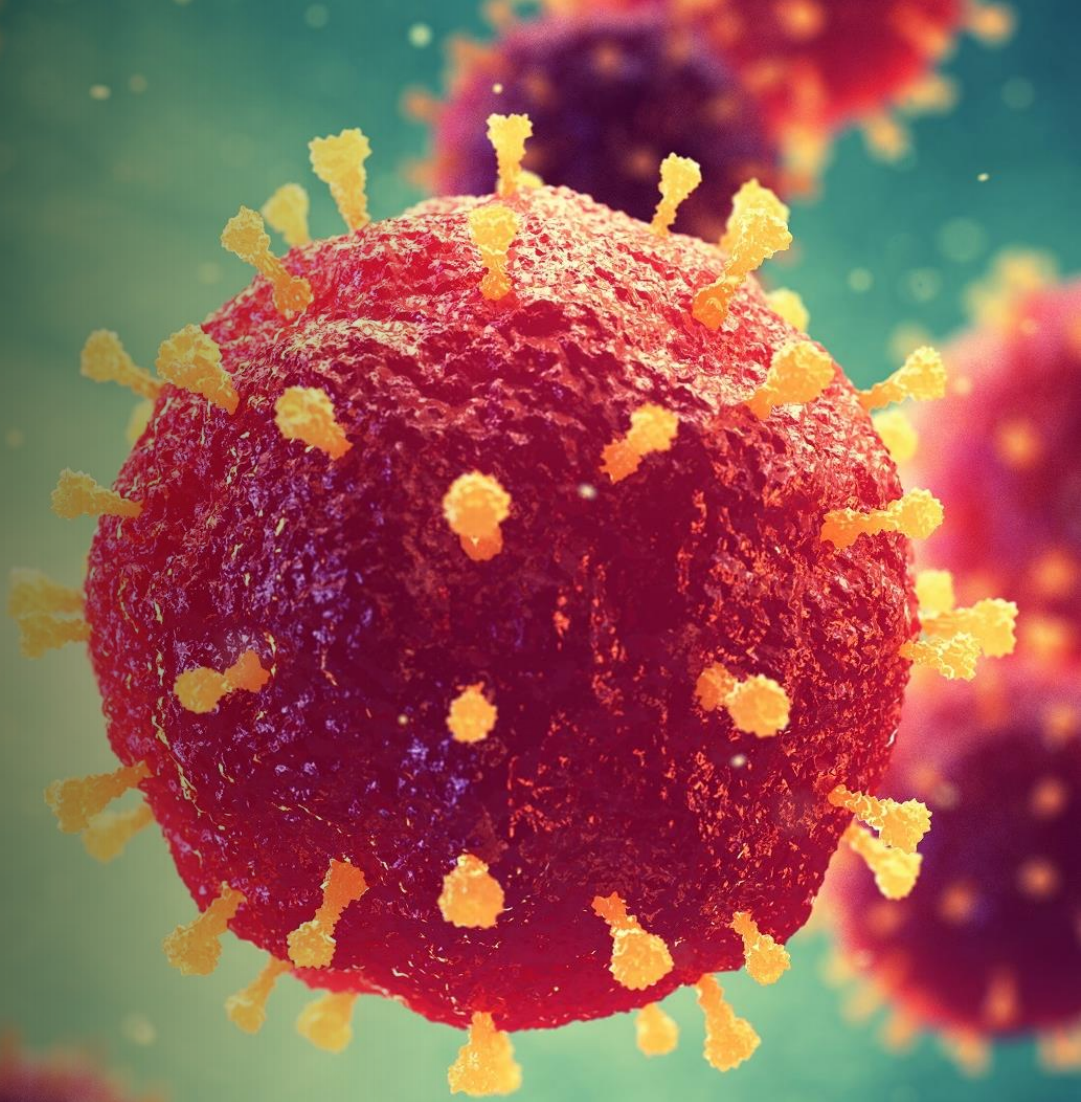
COVID & Long COVID Update…



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www.hamiltoncounty.in.gov

The Learner Will Be Able To…

- Describe three ways COVID-19 can be transmitted.
- Recall three symptoms of Long-COVID.
- Explain three health effects of Long-COVID.
- Identify three ways to manage a person with Long-COVID.
- Distinguish the differences between “normal” COVID and Long-COVID.

Disclaimer…

- When this presentation was developed, all information was current.
- COVID-19 vaccine information changes every day.
- Information on Long COVID changes every day.
- Please make sure you read current information from factual sources.

Misinformation…

- Misinformation has caused confusion and led people to decline COVID-19 vaccines, reject public health measures such as masking and physical distancing, and use unproven treatments.
- For example, a recent study showed that even brief exposure to COVID-19 vaccine misinformation made people less likely to want a COVID-19 vaccine.
- One study found that false news stories were 70 percent more likely to be shared on social media than true stories.

Source: The U.S. Surgeon General 2021

What Is Coronavirus Disease?

- Coronaviruses are a large family of viruses which may cause illness in animals or humans.
- In humans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS).
- The most recently discovered coronavirus causes coronavirus disease COVID-19.

Source: World Health Organization

Why Is COVID-19 Such A Big Deal?

- This is a new virus that we have never seen in the world before.

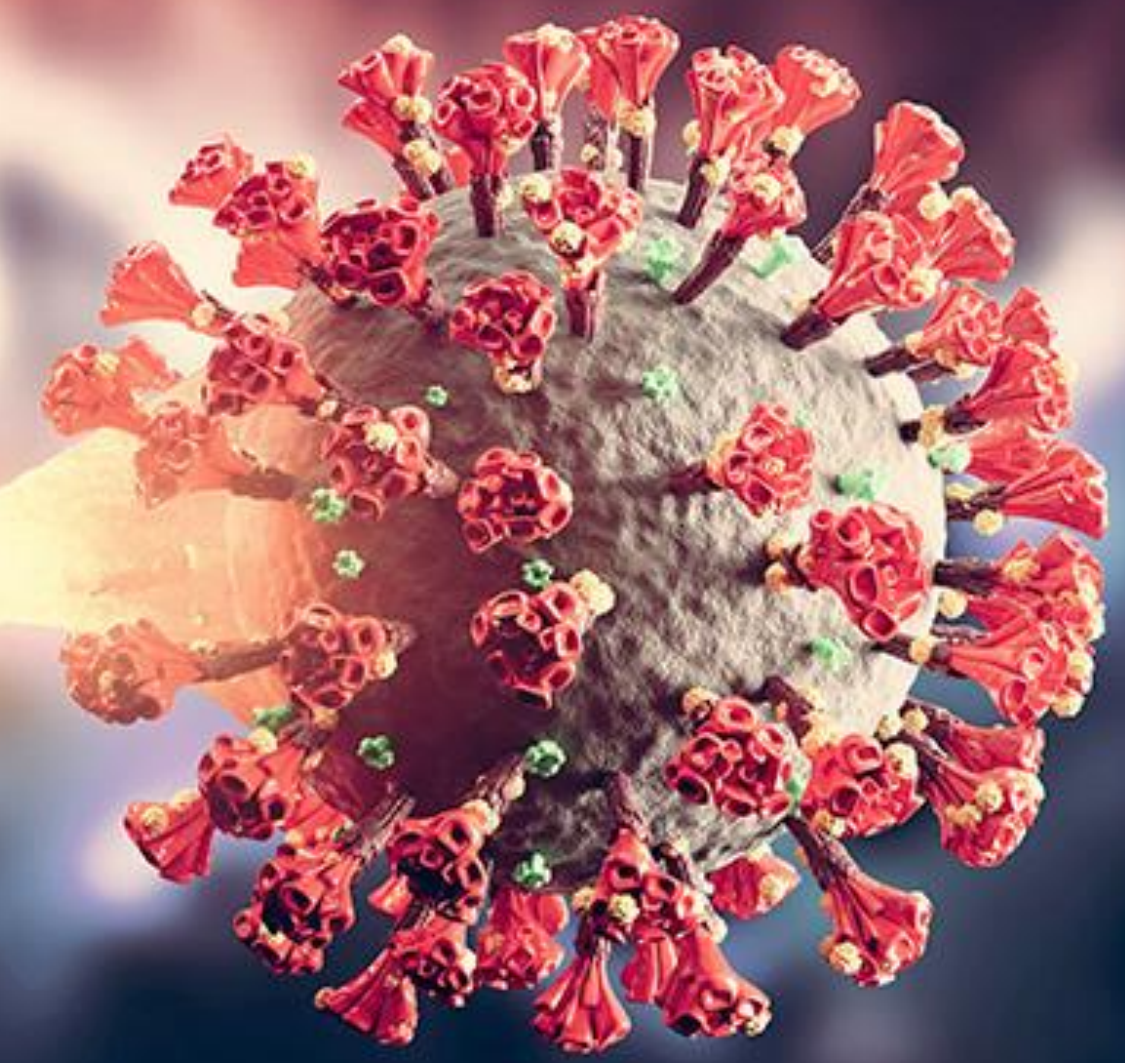
- We have seen other coronaviruses in the past such as:
  - Middle East Respiratory Syndrome (MERS)
  - Severe Acute Respiratory Syndrome (SARS)

- We don't know a lot about this new strain of coronavirus.

- Our bodies have not had to fight off this type of virus before.

Variants of the Virus that Causes COVID-19?

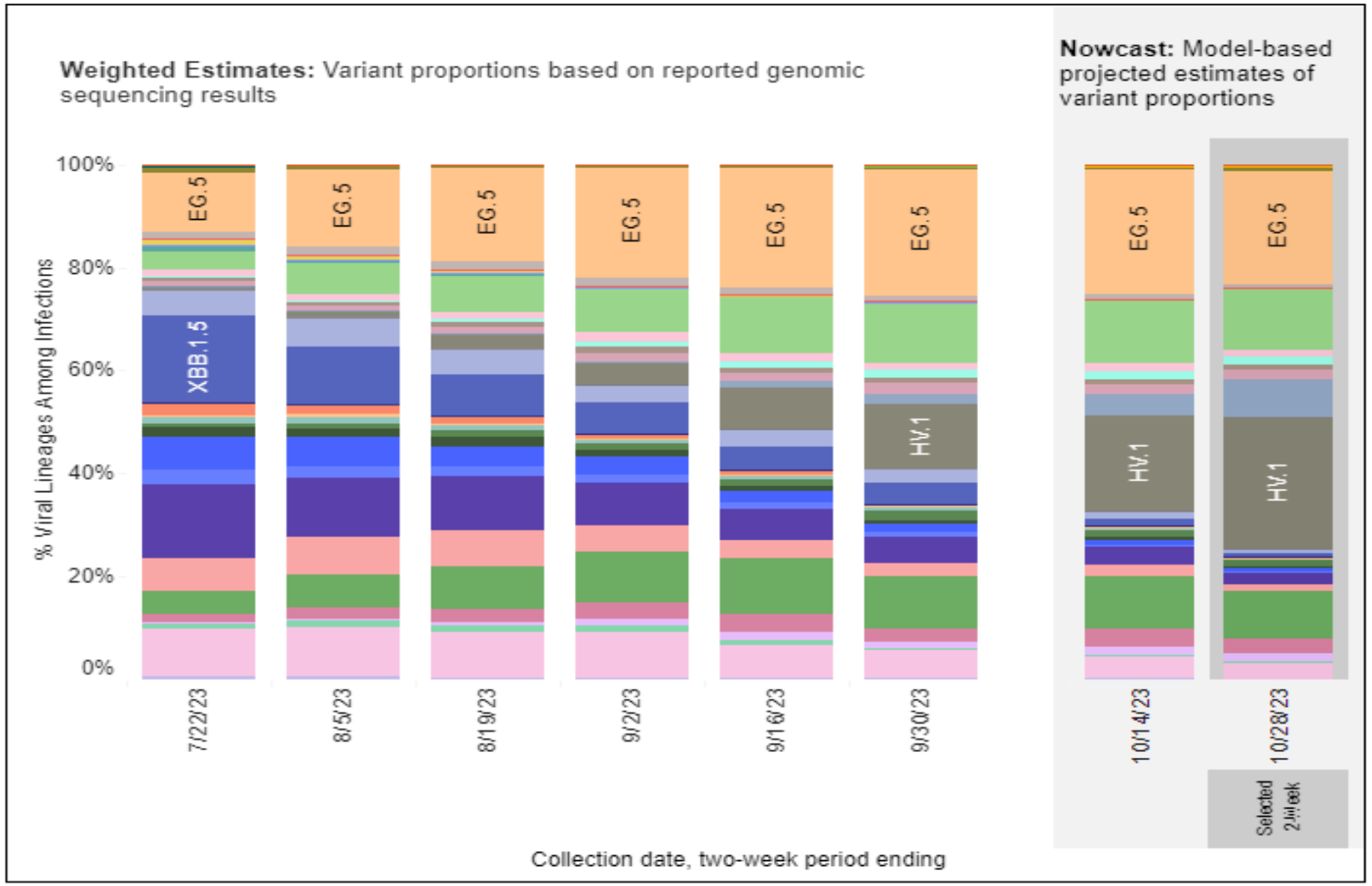
- Multiple variants of the virus that causes COVID-19 are circulating globally and within the United States.
- These variants seem to spread more easily and quickly than other variants, which may lead to more cases of COVID-19.
- **So far, studies suggest that antibodies generated through vaccination with currently authorized vaccines recognize these variants.**



Source: CDC

Weighted and Nowcast Estimates in United States for 2-Week Periods in 7/9/2023 – 10/28/2023

Hover over (or tap in mobile) **any lineage of interest** to see the amount of uncertainty in that lineage's estimate.



Nowcast Estimates in United States for 10/15/2023 – 10/28/2023

USA

WHO label	Lineage #	%Total	95%PI
Omicron	HV.1	25.2%	22.7-27.9%
	EG.5	21.9%	19.6-24.3%
	FL.1.5.1	12.0%	9.8-14.6%
	XBB.1.16.6	9.2%	8.0-10.5%
	HK.3	7.5%	5.6-9.9%
	XBB.1.16.11	3.1%	2.4-4.0%
	XBB.2.3	3.0%	2.5-3.6%
	XBB.1.16	2.2%	1.8-2.7%
	HF.1	1.8%	1.1-3.0%
	GK.1.1	1.8%	1.3-2.6%
	XBB.1.16.15	1.5%	1.1-2.2%
	XBB.1.16.1	1.4%	1.1-1.8%
	XBB.1.5.70	1.3%	0.8-2.1%
	GE.1	1.1%	0.8-1.5%
	XBB	1.1%	0.8-1.4%
	GK.2	0.9%	0.6-1.2%
	CH.1.1	0.8%	0.5-1.3%
	EG.6.1	0.7%	0.5-1.0%
	XBB.1.5	0.6%	0.5-0.8%
	XBB.1.9.1	0.5%	0.4-0.7%
	BA.2	0.5%	0.2-0.9%
	XBB.1.42.2	0.3%	0.2-0.6%
	XBB.1.5.72	0.3%	0.2-0.4%
	XBB.1.5.68	0.3%	0.2-0.5%
	XBB.1.9.2	0.3%	0.2-0.4%
	XBB.1.5.10	0.2%	0.1-0.2%
	XBB.2.3.8	0.1%	0.1-0.2%
	XBB.1.5.59	0.1%	0.1-0.2%
	FD.1.1	0.1%	0.0-0.1%
	FE.1.1	0.0%	0.0-0.0%
	EU.1.1	0.0%	0.0-0.0%
	XBB.1.5.1	0.0%	0.0-0.0%
	BQ.1	0.0%	0.0-0.0%
	B.1.1.529	0.0%	0.0-0.0%
Other	Other*	0.0%	0.0-0.1%

Source: CDC

How Is COVID-19 Transmitted?

- The virus is spread from person to person through **respiratory droplets**.
  - These droplets are relatively heavy, do not travel far and quickly sink to the ground (WHO).
- This happens when an infected person coughs or sneezes and talks.
- The virus droplets can land in the mouth or nose of people who are nearby, or they can be inhaled into the lungs.
- The spread of the virus is common between people who are in close contact with an infected person (within six feet of each other).

How Is COVID-19 Transmitted?

- It may be possible for a person to develop COVID-19 from touching objects that have been contaminated with the virus.

- COVID-19 can be spread by direct contact as well.
  - By touching a person's face or eyes with the virus on their hands.

- Studies have shown that COVID-19 can be transmitted by infected people who are **not showing** any symptoms.

- How easily the virus spreads can vary depending on:
  - The surface it is present on.
  - How long it has been out of the body.

Who Is At Higher Risk For Developing COVID-19?

- Older Adults (65 and older).
- People who are HIV Positive
- People who have underlying medical issues such as:
  - Heart and Lung Disease
  - Diabetes
  - Kidney and Liver Disease
  - Obesity
- People with limited mobility

Who Is At Higher Risk For Developing COVID-19?

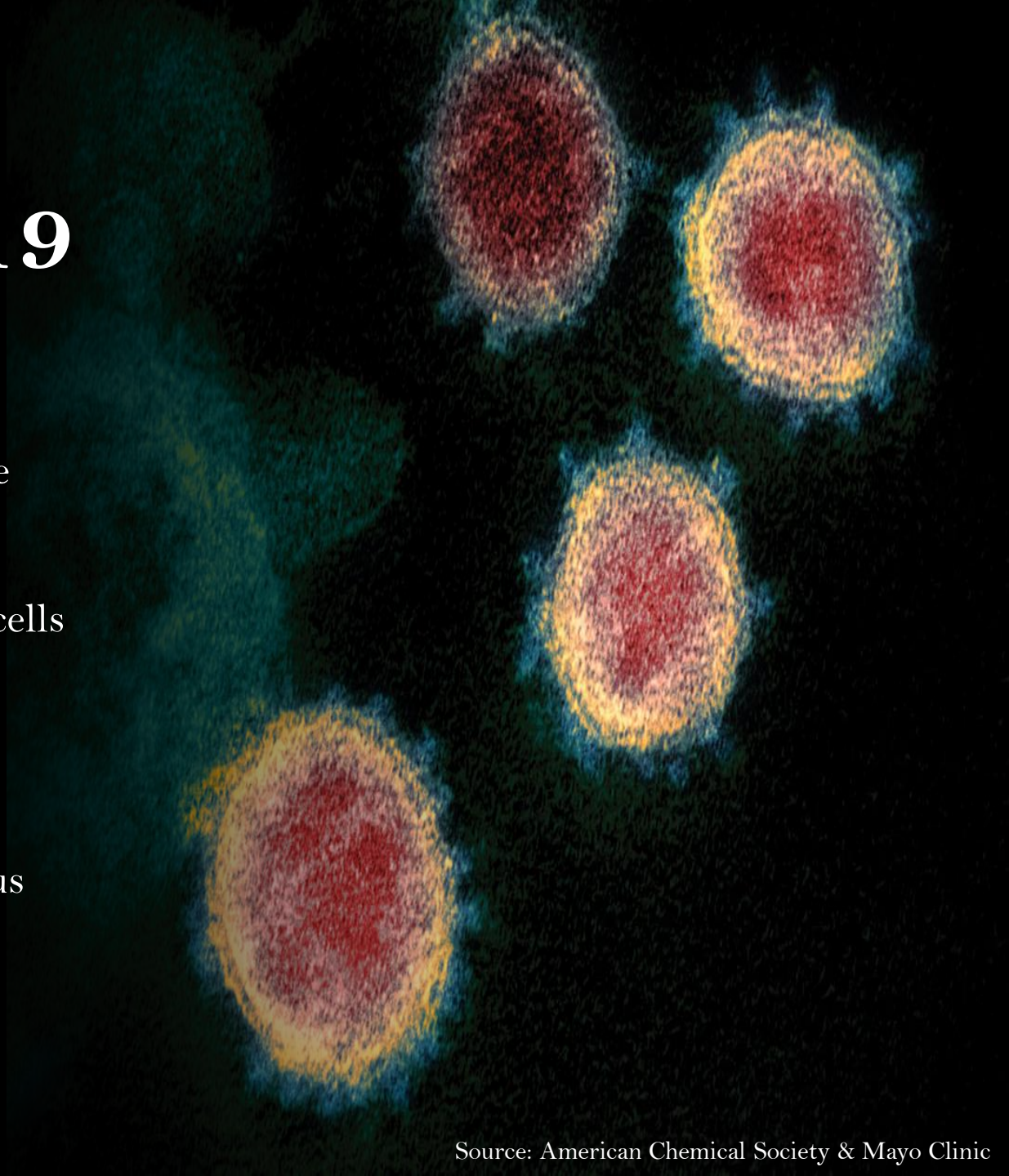
- Mental Health Illness
- Pregnancy and recent pregnancy
- Solid organ or cell transplants
- Corticosteroids or other immunosuppressive medication

Who Is At Higher Risk For Developing COVID-19?

- People who live in long-term care facilities
- People who live in group homes
- People who smoke or vape
- People who are homeless

What Does COVID-19 Do To The Body?

- The coronavirus enters the body and makes its way to the lungs via the upper respiratory system.
- Once in the lungs, the virus infects cells called epithelial cells which cover the lining of the lung.
- A protein in the virus attaches itself to the host cell.
- Once the coronavirus is attached to the host cell, the virus starts to replicate and kills the host cell.
- When the host cell is killed, it breaks, and other new coronavirus are released into the body.

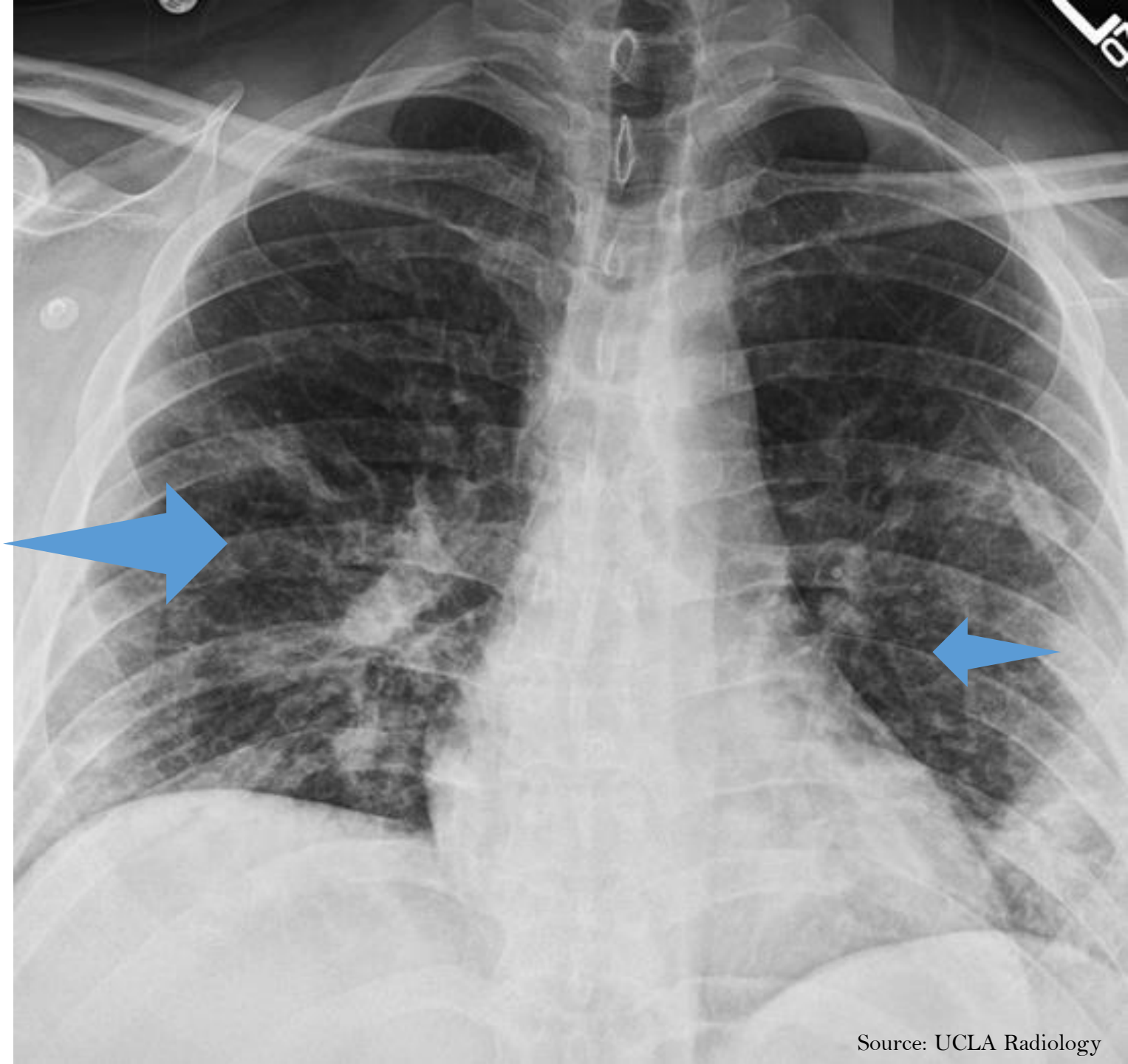


Source: American Chemical Society & Mayo Clinic

What Are Some Complications Of COVID-19?

- Complications can include:
  - Pneumonia
  - Organ failure
  - Respiratory failure (stop breathing)
  - Heart problems
  - Kidney damage
  - Other infections
  - Blood clotting complications
  - Memory issues
  - Sleeping problems
  - Muscle pain
  - Death

- 80% of patients have mild to moderate symptoms (WHO).
- **COVID-19 symptoms can sometimes persist for months!**



Source: UCLA Radiology

What Are Some Complications Of COVID-19?

- Most people who have coronavirus disease 2019 (COVID-19) recover completely within a few weeks.

- But some people — even those who had mild versions of the disease — continue to experience symptoms after their initial recovery (Long COVID).

Source: Mayo Clinic

Antiviral Treatments…

Treatment	Who	When	How
Nirmatrelvir with Ritonavir (Paxlovid) *Antiviral*	Adults; children ages 12 years and older	Start as soon as possible; must begin within 5 days of when symptoms start	Taken at home by mouth (orally)
Remdesivir (Veklury) *Antiviral*	Adults and children	Start as soon as possible; must begin within 7 days of when symptoms start	Intravenous (IV) infusions at a healthcare facility for 3 consecutive days
Molnupiravir (Lagevrio) *Antiviral*	Adults	Start as soon as possible; must begin within 5 days of when symptoms start	Taken at home by mouth (orally)

Review Isolation…

- **Wear a high-quality mask** if you must be around others at home and in public.
- Do not go places where you are unable to wear a mask.
- Stay home and separate from others as much as possible.
- Do not travel.
- Use a separate bathroom, if possible.
- Improve ventilation at home, if possible.
- Don't share personal household items (cups, towels, and utensils)
- Monitor your symptoms.
- If you have trouble breathing or chest pain, call 9-1-1.
- Isolation calculator:
  - https://www.cdc.gov/coronavirus/2019-ncov/your-health/isolation.html

Source: CDC

Review Isolation…

NO symptoms:	HAD symptoms:
Day 0 is the day you were tested (Not the day you received a positive test results).	Day 0 of isolation is the day of symptoms onset, regardless of when a person was tested.
Day 1 is the first full day following the day a person was tested.	Day 1 is the first full day after the day of symptoms started.
If a person develops symptoms within day10. The clock restarts at day 0 on the day symptom on set	

Source: CDC

When To End Isolation…

- **End isolation based on how serious your COVID-19 symptoms were.**
  - Loss of taste and smell may persist for weeks or months after recovery and need not delay the end of isolation.

Source: CDC

Ending Isolation…

- If the person had symptoms and they are **improving**:
  - May end isolation after day 5 if:
    - They are fever-free for 24 hours without the use of fever-reducing medication.

- If the person symptoms are **not improving**:
  - They are fever-free for 24 hours without the use of fever-reducing medication.
  - Symptoms are improving.
  - If a person is having trouble breathing or shortness of breath, they will need to isolate through day 10.

For more information go to the CDC website.

Source: CDC

If You Test Negative For COVID…

IF YOUR TEST IS

Negative

- The test did not detect the virus, **but doesn't rule out an infection**.
- Some self-tests are designed to be used in a series (also known as serial testing). Consider repeating the test 24 to 48 hours later. Multiple negative tests increases the confidence that you are not infected with the virus that causes COVID-19.

Source: CDC

What Can You Do To Prevent COVID-19?

DO choose masks that

Have two or more layers of washable, breathable fabric

Completely cover your nose and mouth

Fit snugly against the sides of your face and don't have gaps

Have a nose wire to prevent air from leaking out of the top of the mask

DO NOT choose masks that

Are made of fabric that makes it hard to breathe, for example, vinyl

Have exhalation valves or vents which allow virus particles to escape

Are intended for healthcare workers, including N95 respirators

Source: CDC

IMPORTANT STEPS TO CHOOSING A MASK

Make sure your mask fits

- Pick a mask with multiple layers to keep your respiratory droplets in and others' out.
- Choose a mask with a nose wire to prevent air from leaking out of the top.

For extra protection

Wear a disposable mask under a cloth mask

Knot and tuck ear loops of a 3-ply mask

Use a mask fitter or brace over a disposable or cloth mask

Respirators must form a seal to the face to work properly.

- Follow manufacturer instructions.
- Check for markings on N95, KN95, and other respirators that indicate the product is authentic.

cdc.gov/coronavirus

CS 329987-A | 01/31/2022

Isolate and take precautions if you have or suspect you have COVID-19

ISOLATION

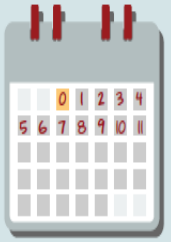
Stay home and away from others

Wear a high-quality mask if you must be around others

Start counting days

Day 0 is the day your symptoms started

If you never had symptoms, day 0 is the day you took a COVID-19 test



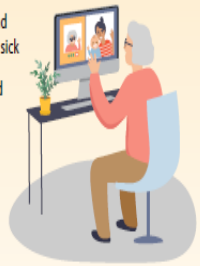
Watch for emergency warning signs, like trouble breathing

Seek help if they develop

AFTER ISOLATION

Until at least day 11, avoid being around people who are more likely to get very sick

Wear a high-quality mask when around others indoors



Removing your mask

After ending isolation, wear your mask through day 10

OR

Take 2 antigen tests, 48 hours apart

If both tests are negative, you may remove your mask sooner than day 10

ENDING ISOLATION

Isolate to day 6 or later, if you

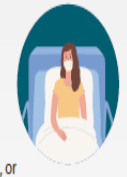
- never had symptoms or symptoms are improving, and
- are fever-free for 24 hours without the use of fever-reducing medication

Continue to isolate if your fever persists or other symptoms have not improved

Isolate through day 10, if you experienced moderate illness, like shortness of breath or difficulty breathing

Isolate through day 10 and talk with a healthcare provider before you end isolation, if you

- were hospitalized, or
- have a weakened immune system



CS 333440-A | 12/13/2022

cdc.gov/coronavirus

How Protein Subunit COVID-19 Vaccines Work

Understanding the virus that causes COVID-19.

Coronaviruses, like the one that causes COVID-19, are named for the crown-like spikes on their surface, called **spike proteins.** These **spike proteins** are ideal targets for vaccines.

What is a protein subunit vaccine?

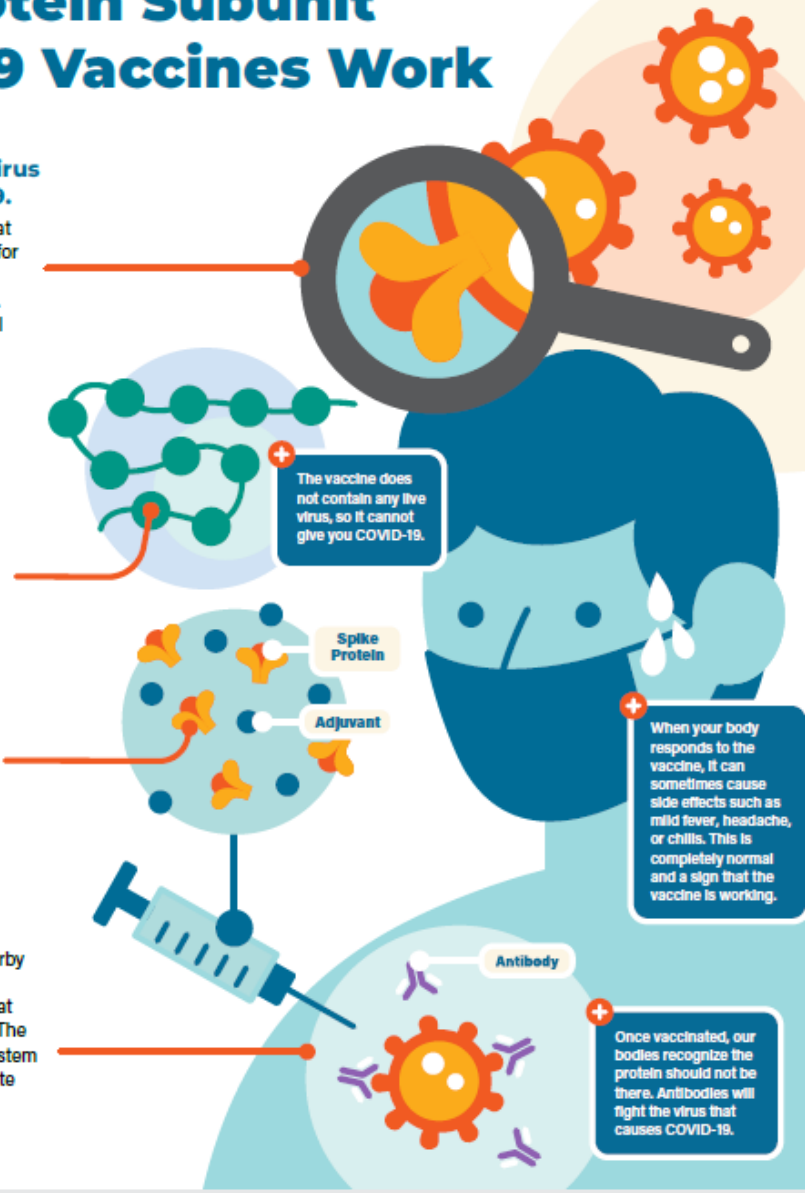
Protein subunit vaccines are a type of vaccine that contains harmless copies of the COVID-19 spike protein. These vaccines do not contain the entire virus.

What is in the vaccine?

The vaccine contains virus pieces called **spike protein** and another ingredient called an **adjuvant.**

How does it work?

When you are vaccinated, nearby cells pick up the proteins. The immune system recognizes that these proteins do not belong. The adjuvant helps the immune system produce antibodies and activate other immune cells to fight off future infections.



GETTING VACCINATED?

For more information about COVID-19 vaccine, vist **cdc.gov/coronavirus**

CS 329947-GU

CDC Recommends Updated COVID-19 Vaccine for Fall/Winter Virus Season

Print

Press Release

For Immediate Release: Tuesday, September 12, 2023
Contact: Media Relations
(404) 639-3286

CDC recommends everyone 6 months and older get an updated COVID-19 vaccine to protect against the potentially serious outcomes of COVID-19 illness this fall and winter. Updated COVID-19 vaccines from Pfizer-BioNTech and Moderna will be available later this week.

Vaccination remains the best protection against COVID-19-related hospitalization and death. Vaccination also reduces your chance of suffering the effects of Long COVID, which can develop during or following acute infection and last for an extended duration. If you have not received a COVID-19 vaccine in the past 2 months, get an updated COVID-19 vaccine to protect yourself this fall and winter.

https://www.cdc.gov/media/releases/2023/p0912-COVID-19-Vaccine.html

COVID Vaccine For 2023-2024…

- For the 2023-2024 formulation of the COVID-19 vaccines for use in the U.S. beginning in the fall of 2023, the committee unanimously voted that the vaccine composition be updated to a monovalent COVID-19 vaccine with an XBB-lineage of the Omicron variant.
- Following discussion of the evidence, the committee expressed a preference for XBB.1.5.1
- Based on the totality of the evidence, the FDA has advised manufacturers who will be updating their COVID-19 vaccines, that they should develop vaccines with a monovalent XBB 1.5 composition.

Source: FDA

VACCINE INFORMATION STATEMENT

COVID-19 Vaccine:

What You Need to Know

Many vaccine information statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1. Why get vaccinated?

COVID-19 vaccine can prevent **COVID-19** disease. Vaccination can help reduce the severity of COVID-19 disease if you get sick.

COVID-19 is caused by a coronavirus called SARS-CoV-2 that spreads easily from person to person. COVID-19 can cause mild to moderate illness lasting only a few days, or severe illness requiring hospitalization, intensive care, or a ventilator to help with breathing. COVID-19 can result in death.

If an infected person has symptoms, they may appear 2 to 14 days after exposure to the virus. Anyone can have mild to severe symptoms.

- Possible symptoms include fever or chills, cough, shortness of breath or difficulty breathing, fatigue (tiredness), muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, or diarrhea.
- More serious symptoms can include trouble breathing, persistent pain or pressure in the chest, new confusion, inability to wake or stay awake, or pale, gray, or blue-colored skin, lips, or nail beds, depending on skin tone.

Older adults and people with certain underlying medical conditions (like heart or lung disease or diabetes) are more likely to get very sick from COVID-19.

2. COVID-19 vaccine

Updated (2023–2024 Formula) COVID-19 vaccine is recommended for everyone 6 months of age and older.

COVID-19 vaccines for infants and children 6 months through 11 years of age are available under Emergency Use Authorization from the U. S. Food and Drug Administration (FDA). Please refer to the Fact Sheets for Recipients and Caregivers for more information.

For people 12 years of age and older, updated COVID-19 vaccines, manufactured by ModernaTX, Inc. or Pfizer, Inc., are approved by FDA.

- **Everyone 12 years and older** should get 1 dose of an FDA-approved, updated 2023–2024 COVID-19 vaccine. If you have received a COVID-19 vaccine recently, you should wait at least 8 weeks after your most recent dose to get the updated 2023–2024 COVID-19 vaccine.
- **Certain people who have medical conditions or are taking medications that affect the immune system** may get additional doses of COVID-19 vaccine. Your health care provider can advise you.

Some people 12 years of age and older might get a different COVID-19 vaccine called Novavax COVID-19 Vaccine, Adjuvanted (2023–2024 Formula) instead. This vaccine is available under Emergency Use Authorization from FDA. Please refer to the Fact Sheet for Recipients and Caregivers for more information.

3. Talk with your health care provider

Tell your vaccination provider if the person getting the vaccine:

- Has had an **allergic reaction after a previous dose of COVID-19 vaccine** or an ingredient in the COVID-19 vaccine, or has any **severe, life-threatening allergies**
- Has had **myocarditis** (inflammation of the heart muscle) or **pericarditis** (inflammation of the lining outside of the heart)
- Has had **multisystem inflammatory syndrome** (called MIS-C in children and MIS-A in adults)
- Has a **weakened immune system**

In some cases, your health care provider may decide to postpone COVID-19 vaccination until a future visit.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Reliable Sources of Immunization Information: Where Parents Can Go to Find Answers!

Websites

American Academy of Pediatrics (AAP)
www.healthychildren.org

Centers for Disease Control & Prevention (CDC)
For parents: www.cdc.gov/vaccines/parents
For healthcare providers: www.cdc.gov/vaccines

Immunize.org's websites
For the public: www.vaccineinformation.org
For healthcare providers: www.immunize.org

Vaccinate Your Family
www.vaccinateyourfamily.org

Vaccine Education Center (VEC), Children's Hospital of Philadelphia
www.chop.edu/centers-programs/vaccine-education-center

Vaxopedia
www.vaxopedia.org/about/

Voices for Vaccines
www.voicesforvaccines.org

Use www.vaccines.gov to find influenza and COVID-19 vaccines near you.

Apps for Mobile Devices

CDC Mobile App – This app provides 24 hour, 7 days a week access to timely CDC vital health information. With direct links to social media, text and email, this app lets you immediately share information with friends and family. Available for Android and Apple devices.

Vaccines on the Go: What You Should Know – This app provides reliable information about the science, safety, and importance of vaccines and about the diseases they prevent. The app links to videos and resources as well as offering an opportunity to email vaccine-related questions directly to the experts at VEC. Created by VEC and available for Android and Apple devices.

Voices for Vaccines App – A free app, created by the Task Force for Global Health, helps debunk misinformation, guide vaccine conversations, and inspire advocacy. Available for Android and Apple devices.

Books for Parents

(available from your favorite book seller)

Baby 411: Your Baby, Birth to Age 1 by Denise Fields and Ari Brown, MD, Windsor Peak Press, 10th edition, 2022. See baby411.com/

Immunization Information: The Benefits and the Risks by Martin Myers, MD., Houndstooth Press, 2021.

Vaccines and Your Child, Separating Fact from Fiction by Paul Offit, MD and Charlotte Moser, 2011. See excerpts in https://media.chop.edu/data/files/pdfs/vaccine-education-center-vaccine-safety-eng.pdf

Video Suites

Immunize.org's Video Library – This website has hundreds of video clips about vaccines and vaccine-preventable diseases. Complied by Immunize.org. https://vaccineinformation.org/videos

Shot by Shot Video Collection – Go to www.shotbyshot.org to see videos of people's stories of vaccine-preventable diseases shared on the California Immunization Coalition website.

Vaccine Education Center (VEC), Children's Hospital of Philadelphia Videos

Go to www.chop.edu/centers-programs/vaccine-education-center/resources/vaccine-videos-and-dvds for videos such as "Vaccine Conversations," "Dr. Offit Answers Your Questions @ Vaccines," "Doctors Talk Diseases," "My COVID-19 Vaccine Experience," "Perspectives on COVID-19 Vaccine for Kids," and the Vaccine Makers Project animations.

Getting Answers

CDC–INFO Contact Center – Operated by the CDC, this number is for anyone with questions about immunization and vaccine-preventable disease. At any time, email CDC via an online form at wwwn.cdc.gov/dcs/ContactUs/Form. Or, call (800) CDC-INFO or (800) 232-4636. TTY: (888) 232-6348; Monday through Friday from 8:00 a.m. to 8:00 p.m. (ET).

Vaccine Education Center (VEC), Children's Hospital of Philadelphia – Parents and healthcare professionals can email their questions to VEC directly at vacinfo@chop.edu.

Children & Hoosiers Immunization Registry Program (CHIRP)

Countermeasures Injury Compensation Program (CICP)

Immunize.org

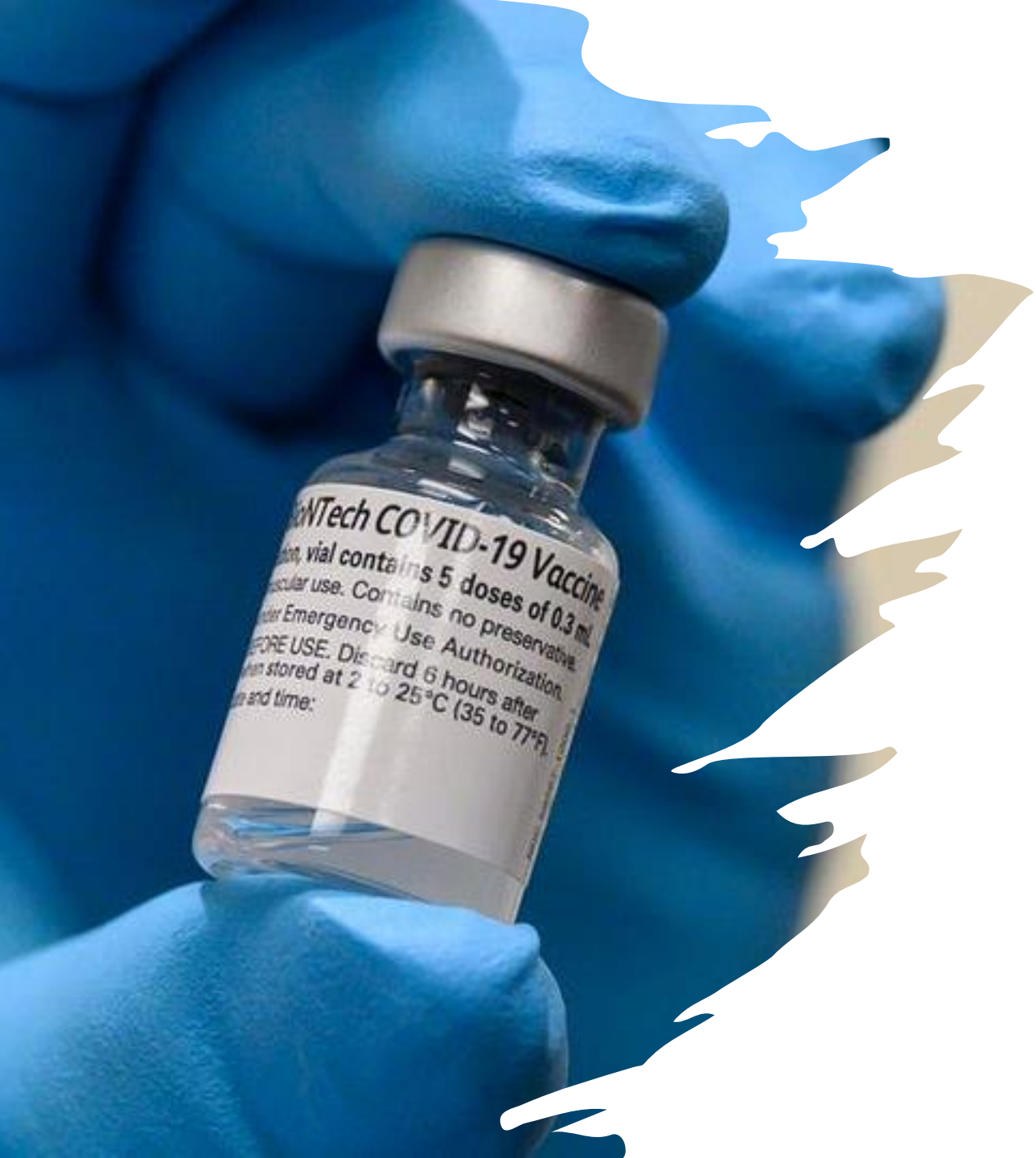
FOR PROFESSIONALS www.immunize.org / FOR THE PUBLIC www.vaccineinformation.org

www.immunize.org/catg.d/p4012.pdf
Item #P4012 (1.2/2022)

Scan for PDF

Before Your COVID Vaccine Appointment….

- Eat breakfast or lunch or a snack before your appointment time.
- Do not take Tylenol before your appointment.
- Wear short sleeve shirts.
- Be prepared to wait 15 minutes after you receive your vaccine.



What is Long Vax…

- Scientists have been very cautious about identifying "Long Vax."
  - Due to the antivaccine movement.
- Potential rare condition in which people's immune systems may be overreacting to the COVID-19 vaccine.
- Symptoms of Long Vax can mimic those of long COVID such as:
  - Headaches
  - Intense fatigue
  - Abnormal heart rate
  - Blood pressure issues
- Cases have still been far, far fewer than the number of reported and confirmed long Covid cases

Source: New York Post

If you have a weakened immune system or live with someone who does, create a COVID-19 action plan

Prevention Measures:

Get an updated COVID-19 vaccine

Improve ventilation and spend time outdoors when possible

Learn about testing locations and treatment options ***before*** getting exposed or sick

Get tested if you've been exposed or have symptoms*

Wash your hands often

Wear a well-fitting respirator or mask and maintain distance in crowded spaces

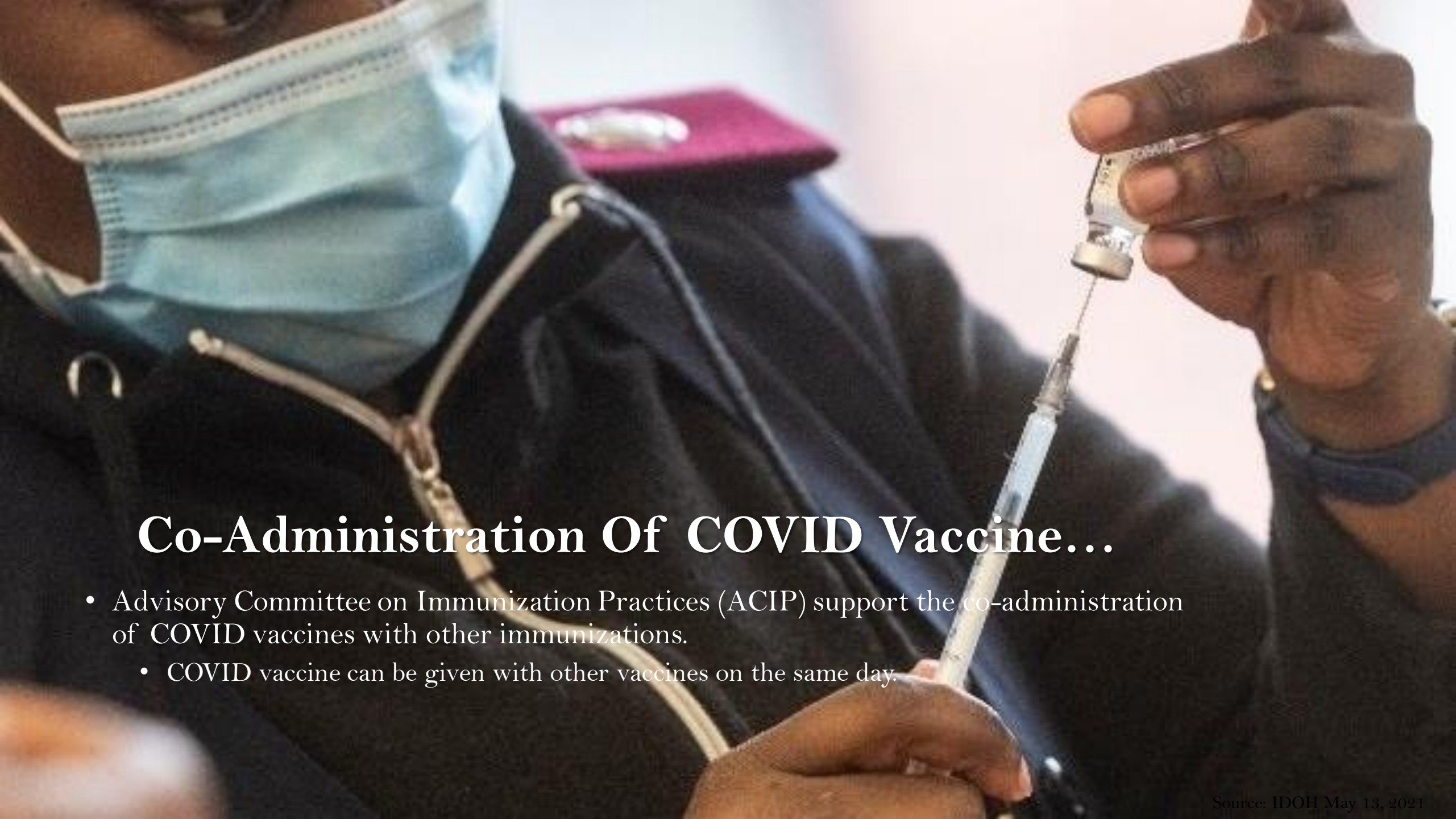
*Talk to your doctor about treatment options if you test positive

bit.ly/mm7205e3

JANUARY 27, 2023

MMWR

- TEXT Your ZIP Code To 438829
- Call 1-800-323-0233



Co-Administration Of COVID Vaccine…

- Advisory Committee on Immunization Practices (ACIP) support the co-administration of COVID vaccines with other immunizations.
  - COVID vaccine can be given with other vaccines on the same day.

Source: IDOH May 13, 2021

Vaccinating Pregnant and Lactating Patients Against COVID-19…

- Available data suggest that symptomatic pregnant patients with COVID-19 are at increased risk of more severe illness compared with nonpregnant peers.
- ACOG recommends that pregnant individuals have access to COVID-19 vaccines.
- COVID-19 vaccines should be offered to lactating individuals similar to non-lactating individuals. (Antibodies (IgA and IgG) were also present in breastmilk).
- Unfounded claims linking COVID-19 vaccines to infertility have been scientifically disproven.
- ACOG recommends vaccination for all eligible people who may consider future pregnancy.

ACOG
The American College of Obstetricians and Gynecologists

Source: The American Collage of Obstetricians and Gynecologist

What Are Some Side Effects?

- The **short-term** side effects are the same for any vaccine that you may receive such as:
  - Injection site pain
  - Injection site redness
  - Fatigue
  - Low grade fever
  - Headache
  - Chills
  - Joint pain
  - Muscle pain

Can occur 1-3 days **AFTER** the vaccine, **BUT** usually resolve in 1-2 days.

Source: CDC

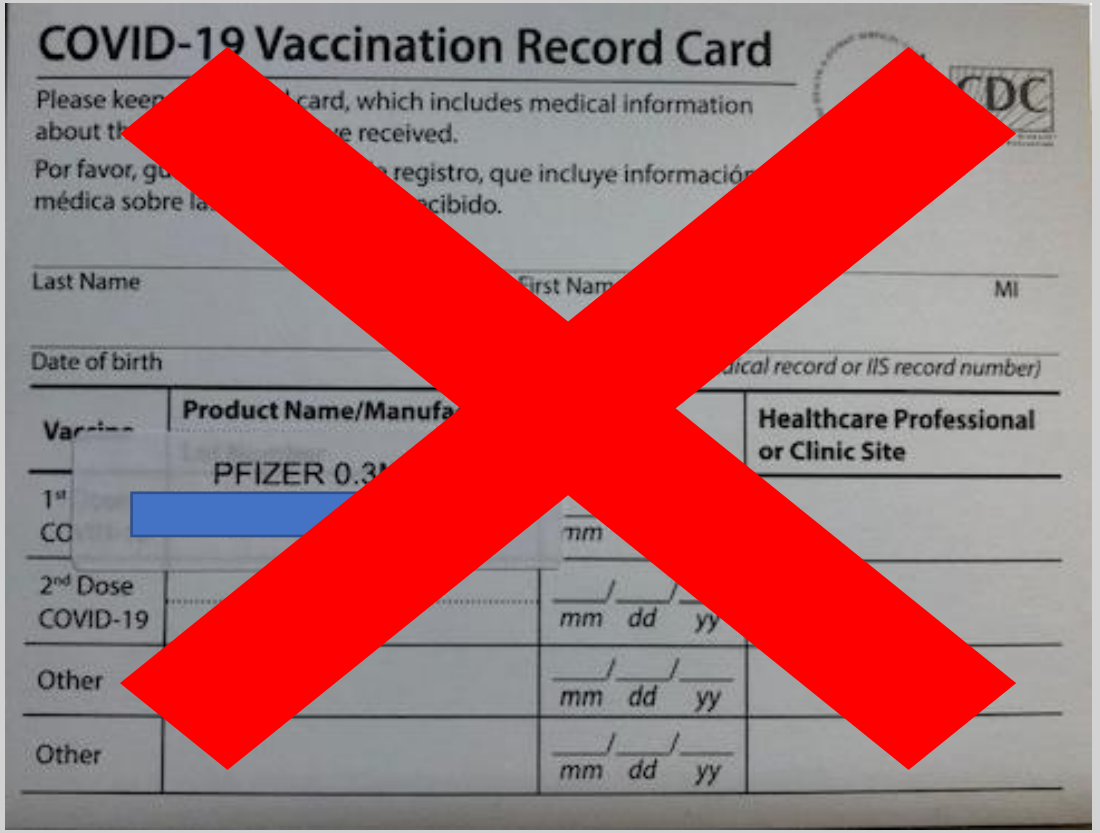
Severe Allergic Reactions…

- Anyone who has a severe allergic reaction to any medication or vaccine that is injected. (Risk Assessment)

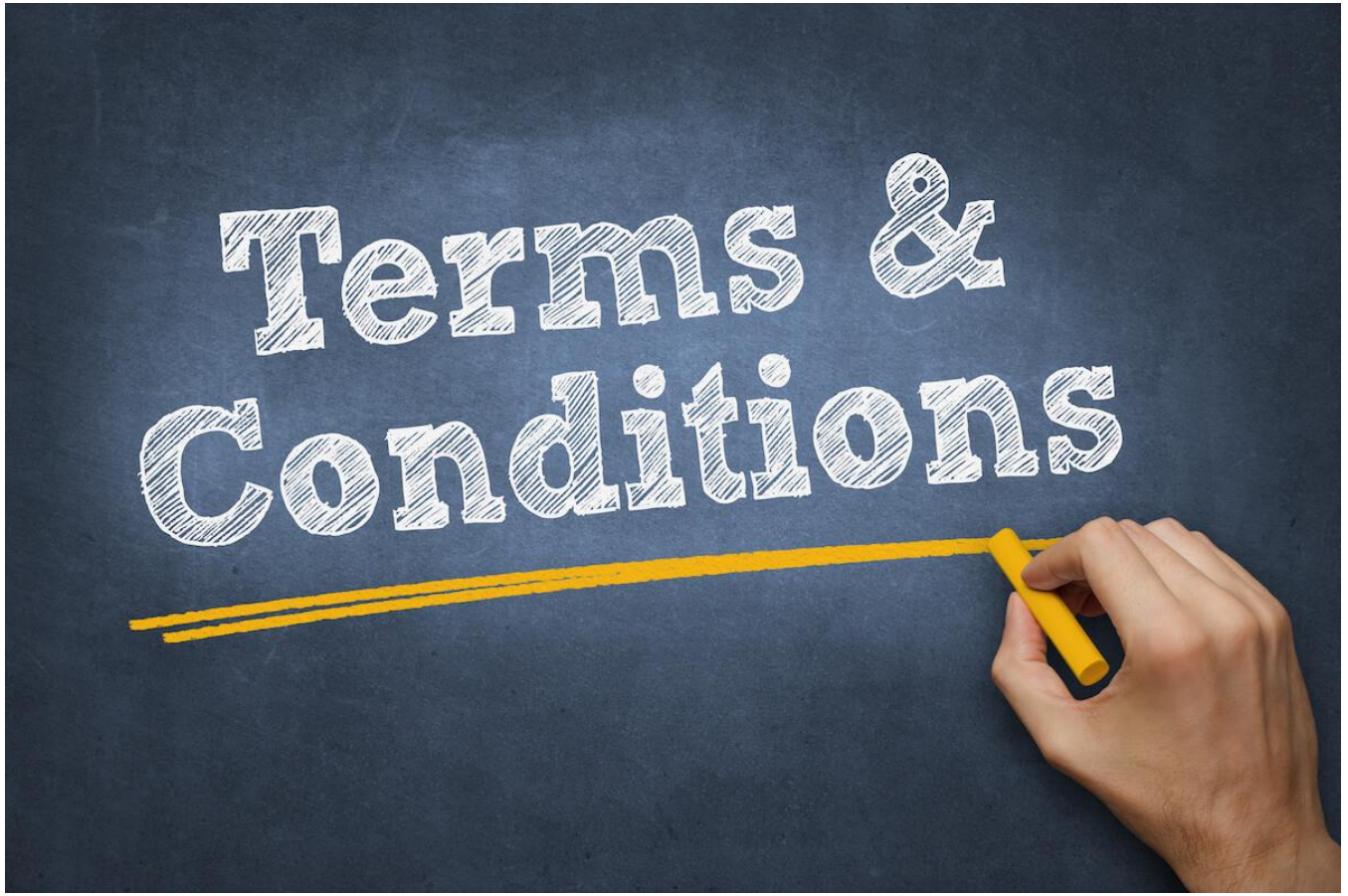
- Anyone who has an allergic reaction to the components of the vaccine should not receive the vaccine.

Once You Receive The Vaccine…

- Remember to tell your patients to keep their vaccine cards in a safe place.
- Tell them NOT to post their vaccine cards on social media or take a picture and send it to their family or friends.
- Provide them with information on how to get a copy of their vaccines.



Terms You May Hear…



- Long COVID
- Long-haul COVID
- Post-acute COVID-19
- Post-acute sequelae of SARS CoV-2 infection (PASC)
- Long-term effects of COVID
- Chronic COVID

Source: CDC

Question Time…

What is Long COVID?

What Is Long COVID…

- "Long COVID is broadly defined as signs, symptoms, and conditions that continue or develop after initial COVID-19 or SARS-CoV-2 infection.
- The signs, symptoms, and conditions are present four weeks or more after the initial phase of infection; may be multisystemic; and may present with a relapsing– remitting pattern and progression or worsening over time, with the possibility of severe and life-threatening events even months or years after infection. Long COVID is not one condition.
- It represents many potentially overlapping entities, likely with different biological causes and different sets of risk factors and outcomes."

Source: Department of Health and Human Services & CDC

People More Likely to Develop Long- COVID…

- People who have experienced more severe COVID-19 illness, especially those who were hospitalized or needed intensive care.
- People who had underlying health conditions prior to COVID-19.
- People who did not get a COVID-19 vaccine.
- People who experience multisystem inflammatory syndrome (MIS) during or after COVID-19 illness.
- People affected by health inequities, including people from racial or ethnic minority groups and people with disabilities.
- A second or third bout of COVID could be the one that gives patients long COVID.

Source: CDC

Long - COVID…

- Post-COVID (PCC) conditions are found more often in people who had severe COVID-19 illness, but anyone who has been infected with the virus that causes COVID-19 can experience post-COVID conditions, even people who had mild illness or no symptoms from COVID-19.

- While most people with post-COVID conditions have evidence of infection or COVID-19 illness, in some cases, a person with post-COVID conditions may not have tested positive for the virus or known they were infected.

- More women than men.

Source: CDC

Long-COVID…

- Post-COVID conditions can have a wide range of ongoing health problems that can last for weeks, months or longer.

- Post-COVID conditions are found more often in people who had severe COVID illness, but people who have mild illness or no symptoms can develop Post-COVID.

- Usually, Post-COVID will start at least four weeks after the infection.

Source: CDC

Long COVID Data…

- Data from the Household Pulse Survey shows that more than 40% of adults in the United States reported having COVID-19 in the past, and nearly one in five of those (19%) are currently still having symptoms of "Long COVID."
- The prevalence of current Long COVID symptoms differed between states.
- The states with the highest percentage of adults who currently have long COVID symptoms were Kentucky (12.7%), Alabama (12.1%), and Tennessee and South Dakota (11.6%). The states with the lowest percentage of adults who currently have long COVID symptoms were Hawaii (4.5%), Maryland (4.7%) and Virginia (5.1%).

Source: CDC, National Center for Health Statistics

Long COVID Data…

- Older adults are less likely to have long COVID than younger adults.
- Nearly three times as many adults ages 50-59 currently have long COVID than those age 80 and older.
- Women are more likely than men to currently have long COVID.
- Nearly 9% of Hispanic adults currently have long COVID, higher than non-Hispanic White (7.5%) and Black (6.8%) adults, and over twice the percentage of non-Hispanic Asian adults (3.7%).

Source: CDC, National Center for Health Statistics

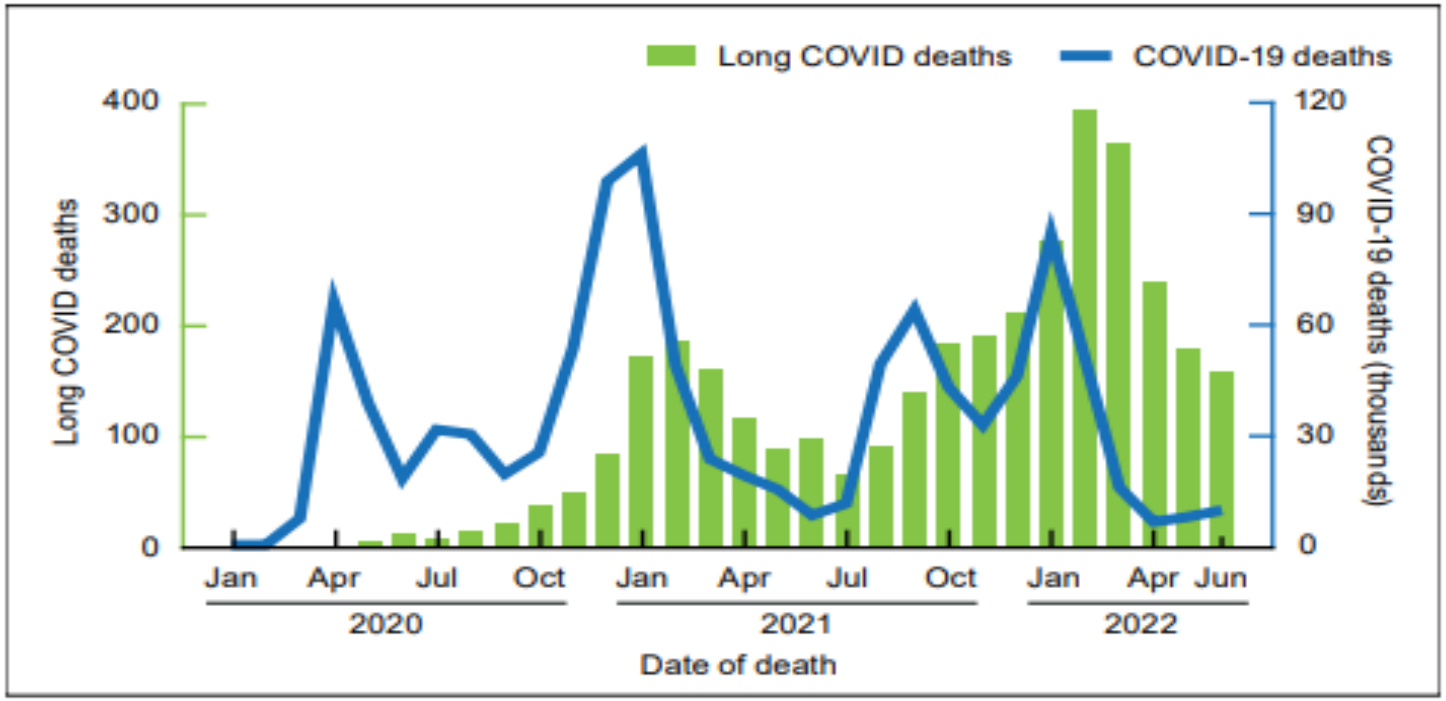
Long COVID Data…

- Bisexual adults and transgender adults (7.5%) were more likely to have current Long COVID symptoms than adults of other sexual orientations and gender identities. 12% of bisexual adults have current long COVID symptoms, compared to 7% of straight and gay and lesbian adults.
- An estimated 15% of transgender adults have current Long COVID symptoms, compared to 5% of cis-gender male adults and 9% of cis-gender female adults.

Source: CDC, National Center for Health Statistics

More Than 3,500 Americans Have Died from Long COVID-Related Illness in the First 30 Months of the Pandemic…

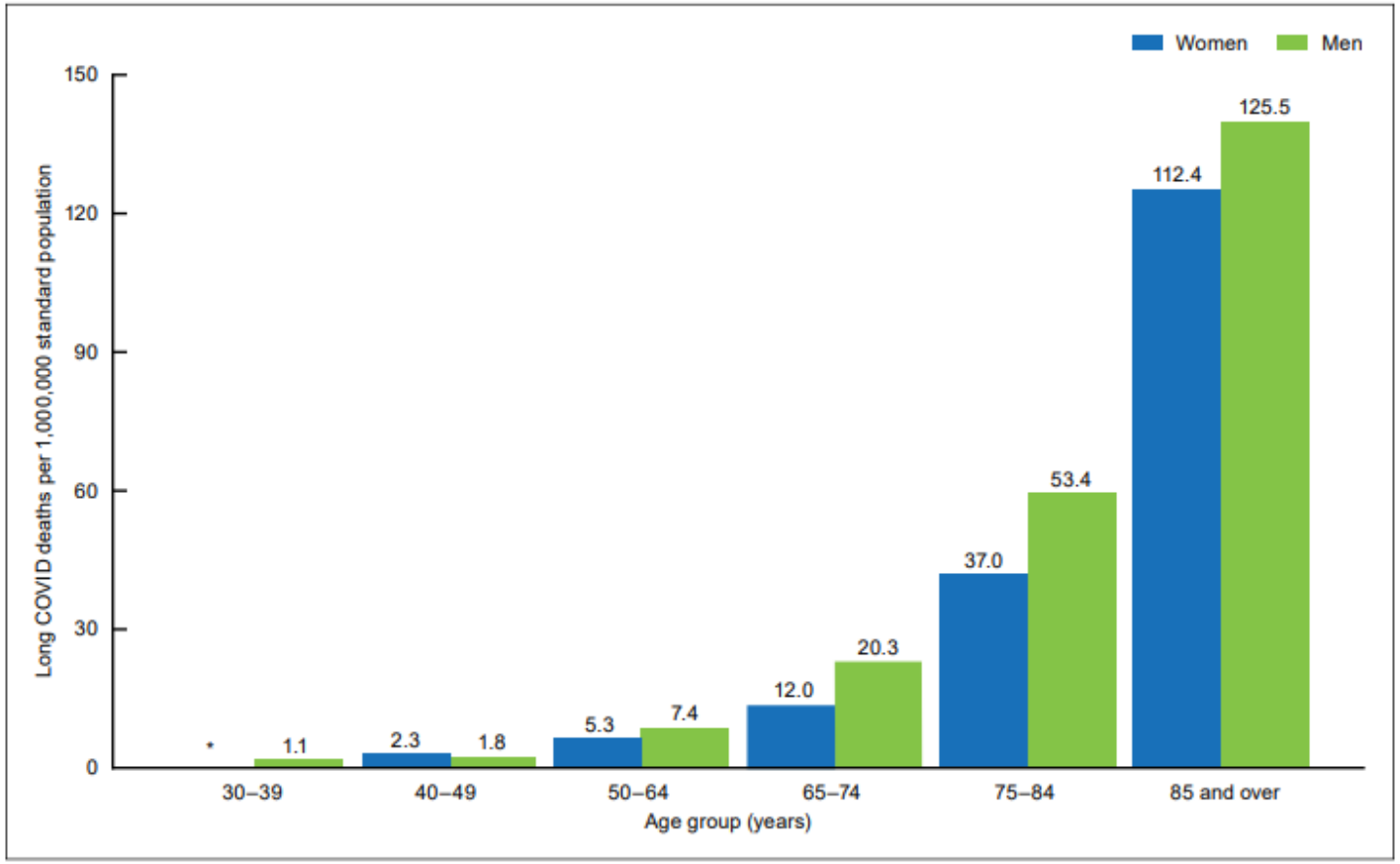
Figure 1. Provisional number of deaths with COVID-19 and deaths mentioning long COVID, by month and year of death: United States, January 1, 2020–June 30, 2022



Source: Vital Statistic Rapid Release No 25 December 2022

More Than 3,500 Americans Have Died from Long COVID-Related Illness in the First 30 Months of the Pandemic…

Figure 2. Provisional age-specific rates for COVID-19 deaths with long COVID, by sex and age: United States, July 1, 2021–June 30, 2022



Source: Vital Statistic Rapid Release No 25 December 2022

Risk Of Long-COVID…

- People who are not vaccinated against COVID-19 and become infected may also be at higher risk of developing post-COVID conditions compared to people who were vaccinated and had breakthrough infections.
- Anyone who was infected can experience post-COVID conditions.
- Most people with post-COVID conditions experienced symptoms days after their SARS CoV-2 infection when they knew they had COVID-19, but some people with post-COVID conditions did not notice when they first had an infection.

Source: CDC

Symptoms Of Post-COVID

- General Symptoms:
  - Tiredness or fatigue that interferes with daily life.
  - Symptoms that get worse after physical or mental effort.
  - Fever
- Respiratory and Cardiovascular Symptoms:
  - Difficulty breathing or shortness of breath
  - Cough
  - Chest pain
  - Fast-beating or pounding heart

Symptoms Of Post- COVID…

- Neurological Symptoms:
  - Difficulty thinking or concentrating
  - Headache
  - Mood changes
  - Sleep problems
  - Dizziness when standing up
  - Change in smell or taste
  - Depression or anxiety
  - Hair loss
- Digestive Symptoms:
  - Diarrhea
  - Stomach pain

Source: CDC

Symptoms Of Post-COVID…

- Other Symptoms:
  - Joint or muscle pain
  - Loss of smell and taste
  - Rash
  - Changes in menstrual cycle
  - Erectile dysfunctions
  - Multisystem Inflammatory Syndrome Adults- MIS A

People with post-COVID conditions may develop or continue to have symptoms that are hard to explain and manage.

Source: CDC

Brain Fog…

- Brain fog—one of long COVID's most misunderstood symptoms of Long COVID.
- Brain fog can cause cognitive deficits and issues with memory.
- People who experience brain fog symptoms may have them for a short time while others may experience brain fog for several months or longer.
- There currently are no treatment options that are approved for the condition.

Source: Yale Health

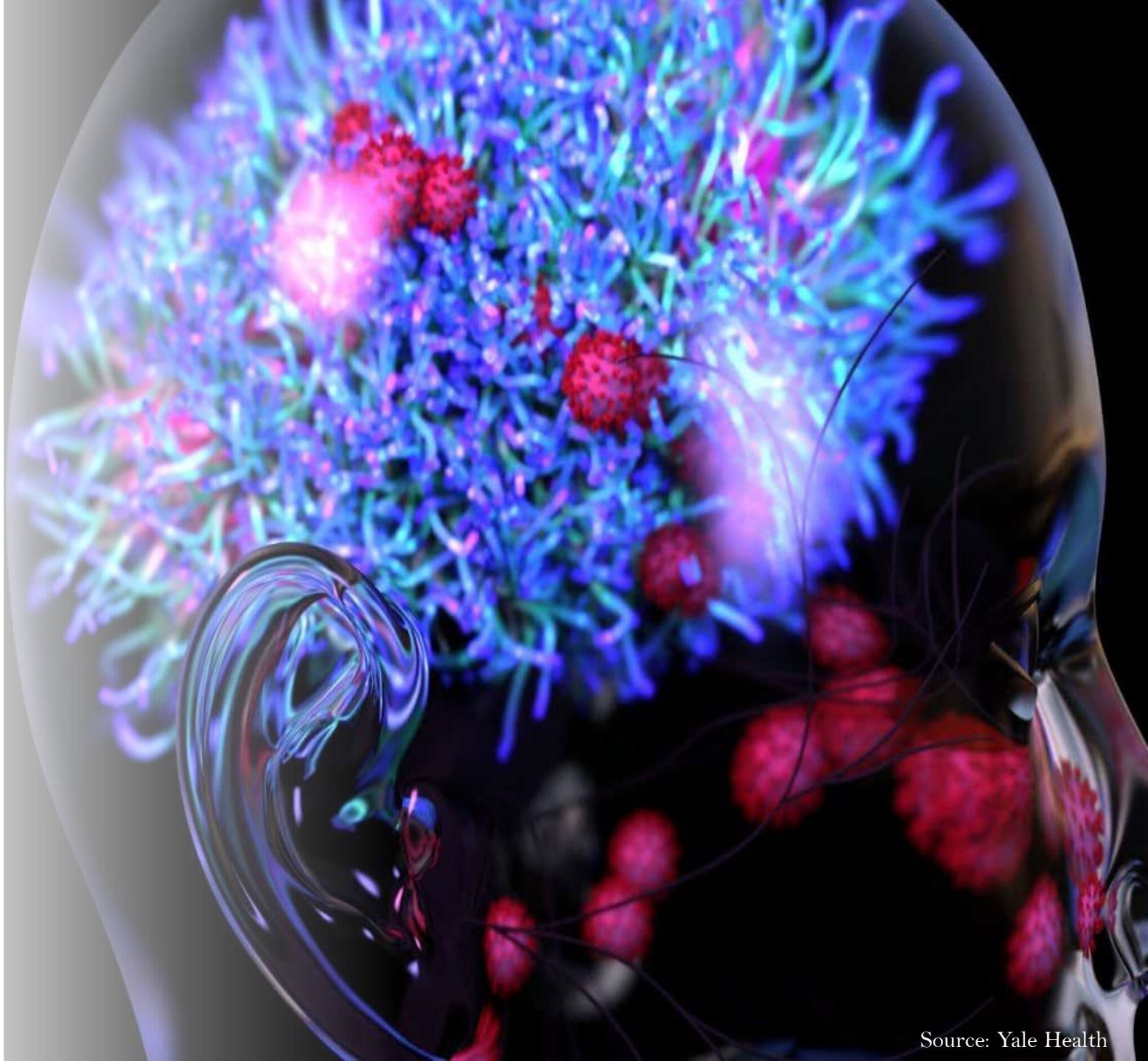
Brain Fog...

- COVID-19 can cause inflammation in the brain and change how some brain cells behave — much like what happens in chemo fog.
- Even a mild case of COVID-19 could cause long-term changes to the immune system and neurons.
- Researchers found that after a mild case of COVID-19, a type of human immune cell in the brain called microglia became activated and stayed more reactive even weeks later. When the microglia are more reactive, the brain has trouble keeping up with some of its regular tasks, such as making new neurons in the hippocampus, a region of the brain that plays an important role in learning and memory.

Source: Yale Health

Brain Fog Symptoms…

- Poor concentration
- Feeling confused
- Thinking more slowly than usual
- Fuzzy thoughts
- Forgetfulness
- Lost words
- Mental fatigue
- Sleep issues



Source: Yale Health

What Can People Do With Brain Fog?

- Quite smoking or vaping.
- Avoid alcohol use.
- Be active
- Watch what they eat.
- Exercise the mind
  - Crosswords
  - Puzzles
- Talk to their health care provider

Source: Yale Health

Long COVID…

- She loves to cook with her husband, Tom, and share a glass of wine while they do. Milne, a volunteer in a Mass General Brigham patient study of COVID-19-related smell and taste loss, can no longer taste the wine (though she can still identify cheap vintages from the mouth feel) and she needs her husband to tell her if what they've made is any good.
- She has burned a few things – not noticing until Tom asked if she was intentionally burning down the kitchen.
- "So there's some danger involved," she said.
- About six months ago, after losing the family's beloved 13-year-old chocolate Labrador retriever, Abby, and breaking her foot, Milne acknowledges "sitting here feeling really good and sorry for myself." And her favorite foods no longer make her feel better: "That is missing – the mental reward you get using food."

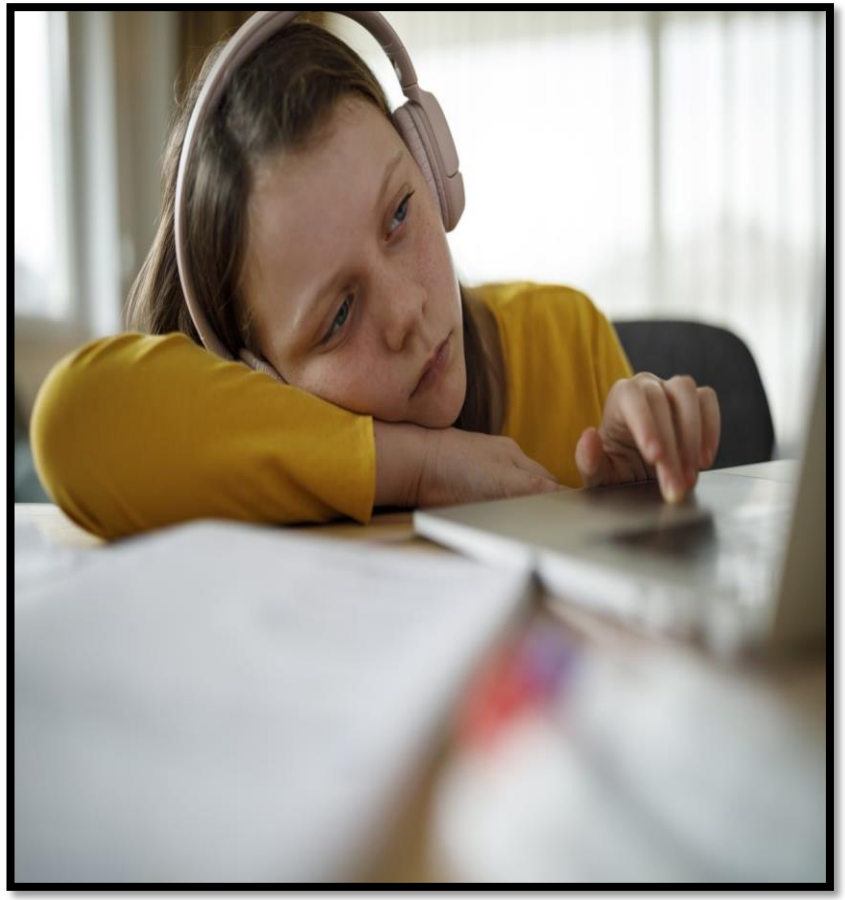
Lisa and Tom Milne caught COVID-19 the same week in June 2022. Tom recovered fully. Lisa still can't smell or taste her food. *Courtesy Lisa Milne*

Source: USA Today June 14, 2023


TikTok
@clevelandclinic
Struggling with long COVID, Jennifer hasn't been able to taste or smell until today.

Children & Adolescents and Long COVID…

- The reported prevalence of pediatric post-COVID-19 conditions has varied widely in the medical literature, with estimates that anywhere between 2% to 66% of SARS-CoV-2-infected children and adolescents experience new persistent or prolonged symptoms after recovery of their acute illness.
- A recent meta-analysis, which evaluated 21 studies and over 80,000 children, determined that 25% of SARS-CoV-2-positive children had persistent symptoms at 4 weeks after acute COVID-19.
- Long COVID conditions appear to be less common in children and adolescents than adults.
- Young children may have trouble describing the problems they are having.



Source: American Academy of Pediatrics

Long COVID In Children & Adolescents …

- Many kids with Long COVID have trouble:
  - Inability to tolerate strenuous activity
  - Anxiety
  - Loss of taste and smell
  - Chest tightness
  - Cognitive difficulties, also known as “brain fog”
  - Extreme fatigue
  - Headache
  - Muscle pain
  - Shortness of breath
  - Palpitations
  - Residual fever
  - Multisystem Inflammatory Syndrome in Children (MIS-C)
  - May not be able to attend school
  - Have issues playing sports

Source: Yale Medicine

Long COVID In Children & Adolescents …

- Many kids with Long COVID have trouble with:
  - Developmental issues
  - Physical fatigue
  - Mental and behavior health issues
  - Symptoms of Diabetes
  - Loss of appetite
  - Constipation
  - Diarrhea
  - Anorexia
  - Joint pain
  - Sleep issues

Source: American Academy of Pediatrics & Halthyhildren.org

The Goals For Children & Adolescents With Long COVID…

- Treat symptoms
- Return to daily living
- Return to sports or physical activity
- Return to childcare
- Return to school
  - Extra time on test
  - Schedule rest periods during the day
  - Modified class schedule
- Reunite with their friends

Source: American Academy of Pediatrics

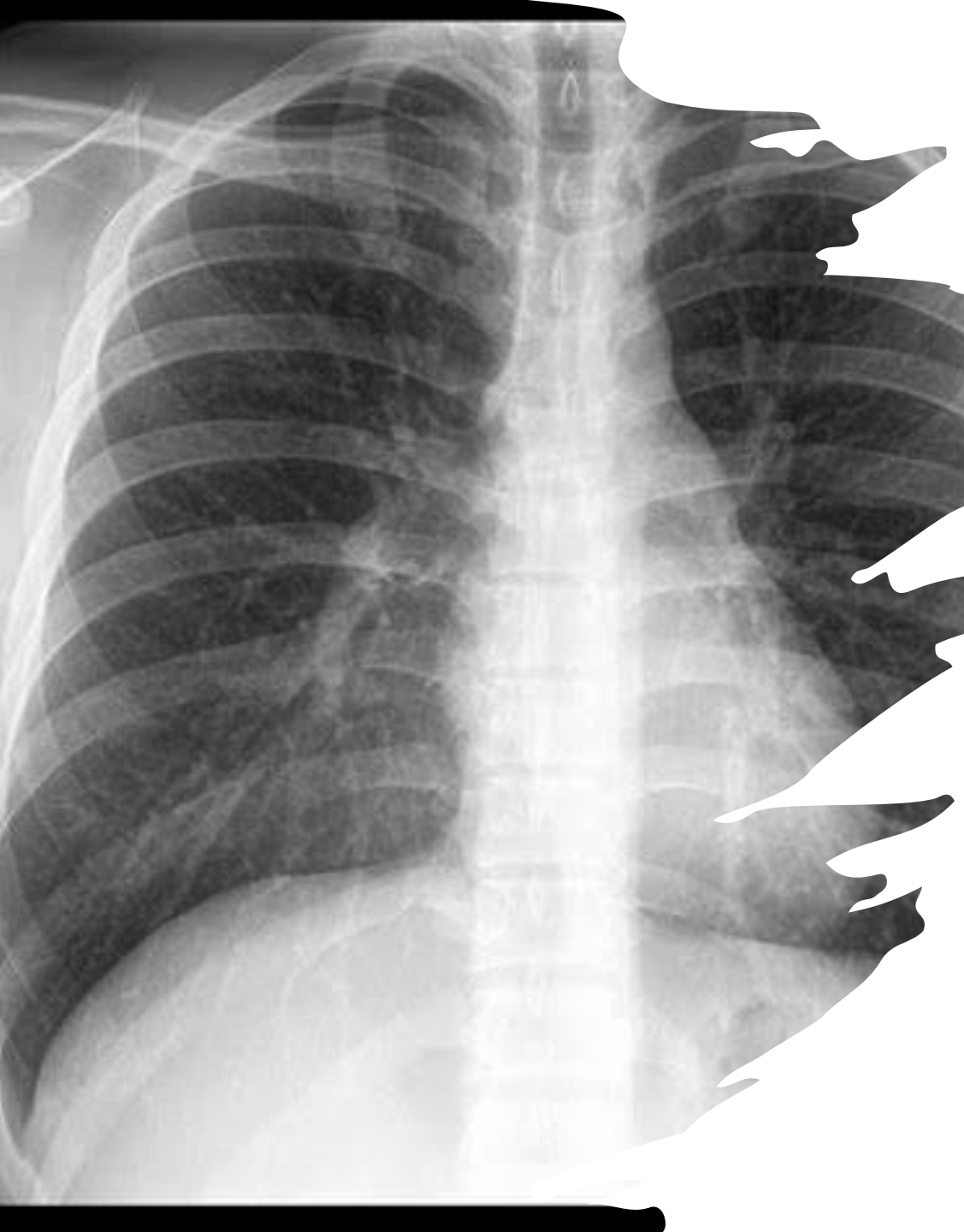
Long COVID In Children & Adolescents …

- One of the most challenging factors for parents and caregivers is that symptoms like these could signal something else is wrong that has nothing to do with COVID-19.

Source: Cleveland Clinic

Question Time….

What test do we order if we think someone has Long COVID?



Lab Test For Post-COVID…

- Clinical evaluations ~ May be Normal
- Routine blood test ~ May be Normal
- Chest X-ray ~ May be Normal ~
- EKG ~ May be Normal

Objective laboratory or imaging findings should **not be used as the only measure** or assessment of a patient's well-being!

Diagnosis Of Post-COVID…

- At this time, there is no test to diagnose Post-COVID.
- This makes it difficult for healthcare providers to recognize Post-COVID conditions.
- People with these unexplained symptoms may be misunderstood by their healthcare providers, which can result in a longer time to diagnosis and receive appropriate care or treatment.

Source: CDC

Question Time…

How do you manage a patient with Long COVID?

The Goal Of Management Of Post-COVID…

- The goal of medical management of Post-COVID Conditions is to optimize function and quality of life.
- Ideally, healthcare professionals, in consultation with the relevant specialists, should develop a comprehensive management plan based on their atients' presenting symptoms, underlying medical and psychiatric conditions, personal and social situations, and their treatment goals.

Source: CDC

Management of Post-COVID…

- Setting achievable goals with the patient.
- Telling patient we need more info on Post-COVID.
- Talk to your patient about progress and challenges.

Source: CDC

Management Of Post-COVID…

- Provide holistic patient-centered management to improve patient quality of life and function.
- Use trauma-informed approaches to assessing symptoms and conditions.
  - Safety
  - Trustworthiness & transparency
  - Peer support
  - Collaboration & mutuality
  - Empowerment & choice
  - Cultural, historical & gender issues

Source: CDC

Management Of Post-COVID…

- Set expectations with patients and their families that outcomes from Post-COVID conditions differ among people.
- Continue follow-up over the course of illness.
- Refer to specialist for physical or mental health care if needed.
- Connecting patients to social services.

Source: CDC

Symptoms Management…

- Creating a comprehensive rehabilitation plan may be helpful for some patients, and might include physical and occupational therapy, speech and language therapy, or vocational therapy, as well as neurologic rehabilitation for cognitive symptoms.
- Gradual return to activity as tolerated could be helpful for most patients.
- Management of underlying medical conditions:
  - Sleep
  - Stress reduction
  - Nutrition

Management Of Long-COVID…

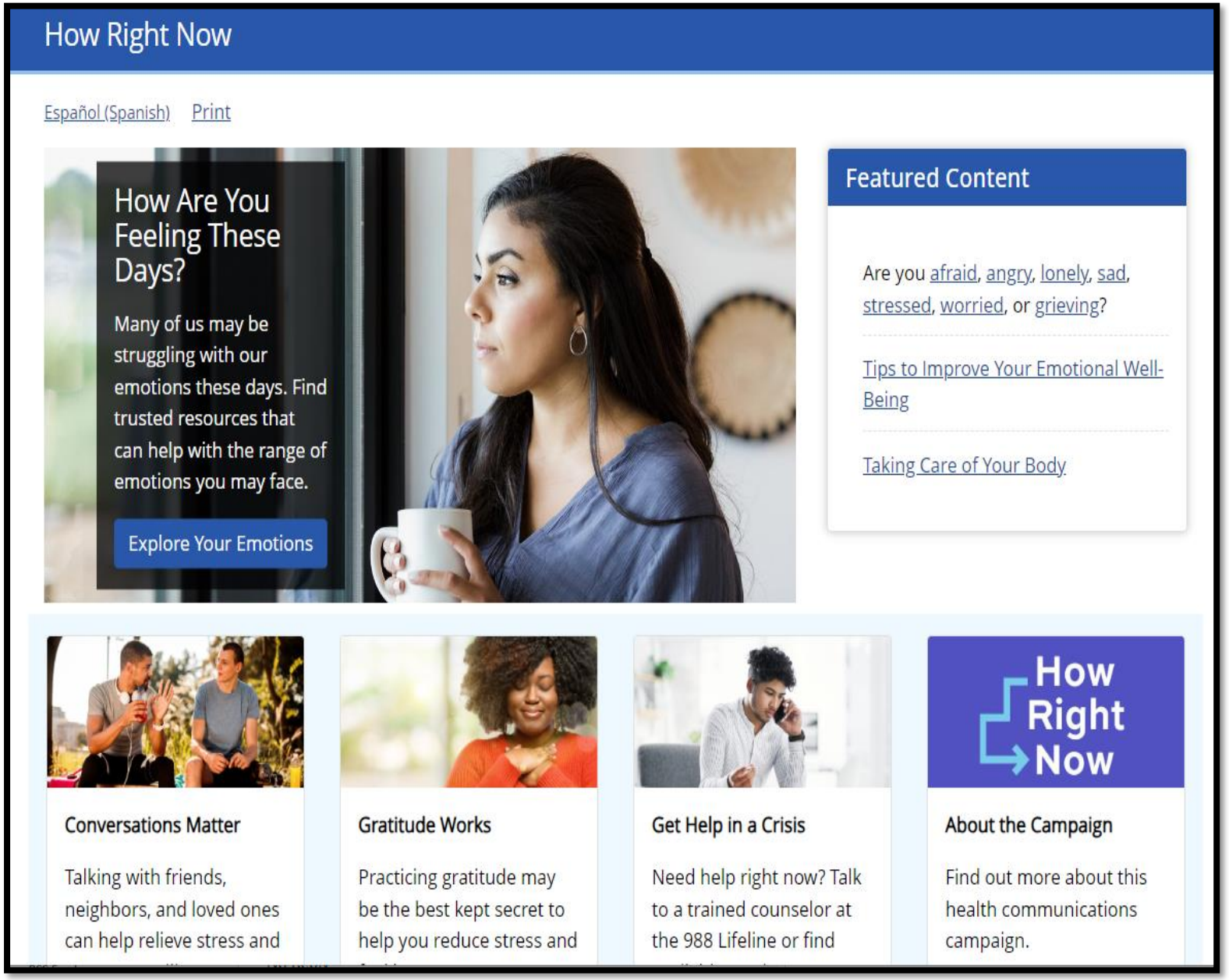
- Stress is a major part of Long COVID.
- As a provider, you can help your patients by providing them ways to manage and cope with stress by:
  - Taking deep breaths
  - Stretching
  - Meditation
  - Eating healthy
  - Exercise
  - Get plenty of sleep
  - Avoid alcohol and other drugs
  - Make time to unwind
  - Connect with others

Clinical Trials for Long- COVID…

- NIH launched and is opening enrollment for clinical trials evaluating at least four potential treatments for Long COVID. In the coming months, additional trials will launch to test at least seven more potential treatments.
- These trials are part of NIH's Researching COVID to Enhance Recovery (RECOVER) initiative and are designed to evaluate multiple treatments simultaneously, focusing on symptoms described as most burdensome by patients with Long COVID.

Source: INH

Support People With Post COVID…



Source: https://www.cdc.gov/howrightnow/index.html

Long COVID & Vaccines…

- Doctors who work in Long COVID clinics have for years suspected that vaccination may help protect against the development of Long COVID, noted Lawrence Purpura, MD, MPH, an infectious disease specialist at New York–Presbyterian/Columbia University Irving Medical Center, who treats patients with long COVID in his clinic.
- A review published in February in *BMJ Medicine* concluded that 10 studies showed a significant reduction in the incidence of Long COVID among vaccinated patients. Even one dose of a vaccine was protective.
- In a June meta-analysis published in *JAMA Internal Medicine*, researchers analyzed more than 40 studies that included 860,000 patients and found that two doses of a COVID-19 vaccine reduced the risk of Long COVID by almost half.

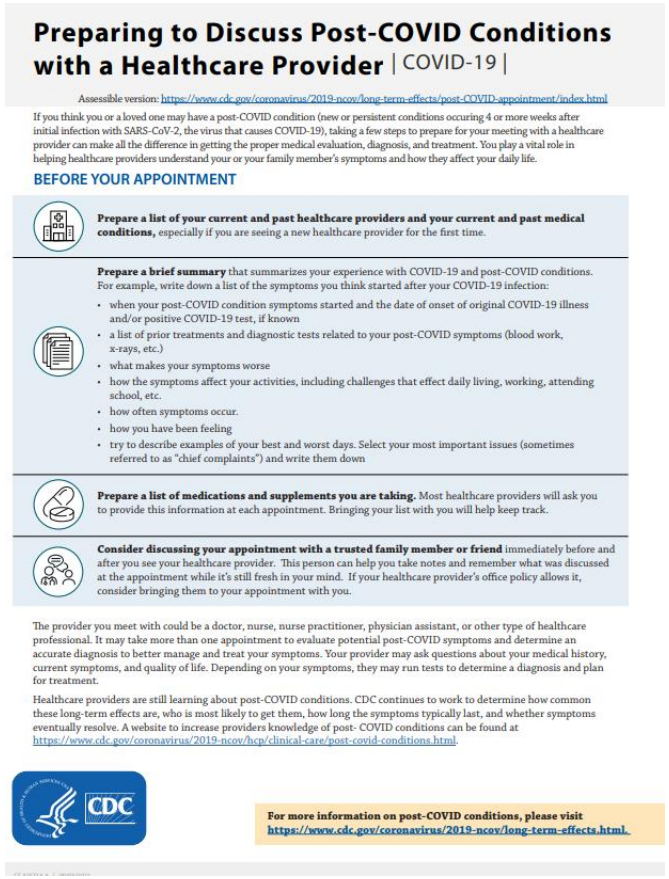
Source: Med Scape July, 142023

Treatment…

- FDA-approved or over-the-counter medications, as well as vitamin or electrolyte supplements, may be helpful for indicated illnesses (e.g., headache, anxiety) or documented deficiencies (e.g., vitamin deficiency) after carefully weighing the benefits and risks of pharmaceutical interventions.
- Some treatments have been offered that lack evidence of efficacy or effectiveness and could be harmful to patients.
- Healthcare providers should inquire about any unprescribed medications, herbal remedies, supplements, or other treatments that patients may be taking for their Post-COVID.

Source: CDC

Questions For Healthcare Provider…



Preparing to Discuss Post-COVID Conditions with a Healthcare Provider | COVID-19 |

Assessible version: https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/post-COVID-appointment/index.html

If you think you or a loved one may have a post-COVID condition (new or persistent conditions occuring 4 or more weeks after initial infection with SARS-CoV-2, the virus that causes COVID-19), taking a few steps to prepare for your meeting with a healthcare provider can make all the difference in getting the proper medical evaluation, diagnosis, and treatment. You play a vital role in helping healthcare providers understand your or your family member's symptoms and how they affect your daily life.

BEFORE YOUR APPOINTMENT

Prepare a list of your current and past healthcare providers and your current and past medical conditions, especially if you are seeing a new healthcare provider for the first time.

Prepare a brief summary that summarizes your experience with COVID-19 and post-COVID conditions. For example, write down a list of the symptoms you think started after your COVID-19 infection:

- when your post-COVID condition symptoms started and the date of onset of original COVID-19 illness and/or positive COVID-19 test, if known
- a list of prior treatments and diagnostic tests related to your post-COVID symptoms (blood work, x-rays, etc.)
- what makes your symptoms worse
- how the symptoms affect your activities, including challenges that effect daily living, working, attending school, etc.
- how often symptoms occur.
- how you have been feeling
- try to describe examples of your best and worst days. Select your most important issues (sometimes referred to as "chief complaints") and write them down

Prepare a list of medications and supplements you are taking. Most healthcare providers will ask you to provide this information at each appointment. Bringing your list with you will help keep track.

Consider discussing your appointment with a trusted family member or friend immediately before and after you see your healthcare provider. This person can help you take notes and remember what was discussed at the appointment while it's still fresh in your mind. If your healthcare provider's office policy allows it, consider bringing them to your appointment with you.

The provider you meet with could be a doctor, nurse, nurse practitioner, physician assistant, or other type of healthcare professional. It may take more than one appointment to evaluate potential post-COVID symptoms and determine an accurate diagnosis to better manage and treat your symptoms. Your provider may ask questions about your medical history, current symptoms, and quality of life. Depending on your symptoms, they may run tests to determine a diagnosis and plan for treatment.

Healthcare providers are still learning about post-COVID conditions. CDC continues to work to determine how common these long-term effects are, who is most likely to get them, how long the symptoms typically last, and whether symptoms eventually resolve. A website to increase providers knowledge of post- COVID conditions can be found at https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/post-covid-conditions.html.

For more information on post-COVID conditions, please visit https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects.html.

On the Day of Your Appointment for Post-COVID Conditions | COVID-19 |

Accessible version: https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/post-COVID-appointment/index.html

On the day of your appointment, try to arrive a little early or, for telemedicine appointments, call in or log on a few minutes ahead of the appointment. If your provider is running late, you can use the time to make sure your paperwork or forms have been filled out and the front desk has your correct information. Everyone likes to be seen on time, but it's important to remember that each patient should receive the same attention from the provider once it is their turn. The list below can help you get the most out of your appointment.

DURING YOUR APPOINTMENT

Since appointment time is often limited, it will help to **make a list** of why you are coming in for an appointment. Start with your most concerning issues (sometimes called "chief complaints").

Focus on **talking to your provider** as this can be the most valuable part of the visit. If your provider still needs any of your past medical records, **ask to sign required forms** to give your permission to have these records sent.

Ask questions, starting with the most important ones. Don't hesitate to ask your healthcare provider to clarify the answers if they are not clear to you.

Be prepared to **discuss your activity levels, what activities make your illness worse, and any medications** that seem to improve or worsen the symptoms.

Answer the provider's questions. Explain how you feel. Be straightforward, and don't be embarrassed to talk about anything.

Let your provider know if there have been any changes to your **prescribed medications and supplements**.

Make sure you **understand the next steps**. Bring pencil and paper to write down instructions or use your hand-held device for notes. Repeat back what the provider has told you to check for understanding. (For example, you might ask: "So, I should go to the lab next week with this paperwork to get my blood drawn?"). Additional questions could include:

- Will I need additional tests?
- When and how will I get test results?
- When should I return for another visit?

Ask for an appointment summary. You can also ask the provider to write down any instructions, medication names, etc. for you. If there are changes to your treatment plan, make sure you understand what to do. For new medication, ask why it is being given and what you should expect by taking this new medication.

For more information on post-COVID conditions, please visit https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects.html.

Think If You Were The Patient…

- A person with Long COVID who has lung damage that causes shortness of breath, fatigue, and related effects is substantially limited in respiratory function, among other major life activities.
- A person with Long COVID who has symptoms of intestinal pain, vomiting, and nausea that have lingered for months is substantially limited in gastrointestinal function, among other major life activities.
- A person with Long COVID who experiences memory lapses and cognitive impairment (or “brain fog”) is substantially limited in brain function, concentrating, and thinking.

Living With Long COVID…

- Post-COVID conditions can be considered a disability under the Americans with Disabilities Act.

Source: CDC

Long- COVID And Working…

- Ask your patients these questions:
  - What is your job?
  - Tell me about your typical workday?
  - What are your job duties?
  - What does your job entail?
  - Where do you work?
  - How do you get to work?
  - What sort of hours?
  - Exposure?
  - Proactive equipment needed

Source: American College of Occupational and Environmental Medicine

What To Look For In Your Patient Before They Can Return To Work…

- Gait, posture, and balance
- Ability to rise from a chair or climb to/from the exam table with or without assistance of arms.
- Simulation of work activities
- Review other observations
- Ability to stay focused on the conversation
- Think clearly and recall information

Source: American College of Occupational and Environmental Medicine

Supporting Return-to-Work…

- Establish expectations and goals as early as possible.
- Address work at every visit.
- Recognize that:
  - Patients may fear returning to work.
  - Employers may resist bringing back employees who are not at 100%
  - You are a trust authority, and your recommendations carry weight
  - Getting back to work in some capacity can help patients.

- Plan close follow-up to address problems and progress activities slowly.
- Anticipate potential setbacks and plan for them

Source: American College of Occupational and Environmental Medicine

Supporting Return-to-Work…

- Start with what they can do now as initial starting point for work release.
- If the employer is not able to bring them back, this does not mean the patient is totally disabled
- Recommend activities they can do at home to progress function:
  - Set small stretch goals in activities
  - Consider using activity logs

Source: American College of Occupational and Environmental Medicine


Wear your mask.
Wash your hands.
Keep your distance.
THIS IS THE WAY.

REMEMBER…

Resources For Providers:

- American Academy of Pediatrics
- American Academy of Physical Medicine and Rehabilitation
- Advisory Committee on Immunization Practices
- American Medical Association
- American Journal of Obstetrics and Gynecology
- Centers For Disease Control and Prevention
- Emory University
- Food and Drug Administration
- Infectious Disease Society of America
- National Institutes Of Health
- The American College of Obstetricians and Gynecology


ANY
QUESTIONS
?

Medical Assistance Presentation Topics

- Bloodborne Pathogen Education
- Body Modification
- Bullying Prevention
- Death Education
- Delta-8 (New THC)
- EMS Topics
- Family Mental Health
- Food Safety Education
- Funky Fugus
- General Drug Education
- General Health Education
- Health Misinformation
- Heroin Education
- Hepatitis Education
- Human Trafficking
- Mpox
- Narcan Education
- Opiates in Our Society
- Patient Education
- Parenting in The Cyber World
- Poison Prevention Education
- Stop The Bleed
- STD/STI Education
- Suicide Prevention
- Testicular Cancer Education
- Vaping Education

* Other topics Up on Request

If you are interested in any of the above presentations, please e-mail:

All Course Presentations Are FREE!

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HAMILTON COUNTY Public Health
Prevent. Promote. Protect.
HAMILTON COUNTY, INDIANA

Happy Thanksgiving…

References…

- American Academy of Pediatrics
- Advisory Committee on Immunization Practices
- American Chemical Society
- American College of Occupational and Environmental Medicine
- American Journal of Obstetrics and Gynecology
- Centers For Disease Control and Prevention
- Emory University
- Food and Drug Administration
- Indiana Department Of Health
- Johnson & Johnson
- Mayo Clinic
- Med Scape
- Moderna
- National Institutes Of Health
- National Center for Health Statistics
- New York Pot
- Pfizer
- Saint Louis University Hospital
- The American Collage of Obstetricians and Gynecologist
- The U.S. Surgeon General 2021
- USA Today
- UCLA Radiology
- Vital Statistics Rapid Release
- World Health Organization
- Yale Medicine