Facts vs. Fiction: What patients with Chronic Liver Disease want to know about COVID-19

Moderated By: ***Karen Hoyt, BA; Nancy Reau, MD, FAASLD; & Elizabeth K. Goacher, PA-C, MHS, AF-AASLD***

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Webinar Moderator

Karen Hoyt, BA

- Patient Advocate
- Teacher
- Author – I Help C: Your Best Friends Guide to Hepatitis C & Cirrhosis
- Hepatitis C Treatment Survivor
- Liver Transplant Recipient

Webinar Moderator

Elizabeth K. Goacher, PA-C, MHS, AF-AASLD

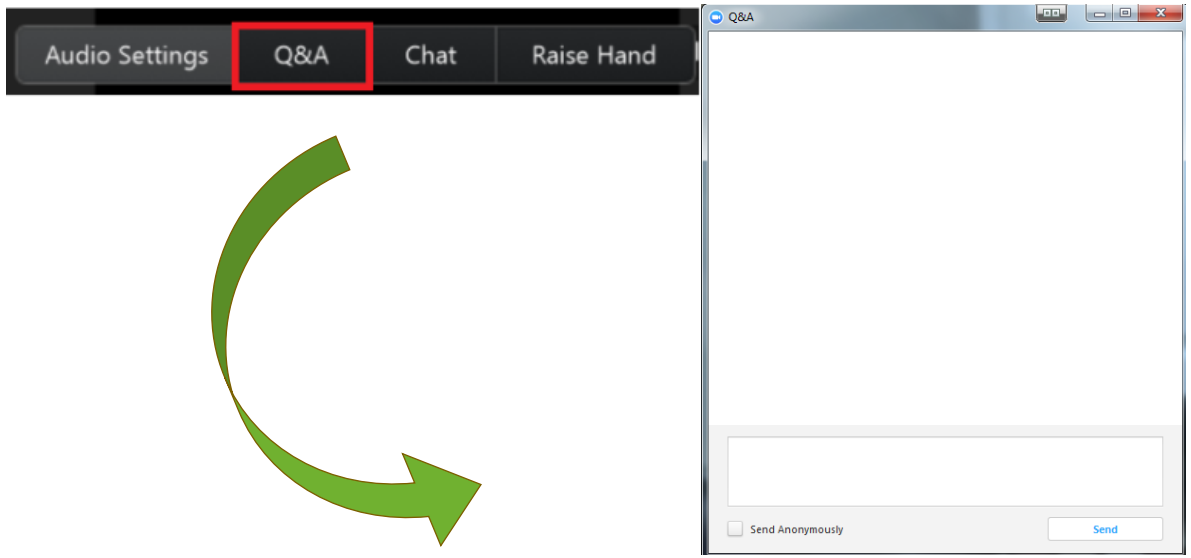
- Physician Assistant – Gastroenterology
- Duke University
- Chair – AASLD Hepatology Associates Committee

Webinar Agenda

Talks	Speakers
Webinar and Presenter Introductions	Karen Hoyt, Nancy Reau, Elizabeth Goacher
“What people with liver disease should know about COVID-19”	Su Wang
“Types COVID-19 Vaccines: Which One is Right for Me?”	Su Wang
"Variants: What Does This Mean for Me?”	Corrie Berk
“CDC Guidelines: What should I do pre- & post-vaccination to protect myself?”	Corrie Berk
Panel Discussion / Q&A	All

Webinar Q&A

- Submit your questions anytime during the webinar in the Q&A box at the top or bottom of your screen.



- Questions will be answered at the end of the presentations.

Webinar Presenter

Su Wang, MD MPH FACP

- Medical Director, Viral Hepatitis Programs & Center for Asian Health
- Saint Barnabas Medical Center, RWJBarnabas Health
- President, World Hepatitis Alliance
- Living with Hepatitis B

Webinar Presenter

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Webinar Panelist

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What people with liver disease should know about COVID-19

Su Wang, MD MPH FACP

Medical Director, Viral Hepatitis Programs & Center for Asian Health

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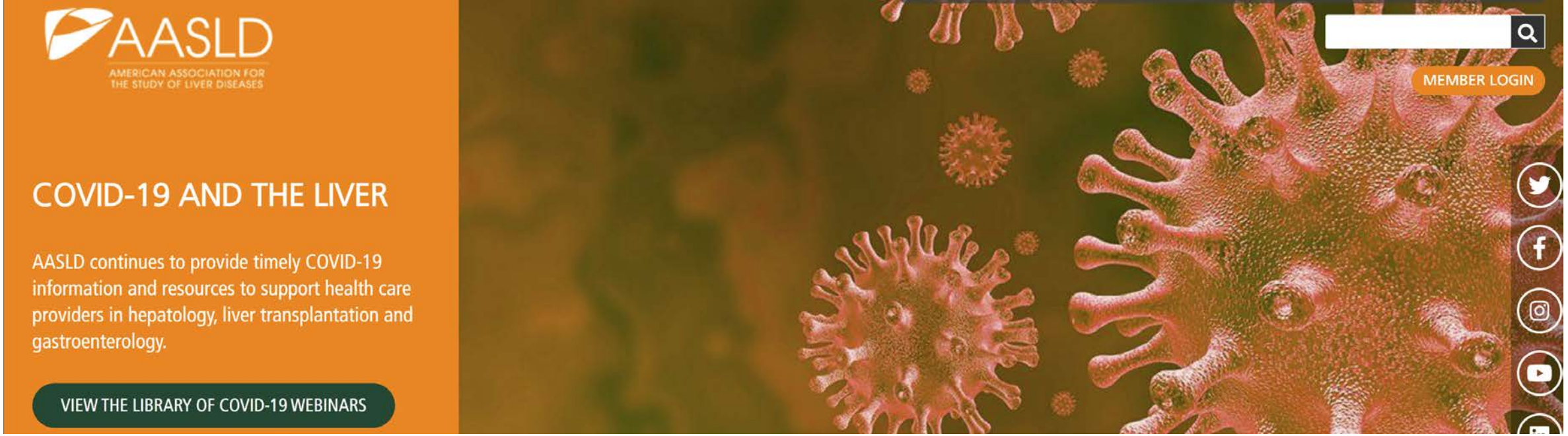
President, World Hepatitis Alliance

Living with Hepatitis B

April 22, 2021

I report the following disclosures:

Research funding from Gilead Sciences



FOR PATIENTS

- COVID-19 Vaccine Recommendations for Patients with Liver Disease
- COVID-19 and Chronic Liver Disease
- COVID-19 in Children and Teenagers With Liver Disease or Liver Transplant
- COVID-19 and Viral Hepatitis
- COVID-19 and Nonalcoholic Fatty Liver Disease
- COVID-19 Myth Busters
- COVID-19 and Liver Transplantation
- COVID-19 and Hepatocellular Carcinoma
- COVID-19 and Liver Cirrhosis
- COVID-19 and Autoimmune Liver Disease
- COVID-19 and Alcohol-associated Liver Disease

COVID-19 and Liver Transplantation

Important Information for Patients and Their Families

The American Association for the Study of Liver Diseases (AASLD) is committed to helping you understand coronavirus disease 2019 (COVID-19) infection and prevention in people who have undergone liver transplantation.

What We Know

Our understanding of COVID-19 in liver transplant recipients is evolving. When making decisions related to COVID-19 infections or prevention, having up-to-date information is critical.

- Symptoms of COVID-19 infection include any of the following: **fever, chills, drowsiness, cough, congestion or runny nose, difficulty breathing, fatigue, body aches, headache, sore throat, abdominal pain, nausea, vomiting, diarrhea, and loss of sense of taste or smell.**
- Recent reports suggest that liver transplant recipients may not have a greater risk of developing severe illness from COVID-19 infection. However, most require hospital admission and approximately 15% intensive care unit admission; mortality has been observed only in patients 60 years of age or older and was higher among males. More epidemiologic data of COVID-19 in transplant recipients will be

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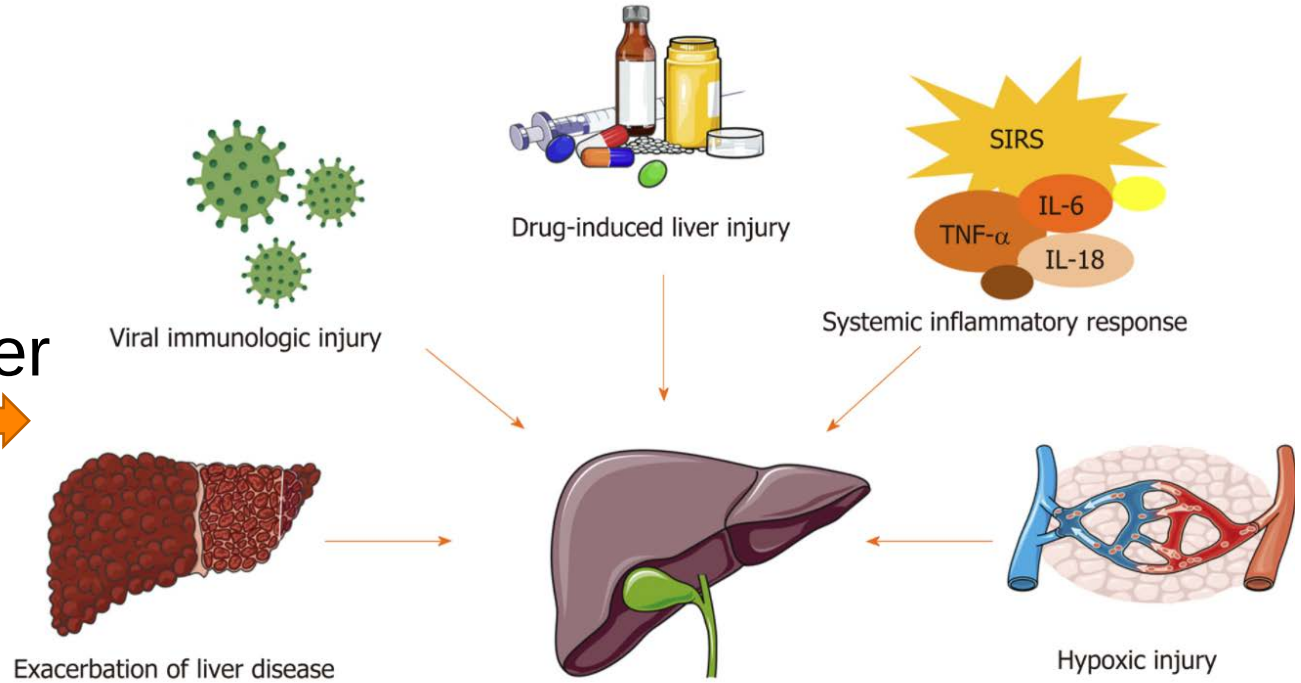
COVID-19 and the Liver

- COVID-19 virus binds to ACE2 receptors
- ACE2 receptors are in the liver, liver could be a viral target
- But there other possible causes of liver injury during COVID-19 infection
- 14-83% of hospitalized COVID-19 patients have elevated liver tests[1]
  - Liver enzymes (AST/ALT) may be elevated 1-2 times normal in mild Covid; self-resolves
  - Liver injury is more common in severe COVID-19 and lead to higher liver enzymes



Yang RX, Zheng RD, Fan JG. Etiology and management of liver injury in patients with COVID-19. World J Gastroenterol 2020; 26(32): 4753-4762

[1] "**Clinical Best Practice Advice for Hepatology and Liver Transplant Providers During the Covid-19 Pandemic: AASLD Expert Panel Consensus Statement"** https://www.aasld.org/sites/default/files/2021-03/AASLD-COVID19-ExpertPanelConsensusStatement-March92021.pdf, accessed April 10, 2021

It matters what kind of liver condition you have

- Liver conditions associated with higher mortality from COVID-19
  - Cirrhosis
  - End stage liver disease
  - Alcohol associated liver disease
  - Hepatocellular cancer
  - Liver transplant recipients- unclear-when adjusting for other risk factors, may not be significantly increased
- Not associated with higher mortality from COVID-19
  - Hepatitis B or C (non-cirrhotic)
  - Autoimmune hepatitis (and 83% of patients in the study were on immunosuppressives)

If you have Nonalcoholic Fatty Liver disease (NAFLD)

- Obesity, diabetes, heart disease and hypertension alone are associated with COVID-19 severity and poor outcomes
  - It is even more important to continue care & treatment for these conditions during this time
  - Don’t miss your regular visits with your physician- utilize telehealth if concerned about going in person
  - Blood pressure and glucose control are important
  - Can request 90 day supply of your medications and utilize home delivery
- But independent of obesity and comorbidities, fatty liver disease is associated with progressive COVID-19 & worse outcomes

How does COVID-19 impact your liver care?

- Follow regular symptom screening, masking and social distancing protocols
- Continue regular visits to providers; can use telehealth if concerned or are at more risk of severe COVID-19
- Test for COVID-19 if you have any symptoms
- If at higher risk for severe COVID-19
  - Have lower threshold to see your doctor if you have been exposed or have symptoms
  - Have low suspicion to get COVID-19 testing

What about treatment for Hepatitis B or C, autoimmune hepatitis or primary biliary cholangitis (PBC) during the pandemic?

- Already on treatment? Stay on it
- How about starting new treatment for your liver condition?
  - If you do not have COVID-19
    - You can start treatment if your doctor recommends it
  - If you do have COVID-19,
    - You **can start HBV treatment**, especially if there is hepatitis flare or if needed to prevent reactivation (chemotherapy, transplant, etc)
    - You **can defer HCV or PBC treatment** initiation. It is not routinely warranted when you have active COVID-19

How about COVID-19 & Immunosuppressive Therapy?

- **If on immunosuppressives, not necessarily at more risk for severe Covid-19**
  - But if you get infected, you may have higher viral titers & might be more infectious
  - It is important to get vaccinated!
- **For autoimmune hepatitis**
  - If you do not have COVID-19, no need to adjust medications
  - If you have COVID-19, dose may be lowered (particularly azathioprine or mycophenolate), based on severity of COVID-19
- **For post-transplant patients with COVID-19**
  - Consider lowering immunosuppression, based on severity of COVID-19 (Follow NIH guidelines)
- **How about starting immunosuppressive medication?**
  - Do not leave autoimmune conditions uncontrolled
  - May start if there are good indications whether or not if you have Covid
  - If with active COVID-19, your team will weight out benefits vs risks

Outpatient Management of COVID-19

- **Supportive care, isolate, monitor for worsening symptoms**
- **No data supporting hydrochloroquine, azithromycin use**
- **Monoclonal antibodies:**
  - 70% reduction in hospitalization & death
  - Casirivimab/Imdevimab (Regeneron), Bamlanivimab/Etesevimab (Eli Lilly)
  - **Eligibility criteria**
    - **Mild to moderate** confirmed COVID-19; not requiring oxygen
    - **If you are at high risk for progression to severe COVID-19 or hospitalization**
      - **Have a body mass index ≥35, chronic kidney disease or diabetes;**
      - **Have immunosuppressive disease or currently receiving immunosuppressives**
      - **Are ≥65 years of age;**
      - **Are ≥55 years of age AND have cardiovascular disease, OR hypertension, OR chronic obstructive pulmonary disease/other chronic respiratory disease;**
  - Given as infusion, usually in emergency departments

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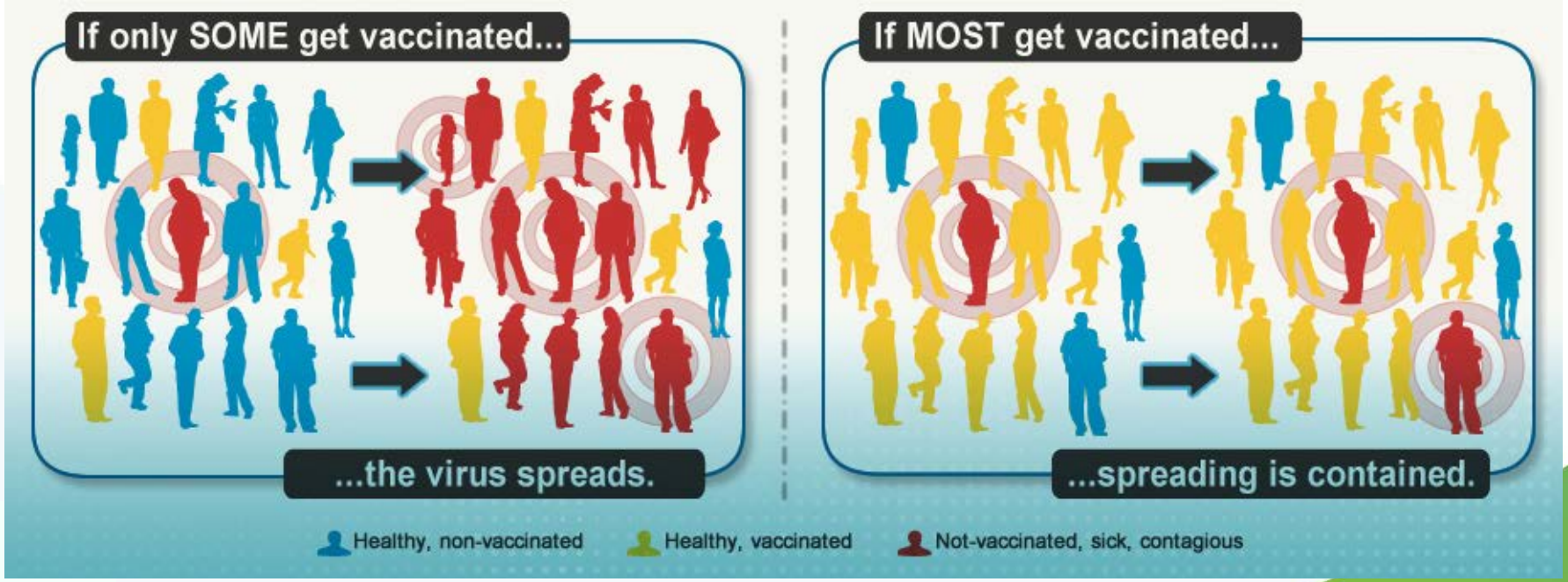
Types COVID-19 Vaccines: Which One is Right for Me?

Su Wang, MD MPH FACP

Vaccines: The End of the Pandemic in Sight

How we contain COVID-19 transmission:

- Social distancing, masking, quarantine, contact tracing, etc
- Immunity from infection (risky, short term)
- Immunity from vaccination:
  - To get to herd immunity, we must vaccinate quickly & thoroughly
  - Thus, the best vaccine for you is the one you can get the soonest.



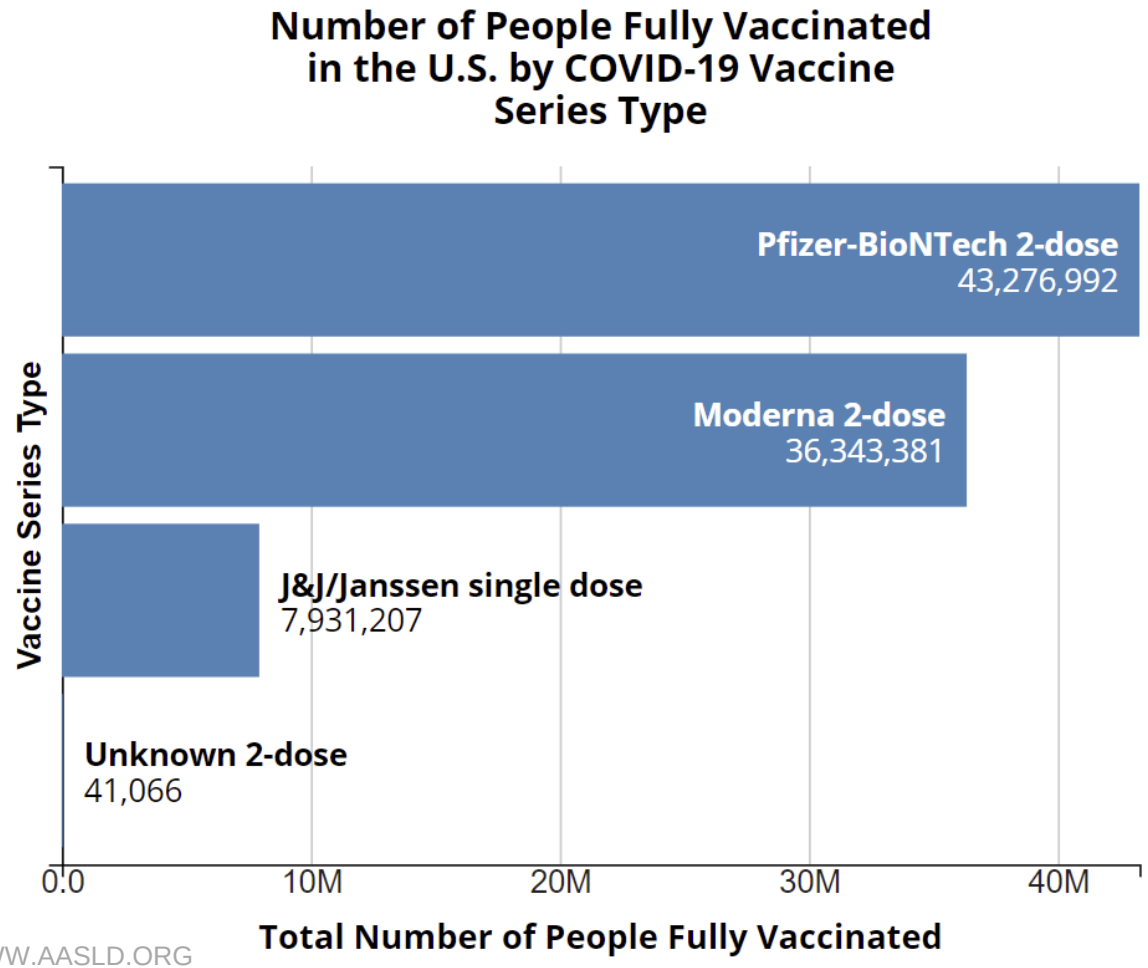
Graphic from: https://www.cdc.gov/vaccines/vac-gen/whatifstop.htm

COVID-19 Vaccine: Nationwide Status

- President Biden has ordered all states make COVID-19 vaccines eligible to every adult starting April 19th
- Current vaccination status:

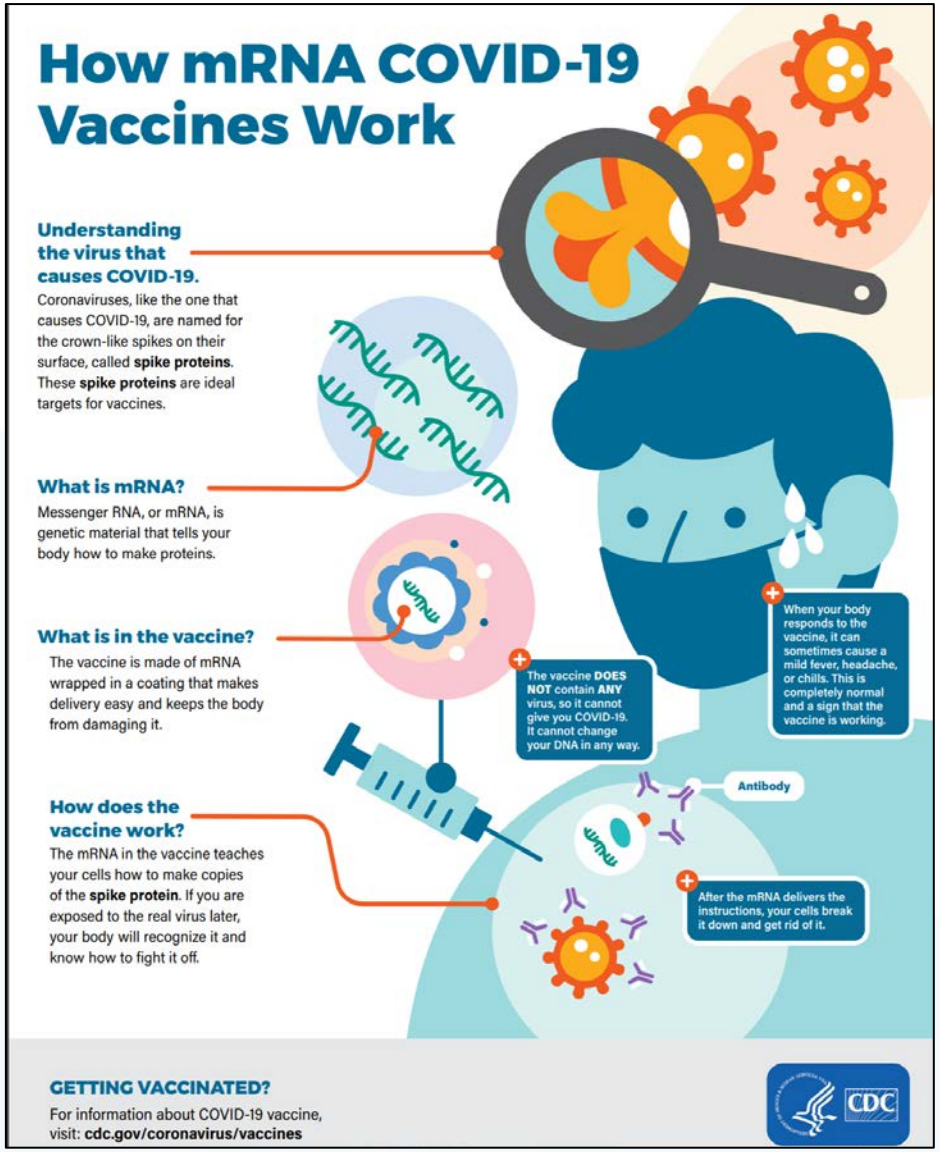
People Vaccinated	At Least One Dose	Fully Vaccinated
Total	134,445,595	87,592,646
% of Total Population	40.5%	26.4%
Population ≥ 18 Years of Age	133,010,036	87,255,919
% of Population ≥ 18 Years of Age	51.5%	33.8%
Population ≥ 65 Years of Age	44,061,754	35,873,848
% of Population ≥ 65 Years of Age	80.6%	65.6%

CDC | Data as of: April 21, 2021 6:00am ET. Posted: Wednesday, April 21, 2021 1



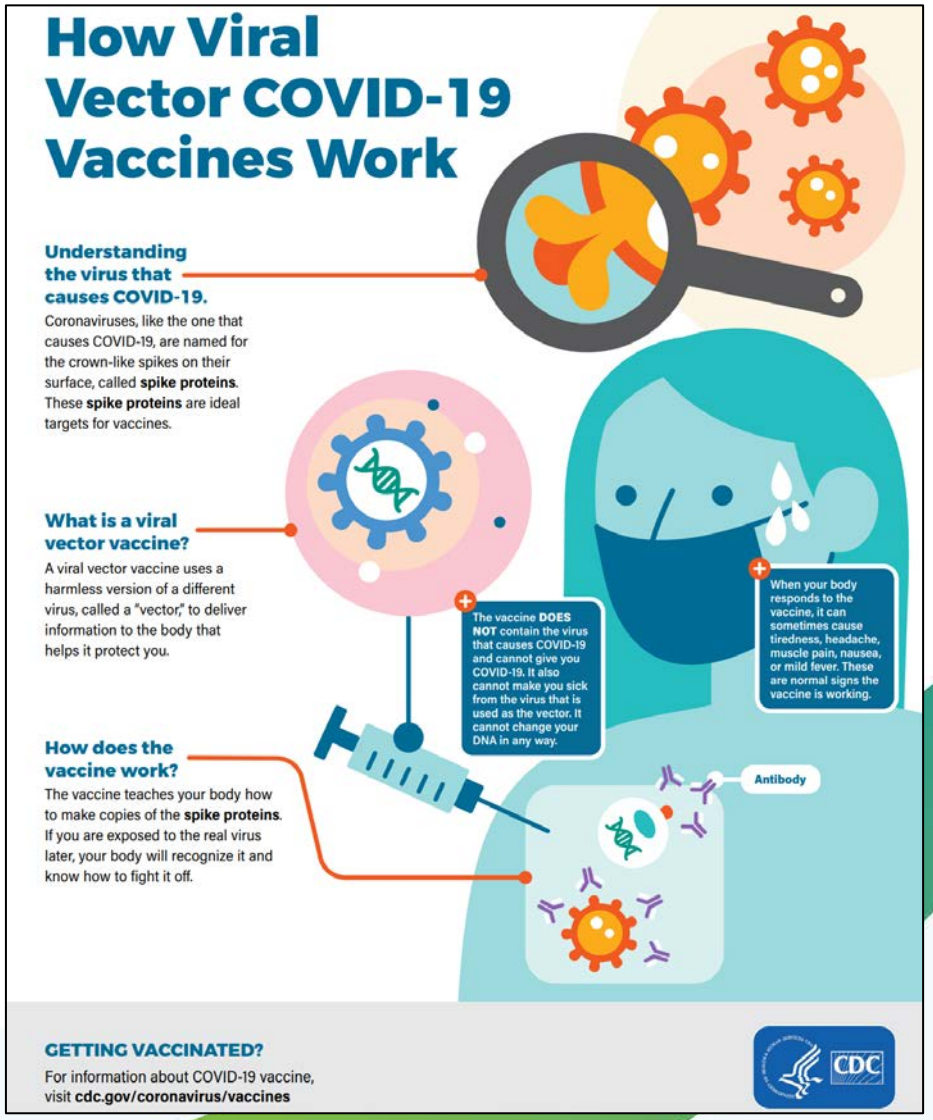
CDC COVID Data Tracker: https://covid.cdc.gov/covid-data-tracker/#vaccinations

Types of Vaccines Available in US



- **mRNA vaccine**
  - Pfizer BioNTech
  - Moderna
- **Viral vector** (adenovirus)
  - Johnson & Johnson

Both COVID-19 vaccines teach your body how to create antibodies to the virus (via the spike protein)



Vaccine Development:
What does Emergency Use Authorization (EUA) mean for safety?

Phase 1
20-100 Healthy Volunteers

Researchers try to answer these questions:

- Is this vaccine safe?
- Are there any serious side effects?
- How does the vaccine dose relate to any side effects?
- Is the vaccine causing an immune response?

Phase 2
Several Hundred Volunteers

Researchers try to answer these questions:

- What are the most common short-term side effects?
- What's the body's immune response?
- Are there signs that the vaccine is protective?

Phase 3
1000+ Volunteers

Researchers try to answer these questions:

- How do disease rates compare between people who get the vaccine and those who do not?
- How well can the vaccine protect people from disease?

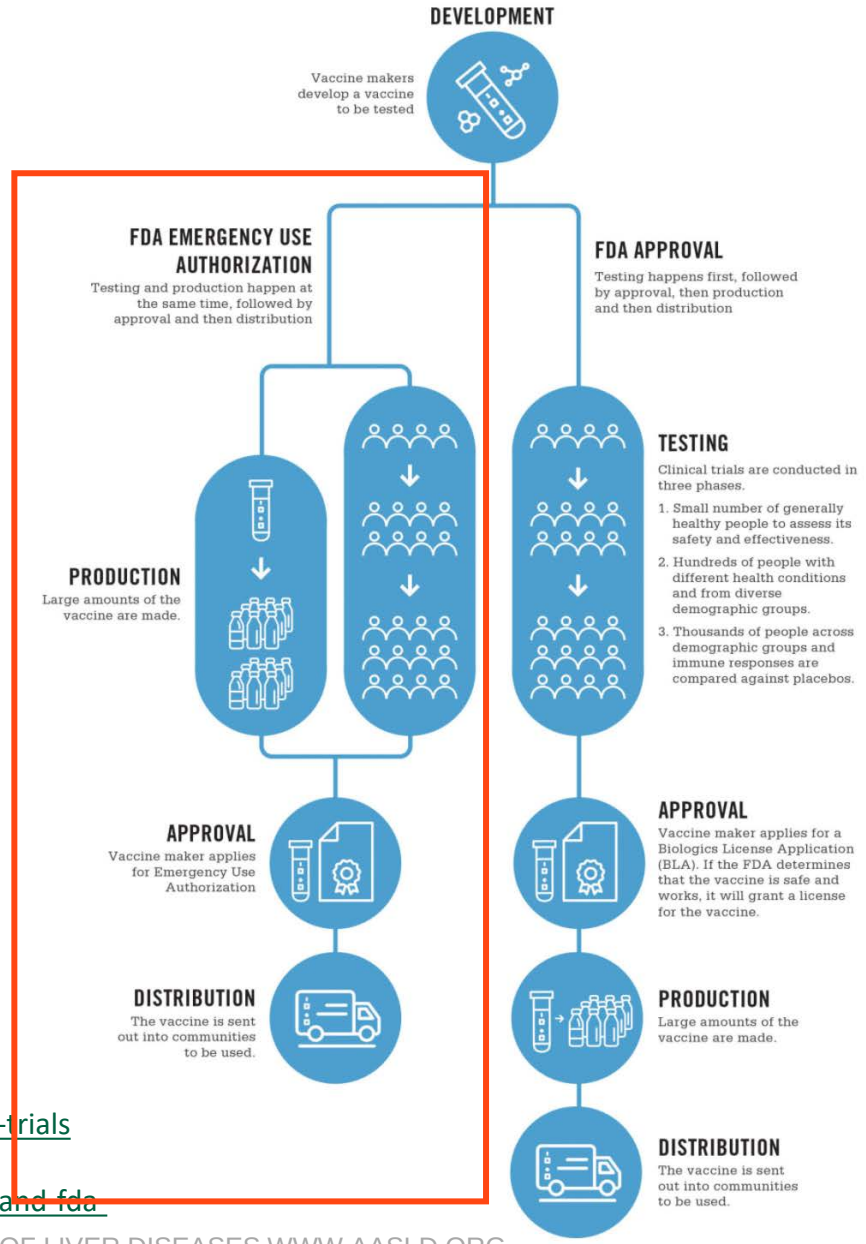
FDA required median follow up of 2 months

Phase 4
Vaccine is Approved

Researchers try to answer these questions:

- FDA approves a vaccine only if it's safe, effective, and benefits outweigh the risks.
- Researchers continue to collect data on the vaccine's long-term benefits and side effects.

Post-authorization safety monitoring required & conducted by CDC/FDA



Clinical Trials | Community Engagement Alliance (nih.gov) https://covid19community.nih.gov/resources/understanding-clinical-trials
What's the Difference Between FDA Emergency Use Authorization and FDA Approval?
https://vaccine.unchealthcare.org/science/vaccine-approval/whats-the-difference-between-fda-emergency-use-authorization-and-fda-approval/

Profile of Covid-19 Vaccines in the US:
Data submitted to FDA

	Pfizer/BioNTech	Moderna	Johnson & Johnson
Participants in study who received vaccine	43,448	30,351	43,783
Trial inclusion of participants with liver disease	**124 vaccine/90 placebo** Participants with stable chronic liver disease including HBV/HCV were eligible. Excluded those on immunosuppressives	**100 vaccine/96 placebo** Participants with stable chronic liver disease including HBV/HCV were eligible. Excluded those on immunosuppressives	**103 vaccine /103 placebo - Global** **54 vaccine /44 placebo- US** Participants with stable chronic liver disease including HBV/HCV were eligible **10 vaccine/ 5 placebo- Global+US** Small number of solid organ transplant included
Age approved for	16 and older (12-15 years submitted to FDA)	18 and older	18 and older
Vaccine timing	2 shots; 21 days apart	2 shots; 28 days apart	1 shot

Profile of Covid-19 Vaccines in the US:

Data submitted to FDA

	Pfizer/BioNTech	Moderna	Johnson & Johnson
Vaccine efficacy : Hospitalizations & Deaths	**100%** effective against hospitalizations & deaths	**89%** against hospitalizations **100%** against deaths	**100%** against hospitalizations & deaths
Vaccine efficacy: Symptomatic COVID-19 infection	**95%** effective at preventing at least 7 days after 2nd dose	**94.1%** effective at preventing infection at least 14 days after 2nd dose	14 days after: • **66.9%** effective preventing moderate to severe infection, • **76.7%** effective at preventing severe/critical infection 28 days after: • 85.4% effective preventing severe-critical infection
Contraindications	History of severe or immediate allergic reaction to any components, including to Polyethylene glycol (PEG), or previous vaccination	History of severe or immediate allergic reaction to any components, including to Polyethylene glycol (PEG), or previous vaccination	History of severe or immediate allergic reaction to any components, including to to polysorbate 80

COVID-19 vaccines: Facts vs Fiction

- The vaccines cannot give you COVID-19 Infection
  - The vaccine does not include the SARS-Cov2 virus
- The vaccines will not change your DNA or genes
  - The mRNA enters the cells but not the nucleus where the DNA resides
  - It quickly breaks down after stimulating the immune system
- Even if you had COVID-19 infection, you should still get vaccinated.
- The vaccine does not affect a woman's fertility
- The vaccine was made with routine vaccine ingredients
  - These ingredients stabilize the active ingredients
  - It does not include any materials such as implants, microchips, tracking devices, stem cells or fetal tissue

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Some other questions

- **Should I test for antibodies before or after getting the vaccine?**
  - No, this is not recommended at this time. Commercial tests do not confirm vaccine immunity; needs to be specific test to spike protein.
- **What about reactions to the vaccine?**
  - You will be monitored for 15-30 minutes after the vaccine
  - Most reactions will be mild and resolve in a few days
    - Injection site soreness, swelling, redness
    - Fever, headache, tiredness, muscle pain, chills & nausea
  - If symptoms seem more severe or you are concerned, let your doctor know so they can monitor you
- **When should I postpone my vaccine?**
  - If you are feeling ill or have any signs of COVID-19
  - If you had another vaccine within 2 weeks

Real Life Data on COVID-19 Vaccine Protection

- Studies are following people who have received the vaccines
  - 3,950 healthcare professionals followed w weekly COVID-19 PCR testing[1]
    - After **1st dose** of Moderna or Pfizer →**80% protection**
    - After **2nd dose→ 90% protection**
- Moderna & Pfizer report antibodies persist to at least **6 months**[2,3]
- **Booster likely needed**, maybe 6-12 months after vaccine- to be determined
- How about in patients with liver disese? **Ongoing studies happening,** immune response may be blunted in transplant recipients
- It is a race between the vaccines and the variants!

[1]Thompson MG, et al. Interim Estimates of Vaccine Effectiveness of BNT162b2 and mRNA-1273 COVID-19 Vaccines in Preventing SARS-CoV-2 Infection Among Health Care Personnel, First Responders, and Other Essential and Frontline Workers — Eight U.S. Locations, December 2020–March 2021. MMWR Morb Mortal Wkly Rep 2021;70:495–500. DOI: http://dx.doi.org/10.15585/mmwr.mm7013e3external icon.
[32]Antibody Persistence through 6 Months after the Second Dose of mRNA-1273 Vaccine for Covid-19 https://www.nejm.org/doi/full/10.1056/NEJMc2103916
[3]Neutralizing Activity of BNT162b2-Elicited Serum | NEJM https://www.nejm.org/doi/full/10.1056/NEJMc2102017

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Pause on J&J Janssen COVID-19 vaccination

- April 13- CDC/FDA recommended a pause for Johnson & Johnson's Janssen COVID-19 Vaccine for further investigation.
- 6 reports of a rare & severe type of blood clot & low platelets reported
  - All reports in women between the ages of 18 and 48
  - Symptoms occurred six to 13 days after vaccination
- ~7 million doses administered so far in the United States
  - < 1 per 1 million doses
  - Probability context
    - Clots are very common with Covid: Up to 30% of Covid patients in ICU develop clots
    - Chance of being hit by lightning is 1 in a 1 million, dying in a car accident is 38 in a million
- Of the more than 180 million doses administered so far of the Pfizer-BioNTech or Moderna vaccines, no reports matching

https://www.cdc.gov/vaccines/covid-19/info-by-product/index.html

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Variants: What Does This Mean for Me?

Corrie Berk, DNP, MBA, APRN

Disclosures

- Speakers Bureaus
  - Salix – HE
  - Gilead – HCV
- Spouse consults for Biovie, Natera, Bausch

Variants of COVID-19

What We Know

- Viruses constantly change through mutation, and new variants are expected
  - Sometimes they emerge and disappear
  - Sometimes they emerge and persist
- Scientists monitor and analyze these changes to understand it
- CDC established three classifications:
  - Variant of Interest (VOI)
  - Variant of Concern (COV)
  - Variant of High Consequence (VOHC)

Why Surveillance Is Important

- Potential Consequences of Emerging Variants
  - Ability to spread more quickly (Example: D614G)
  - Abililty to cause milder or more severe disease
  - Ability to evade detection
    - Multiple targets on RT-PCR tests
  - Decrease susceptibility to therapies such as monoclonal antibodies
  - Ability to evade natural or vaccine-induced immunity
    - Virus would need to accumulate multiple mutations in the spike protein in order for this to happen
    - Immune pressure could favor by selecting for “escape mutants”
      - Experts believe this is unlikely because of the nature of the virus

Currently Five VOCs in the U.S.

- **B.1.1.7**: Initially detected in UK, first identified in US December 2020
- **B.1.351**: Initially detected in South Africa in Dec 2020. First identified in the US at the end of January 2021
- **P.1:** Initially identified in travelers from Brazil, who were tested during routine screening at an airport in Japan, in early January. First identified in the US in January 2021
- **B.1.427 and B.1.429**: These two variants were first identified in California in February 2021 and were classified as VOCs in March 2021

Which Variant Am I Most Likely to Encounter?

- At this time, likely B.1.1.7
  - Mutation allows this version to more effectively attach to cells
  - Carriers shed higher levels of the virus and stay infectious longer
  - Main concern is the highly infectious virus spreading quickly among the unvaccinated
- A variant is likely what you will encounter at this point, not the original COVID 19

Variants and Vaccines

Can the Covid Vaccine Still Protect Me?

- Lots of muddled messages surrounding the rise of variants
- All of the major vaccines have performed relatively well against the variant B.1.1.7.
- Also protective against infection and serious illnesses in areas where B.1.1.7 is circulating
- There is concern that B.1.351 and P.1 are better at dodging vaccines but that doesn't mean the vaccines don't work at all!
- There is a lot of "cushion" provided by this crop of vaccines
  - Even if they are less effective against a variant, it may still protect you from serious illness

If Vaccines Are Working…

- Why are we hearing about “breakthrough” cases?!
  - No vaccine is foolproof
  - These ”breakthrough” cases are rare, even as variants fuel surges in case counts
- What is the risk of getting infected after vaccination?!
  - Nobody knows for sure but we have some clues
  - For now, the variants don’t appear to be increasing the rate of infection in vaccinated people, but that could change as more data is collected
- Will I need a booster?!
  - Vaccine developers are already working on this
  - Not yet sure when a booster will be needed

Now what?

Bottom Line

- The risk still lies with the unvaccinated
- The perception that vaccines don’t work against variants at all is incorrect
- Vaccines prevent infection, serious illness and hospitalization
- **“Go get vaccinated—that’s the message.” –Dr. Fauci**
- **In the meantime, keep wearing a mask and avoid gathering in groups, especially to protect the unvaccinated**

CDC Guidelines: What should I do pre- & post-vaccination to protect myself?

Corrie Berk, DNP, MBA, APRN

Disclosures

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  - Salix – HE
  - Gilead – HCV
- Spouse consults for Biovie, Natera, Bausch

Before the Vaccine

How to Protect Yourself & Others

- Wear a mask that covers nose & mouth
- Stay 6 feet apart form others that don’t live with you
- Avoid crowds & poorly-ventilated indoor spaces
- Wash your hands often
- Cover coughs & sneezes
- Clean & disinfect
- Get a COVID-19 vaccine when it’s available to you
  - The best vaccine for liver transplant recipients and patients with liver disease is any vaccine that is available!

Routine Procedures & Screenings

- Most routine medical procedures can be performed before or after getting a COVID-19 vaccine
- Separate COVID-19 vaccine from other immunizations by at least 14 days
- Mammogram
  - Lymphadenopathy may cause false readings
  - Some experts recommend before vaccination or waiting 4-6 weeks after vaccine completion

Protection Against Side Effects

- CDC does NOT recommend to pre-medicate with:
  - Ibuprofen, aspirin, or acetaminophen to prevent side effects
  - Antihistamines to prevent allergic reaction
- To reduce site pain
  - Apply a clean, cool, wet washcloth
  - Use and exercise your arm
- To reduce discomfort from fever
  - Drink fluids
  - Dress lightly
- OK to medicate post-vaccine side effects if needed
  - Acetaminophen up to 2g/day

When You've Been Fully Vaccinated

Have You Been Fully Vaccinated?

- According to the CDC, people are considered “fully vaccinated”
  - 2 weeks after 2nd dose series (Pfizer or Moderna)
  - 2 weeks after single dose series (J&J)
- We may not be able to assume patients with liver disease/liver transplant are necessarily “fully vaccinated”
  - We have no test available to reliably tell us if someone is protected so efficacy in these populations is unclear

What You Should Keep Doing

- Masks & social distancing especially when
  - In public
  - Gathering with unvaccinated people from more than one other household
  - Visiting with an unvaccinated person at increased risk or lives with a person at increased risk
- Avoid crowds and large gatherings
- Follow workplace and travel precautions
- Still watch out for symptoms of COVID-19

What You Can Start Doing

- Gather indoors with
  - Fully vaccinated people without wearing a mask or staying 6 feet apart
  - Unvaccinated people of any age from one other household without mask or staying 6 feet apart, unless anyone has increased risk for severe illness from COVID-19
- If you've been around someone who has COVID-19, you do not need to stay away from others or get tested unless symptomatic
  - Unless you live in a group setting

Travel

- Avoid unnecessary travel
- Pay close attention to the situation at your destination
- Travel within the U.S.
  - No testing before/after travel
  - No self-quarantine after travel
- International travel
  - No testing BEFORE leaving the U.S. unless required by destination
  - Still need to show negative test or documented recovery BEFORE boarding a flight to U.S.
  - Should still get tested 3-5 days AFTER international travel
  - No need to self-quarantine AFTER arriving to U.S.

What We Know & What We're Learning

- **We know** vaccines are effective at preventing COVID-19 disease, severe illness, & death
  - **We're still learning** how effective the vaccines are against variants
- **We know** that prevention helps stop the spread and that these steps are still important
  - **We're still learning** how well vaccines keep people from spreading the disease (early data show they may help)
  - **We're still learning** how long vaccines offer protection
- **We are still learning** about vaccine efficacy in patients with liver disease / liver transplants

New Patient Resources

Access patient resources and useful links, including downloadable COVID-19 and the liver patient flyers:

aasldfoundation.org/patients

RECENTLY RELEASED
COVID-19 Vaccine Recommendations for Patients with Liver Disease

Follow Us on Twitter

- @hepatitishelpc
- @orenkfix
- @GoachPA_DukeGI
- @NancyReau
- @swang8

Panel Discussion

Please submit your questions to the Q&A Chat now.

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