapist is onsite at school	4	45.05	53.35	54.8	47
Total number of licensed mental health therapists providing services at schools	3	28	32	35	39
Total number of students served by licensed mental health therapists at school	30	266	420	447	344

Increase knowledge and awareness of student population needs among school districts, community agencies, local government agencies, and parents through data sharing



marathon county PULSE

YOUR ACCESS TO OUR COMMUNITY'S DATA

Funding for Marathon County Pulse is provided by: Aspirus Health, Bridge Community Health Clinic, Marathon County Health Department, Marshfield Clinic Health System, and Medical College of WI-Central Wisconsin.

All 10 Marathon County public school districts and Marathon County community organizations utilize local data to more effectively allocate resources to address youth needs within schools and community organizations to improve behavioral health outcomes

Western Marathon County Healthy Communities

Healthy Kids, Healthy Families, Healthy Communities

Marathon County COVID-19 Dashboard

View online: https://www.co.marathon.wi.us/Departments/HealthDepartment/COVID19/Dashboard.aspx

Marathon County COVID-19 Case Data

This data is compiled by the Wisconsin Department of Health Services. Case data will be updated daily, Monday through Friday. Weekend data will be added on Monday. To see more detailed data, hover over the graphic. For weekend numbers, visit https://www.dhs.wisconsin.gov/covid-19/county.htm Last updated:**3/22/2022**

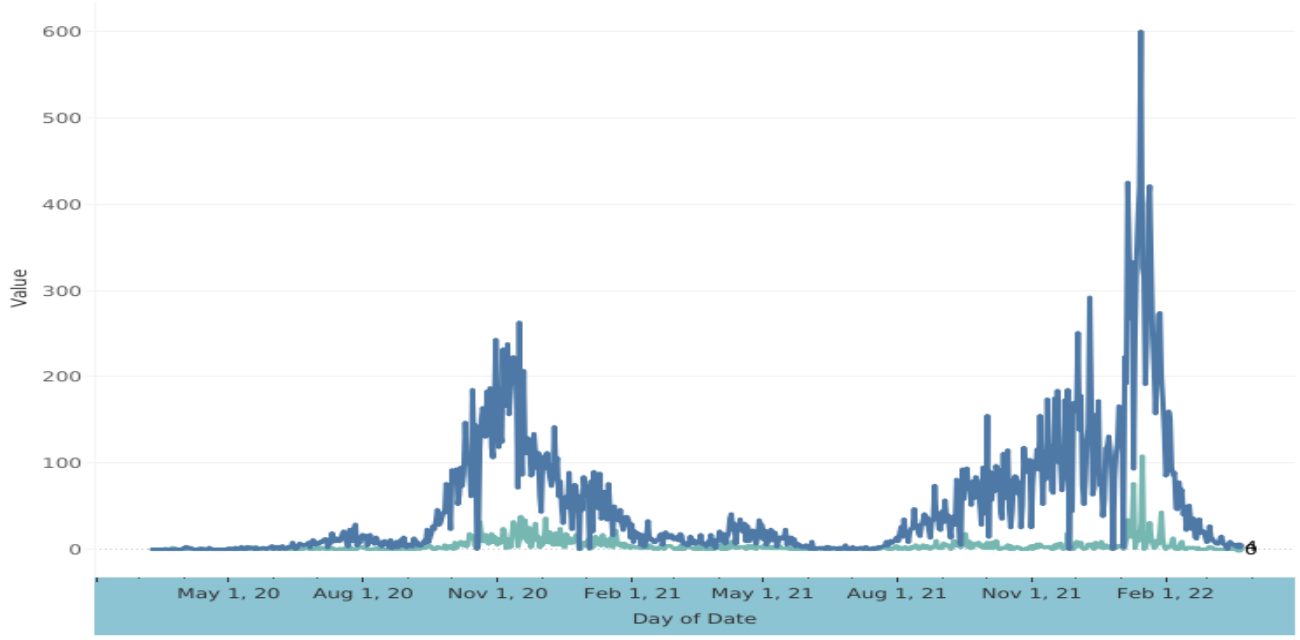
New Daily Confirmed Cases	4	7-Day Average (Confirmed & Probable)	5
Total Confirmed Cases	36,463	Percent Recovered	97.7%
Recovered	35,611	Ever Hospitalized	1,702
Confirmed Deaths	422	Percent Ever Hospitalized	4.7%

Daily New Confirmed and Probable Cases

The data is compiled by the Wisconsin Department of Health Services (DHS). Last updated: **3/22/2022**

A person is counted as a probable* case of COVID-19 if they are not positive by a confirmatory laboratory test method (for example, a PCR, or NAT test), but have met one of the following:

- Test positive using a rapid or antigen test, with no confirmatory lab test.
- Have symptoms of COVID-19 AND known exposure to a positive case, but no lab test.
- COVID-19 or SARS-CoV-2 is listed on the death certificate.



MARATHON COUNTY HEALTH DEPARTMENT

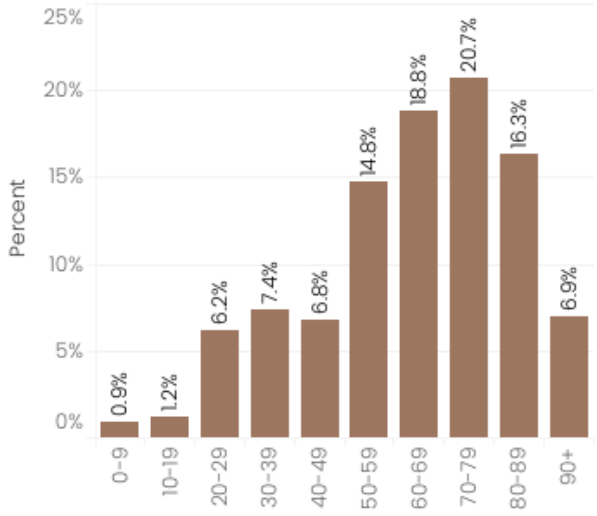
Marathon County COVID-19 Dashboard

COVID-19 Hospitalizations

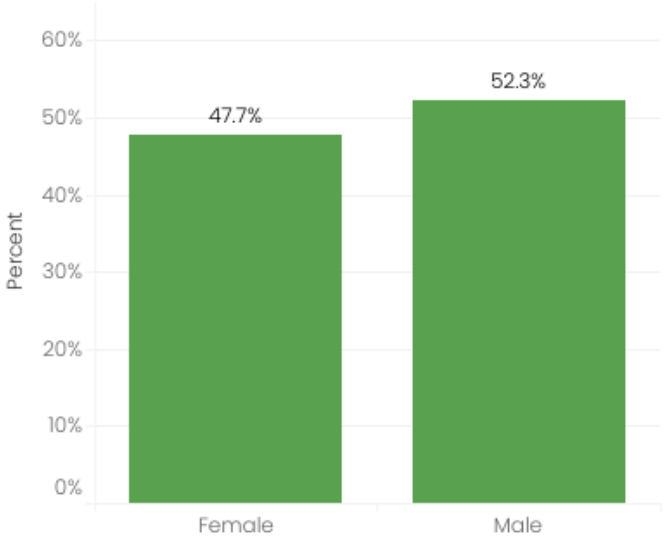
This data is compiled by the Wisconsin Department of Health Services weekly.
To see more detailed data, hover over the graphic. Last updated: **3/18/2022**

New Weekly Hospitalizations

Hospitalizations by Age



Hospitalizations by Gender



MARATHON COUNTY HEALTH DEPARTMENT

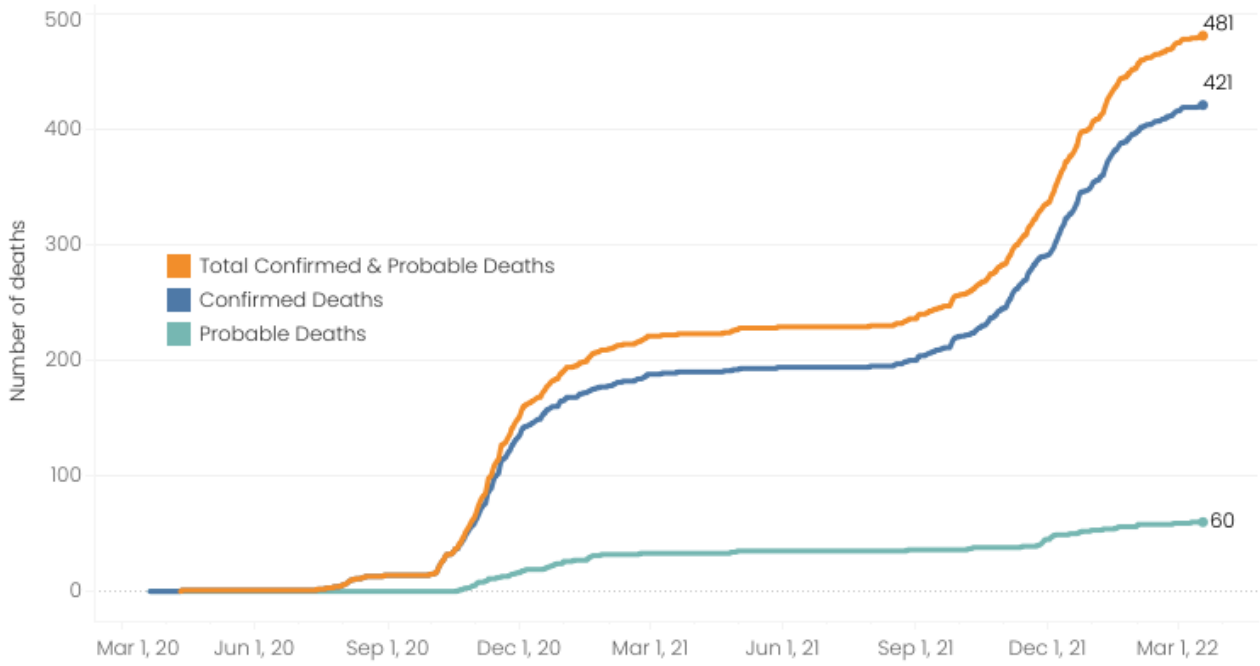
Marathon County COVID-19 Dashboard

COVID-19 Deaths

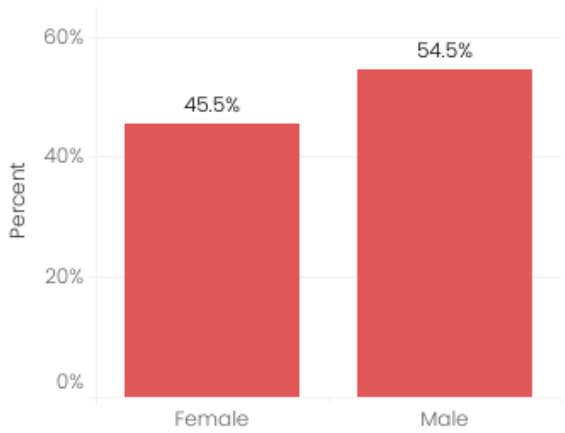
This data is compiled by the Wisconsin Department of Health Services. Death data will be updated weekly. To see more detailed data, hover over the graphic. Last updated: **3/18/2022**

Confirmed and Probable Deaths

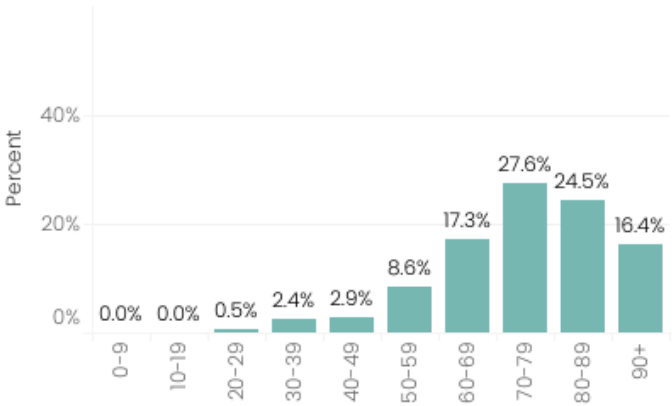
Deaths among probable cases are those that meet one of the following criteria:
- A probable case of COVID-19 is reported to have died from causes related to COVID-19.
- A death certificate that lists COVID-19 disease or SARS-CoV-2 as an underlying cause of death or a significant condition contributing to death is reported to DHS but WEDSS has no record of confirmatory laboratory evidence for SARS-CoV-2.



Deaths by Gender



Deaths by Age



MARATHON COUNTY HEALTH DEPARTMENT

Marathon County COVID-19 Dashboard

Completed Vaccine Series

COVID-19 vaccines for Wisconsin residents

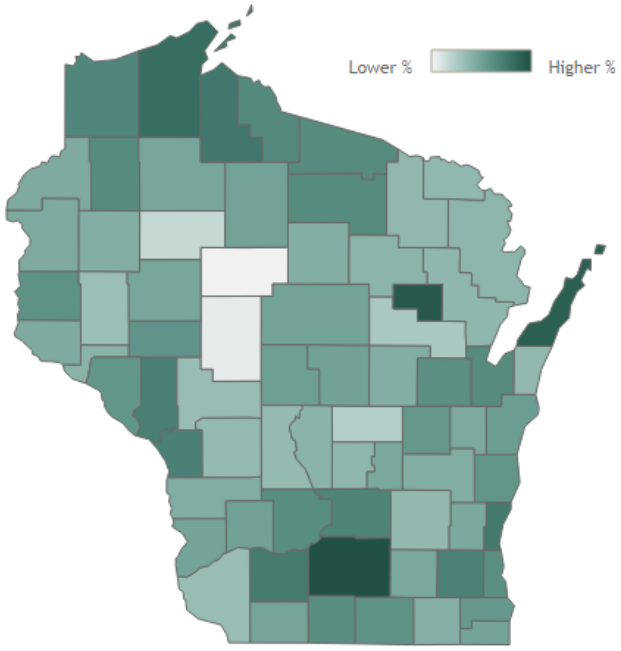
Updated: 3/22/2022

HERC region data

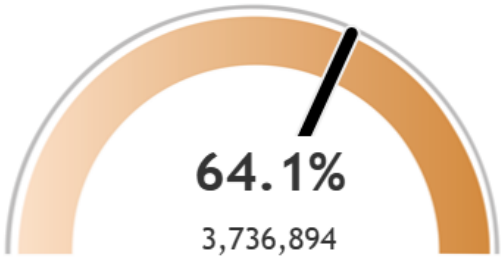
- (●) Total population who have received at least one dose
- ( ) Total population who have completed the series
- ( ) Total population who have received an additional/booster dose

Percent of Wisconsin residents who have received at least one dose by county

Click a county to filter data



Percent of Wisconsin residents who have received at least one dose



Age

5-11	27.0%
12-17	61.1%
18-24	59.8%
25-34	63.9%
35-44	69.1%
45-54	71.5%
55-64	78.0%
65+	85.5%

Race

American Indian	49.0%
Asian	66.4%
Black	43.3%
White	58.6%

*6.4% of records reported a race of "Other"

*3.7% of records reported an unknown race

Sex

Female	67.0%
Male	60.6%

*0.4% of records were reported without sex.

Ethnicity

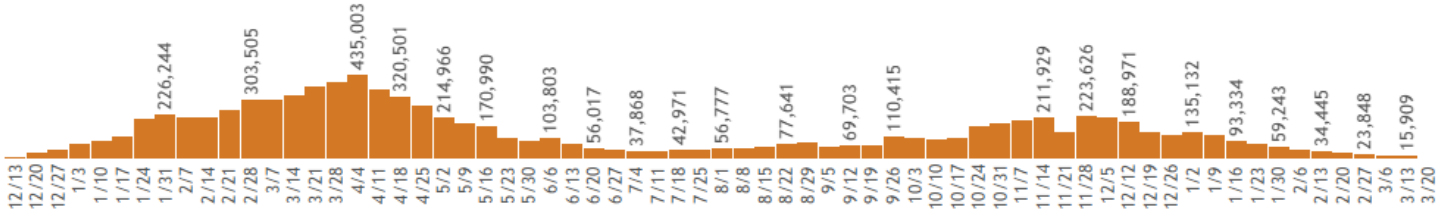
Hispanic	57.4%
Non-hispanic	62.1%

*3.6% of records were reported without ethnicity.

View more data on racial and ethnic disparities in Wisconsin

Vaccine doses for Wisconsin residents by week

(Total: 9,155,781)



*Current week may be incomplete.

MARATHON COUNTY HEALTH DEPARTMENT

Marathon County COVID-19 Dashboard

Additional/Booster Dose

COVID-19 vaccines for Wisconsin residents

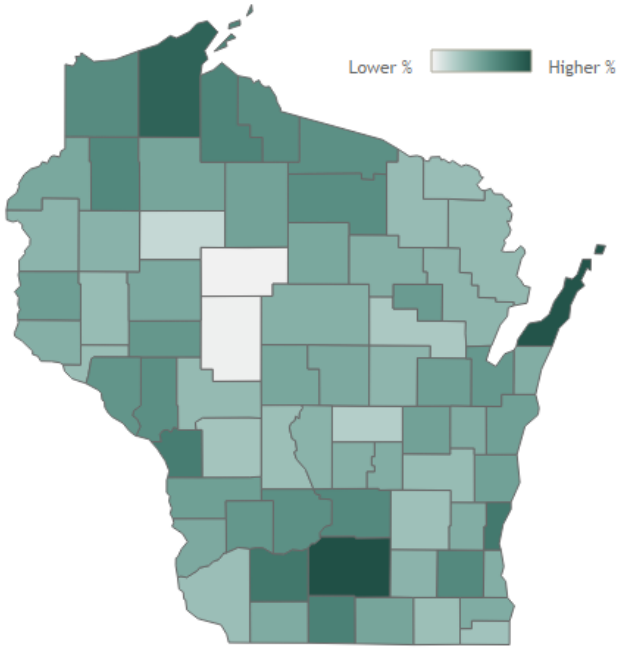
Updated: 3/22/2022

HERC region data

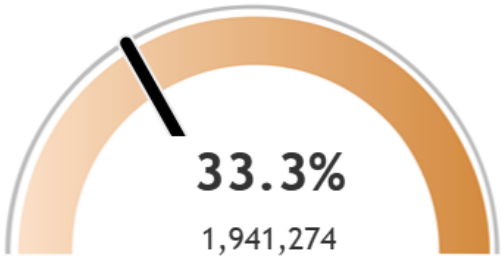
- ○ Total population who have received at least one dose
- ○ Total population who have completed the series
- ◉ Total population who have received an additional/booster dose

Percent of Wisconsin residents who have received an additional/booster dose by county

Click a county to filter data



Percent of Wisconsin residents who have received an additional/booster dose



Age

5-11	0.0%
12-17	17.8%
18-24	18.4%
25-34	24.4%
35-44	32.1%
45-54	36.9%
55-64	48.0%
65+	66.6%

Sex

Female	36.5%
Male	29.9%

*0.4% of records were reported without sex.

Race

American Indian	20.9%
Asian	28.7%
Black	15.1%
White	32.6%

*6.4% of records reported a race of "Other"

*3.7% of records reported an unknown race

Ethnicity

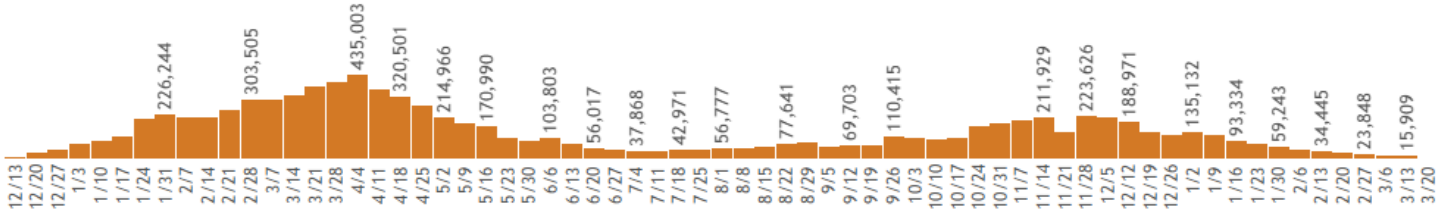
Hispanic	18.6%
Non-hispanic	33.7%

*3.6% of records were reported without ethnicity.

View more data on racial and ethnic disparities in Wisconsin

Vaccine doses for Wisconsin adults by week

(Total: 9,155,781)



*Current week may be incomplete.

Wisconsin Department of Health Services
Division of Public Health
PHAVR - WEDSS

YTD Disease Incidents by Episode Date

Incidents for MMWR Weeks 1 - 11 (Through the week ending March 19, 2022)

Jurisdiction: Marathon County

		2022				
Disease Group	**Disease**	**Week 8**	**Week 9**	**Week 10**	**Week 11**	**Total**
Blastomycosis	*Group Total:*	0	0	0	0	1
Campylobacteriosis (Campylobacter Infection)	*Group Total:*	0	0	0	0	3
Carbon Monoxide Poisoning	*Group Total:*	0	0	0	0	2
Chlamydia Trachomatis Infection	*Group Total:*	7	3	1	2	63
Coronavirus	*Group Total:*	140	77	50	31	9871
Cryptosporidiosis	*Group Total:*	0	0	0	0	1
Giardiasis	*Group Total:*	0	0	0	0	2
Gonorrhea	*Group Total:*	0	0	0	0	6
Haemophilus Influenzae Invasive Disease	*Group Total:*	1	0	0	0	1
Hepatitis A	*Group Total:*	0	0	0	0	1
Hepatitis C	*Group Total:*	1	1	0	0	6
Histoplasmosis	*Group Total:*	0	0	0	0	1
Influenza Associated Hospitalization	*Group Total:*	0	2	1	0	15
Invasive Streptococcal Disease (Groups A And B)	*Group Total:*	0	0	0	0	4
Lyme Disease	*Group Total:*	0	2	1	0	9
Meningitis, Aseptic (Viral)	*Group Total:*	1	0	0	0	1
Salmonellosis	*Group Total:*	0	0	0	0	3
Tuberculosis	*Group Total:*	1	0	0	0	2
Tuberculosis, Latent Infection (LTBI)	*Group Total:*	0	0	0	0	3
Varicella (Chickenpox)	*Group Total:*	0	0	0	0	2
	Period Total:	151	85	53	33	9997