

Ethical Implications of Vaccine Hesitancy

COVID-19 EDITION

Rachel La Costa, MPAS, PA-C

UC San Diego Health

2021

 **CHOC Children's**
Children's Hospital of Orange County



Disclosures

- No relevant commercial relationships to disclose.



Objectives

- At the conclusion of this session, participants should be able to:
 - Discuss common motivations for vaccine hesitancy.
 - Identify the ethical principles involved in vaccine administration and hesitancy.
 - Formulate an ethical response that the PA can utilize to respond to vaccine-hesitant persons.



Coronavirus

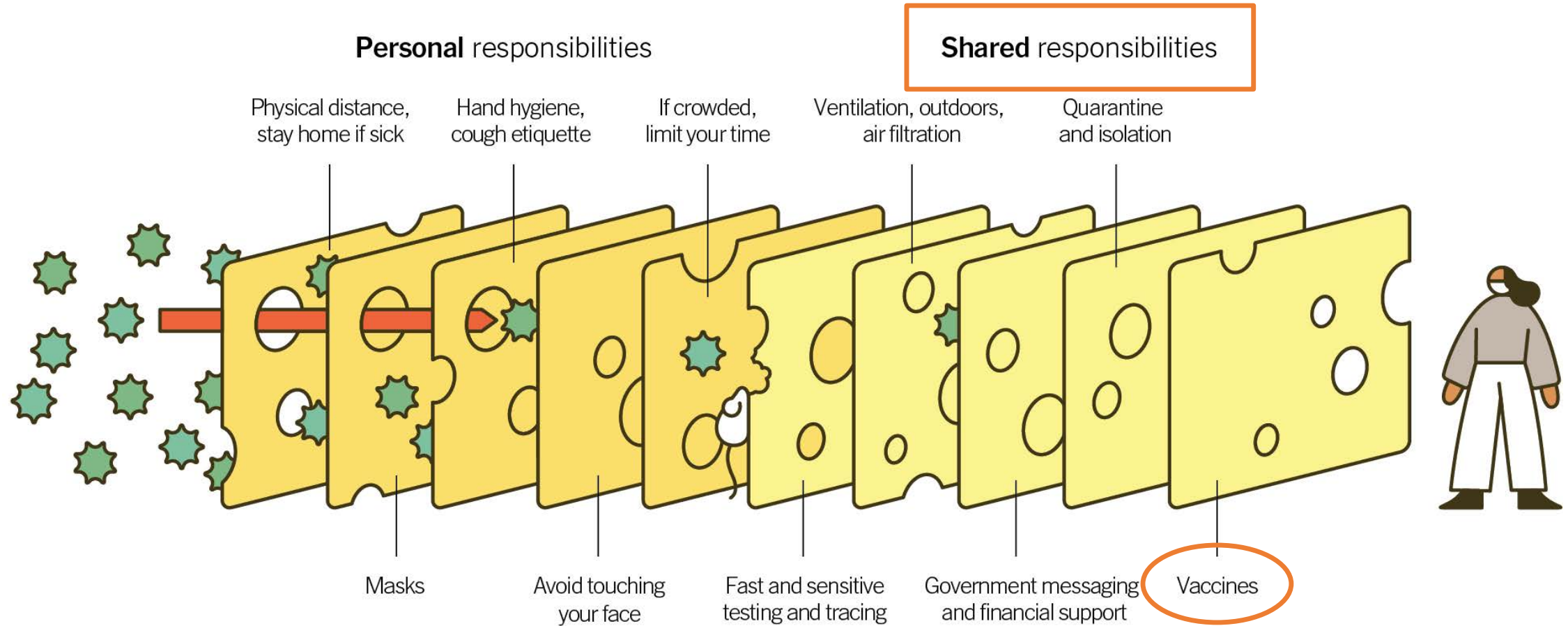
crisis

first death
coronavirus in U.S.



Multiple Layers Improve Success

The Swiss Cheese Respiratory Pandemic Defense recognizes that no single intervention is perfect at preventing the spread of the coronavirus. Each intervention (layer) has holes.



Source: Adapted from Ian M. Mackay (virologydownunder.com) and James T. Reason. Illustration by Rose Wong





OPERATION WARP SPEED ACCELERATED VACCINE PROCESS

<https://media.defense.gov/2020/Aug/13/2002476369/-1/-1/0/200813-D-ZZ999-100.JPG>



https://www.sciencenews.org/wp-content/uploads/2020/11/111820_ti_pfizer_feat-1030x580.jpg



<https://i.imgur.com/2ORJDgh.jpg>



https://www.nih.gov/sites/default/files/styles/featured_media_breakpoint_s://www.sciencenews.org/wp-content/uploads/2020/12/121720_EG_moderna-vax_feat.jpg



<https://bloximages.chicago2.vip.townnews.com/qctimes.com/content/tncms/assets/v3/editorial/4/0c/40cb046c-8f1e-51>

HERD IMMUNITY



A close-up photograph of a person in a white lab coat, likely a doctor, holding a white rectangular sign with the word "Ethics" written in large, bold, blue letters. The person's hands are visible, and a stethoscope is draped around their neck. The background is plain white.

Ethics



PRINCIPLES OF ETHICS



AUTONOMY

Right to
make
informed
decisions



BENEFICENCE

Consider
vaccine
benefits



NONMALEFICENCE

Consider
vaccine
risks



JUSTICE

Equitable
vaccine
access and
distribution



Know Your Vaccination Phase

Getting the COVID-19 vaccine not only helps to protect you and others around you, but is also a vital step for the recovery of San Diego County. COVID-19 vaccinations will become available in phases. Groups within each phase and distribution timelines are subject to change. For the latest vaccination information, please visit coronavirus-sd.com/vaccine.

Phase 1A: Vaccinating NOW

Phase 1A includes Healthcare Personnel (includes healthcare support occupations) and Long-Term Care Facility Staff & Residents

Tier One

- Acute care, psychiatric hospitals
- Skilled nursing facilities, assisted living facilities, similar settings
- Paramedics, EMTs, other emergency medical services
- Dialysis centers
- Behavioral health residential facilities
- Vaccinators

Tier Two

- Intermediate care, for persons who need non-continuous nursing supervision, and supportive care
- Home health-care and in-home supportive services
- Community health workers, including promotores
- Public Health field staff
- Primary care clinics
- Federally Qualified Health Centers
- Rural Health Centers
- Correctional facility clinics
- Urgent care clinics
- Behavior health non-residential or outpatient facilities

Tier Three

- Other settings and healthcare workers not identified in tiers above, including specialty clinics, laboratory workers[†], dental/oral health clinics, pharmacy staff, funeral workers and others[‡]

[†]Laboratory workers must work in a facility that has CLIA licensure or is conducting research with SARS-CoV-2.
[‡]Additional Phase 1A priority groups determined by the California Department of Public Health (CDPH) and the County of San Diego as of 01/05/21 & 01/21/2021 respectively are listed on www.vaccination-superstationSD.com.
^{*}Phases determined by Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) and tiers approved by CDPH are subject to change.
^{**}Information on specific job-types within the Essential Worker categories can be found at covid19.ca.gov/essential-workforce/.



Phase 1B: February 2021*

Phase 1B includes People Aged 65 and Older and Frontline Essential Workers**

Tier One

- Individuals 65 years and older
- Those at risk of exposure at work in the following sectors: education, childcare, emergency services, and food and agriculture

Tier Two

- Those risk of exposure at work in the following sectors: transportation and logistics; industrial, commercial, residential, and sheltering facilities and services; critical manufacturing**
- Congregate settings with outbreak risk, including incarcerated and homeless

Phase 1C: To be determined

Phase 1C includes People 50-64 Years Old, People 16-49 Years Old with High-Risk Conditions, and Other Essential Workers**

- Individuals 50-64 years of age
- People 16-49 years of age who have an underlying health condition or disability which increases their risk of severe COVID-19
- Those at risk of exposure at work in the following sectors: water and wastewater; defense; energy; chemical and hazardous materials; communications and IT; financial services; government operations/community-based essential functions**

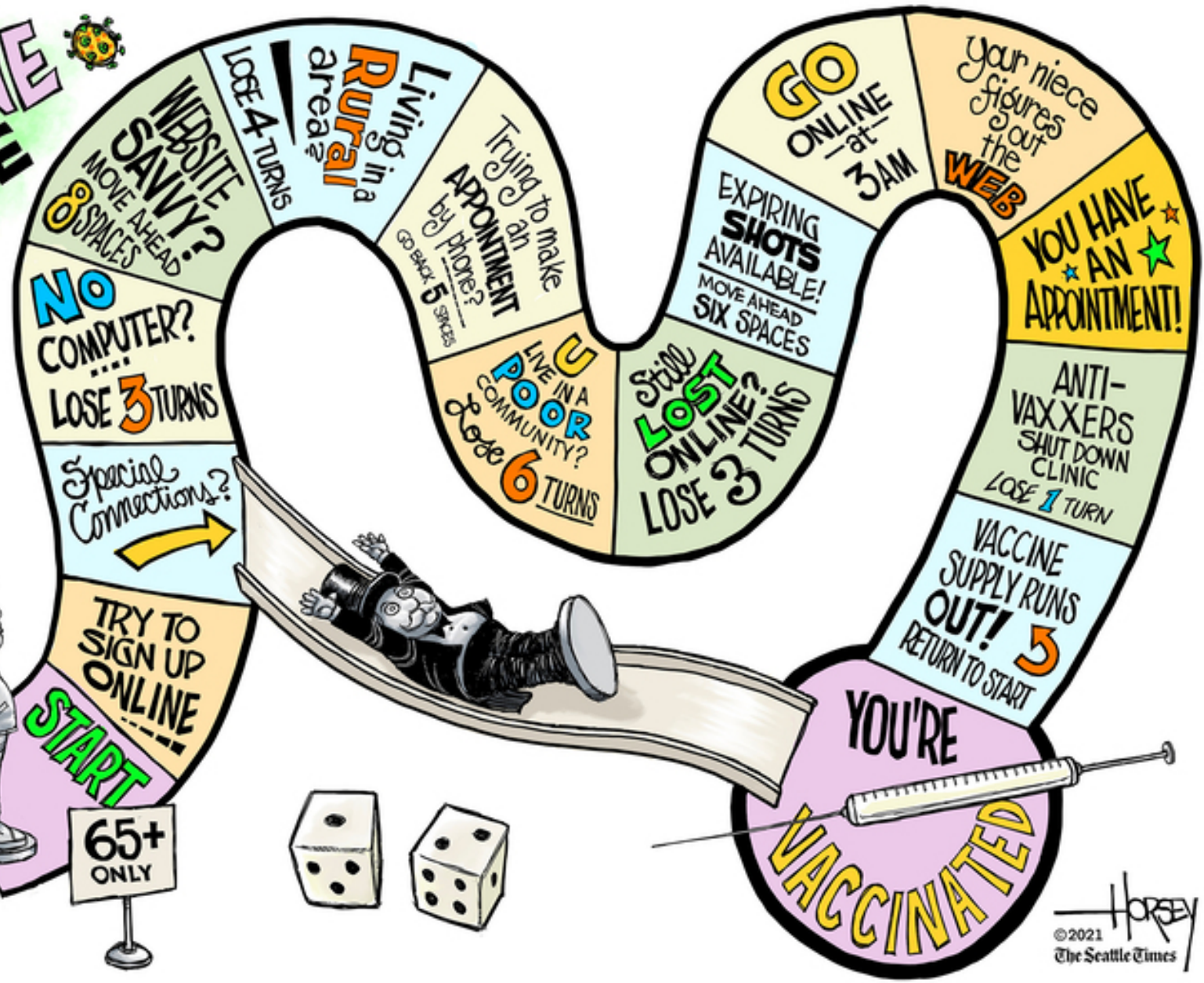
Phase 2: To be determined

- General population over 16 years of age

[†]Laboratory workers must work in a facility that has CLIA licensure or is conducting research with SARS-CoV-2.
[‡]Additional Phase 1A priority groups determined by the California Department of Public Health (CDPH) and the County of San Diego as of 01/05/21 & 01/21/2021 respectively are listed on www.vaccination-superstationSD.com.
^{*}Phases determined by Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) and tiers approved by CDPH are subject to change.
^{**}Information on specific job-types within the Essential Worker categories can be found at covid19.ca.gov/essential-workforce/.



The VACCINE GAME



© 2021
The Seattle Times





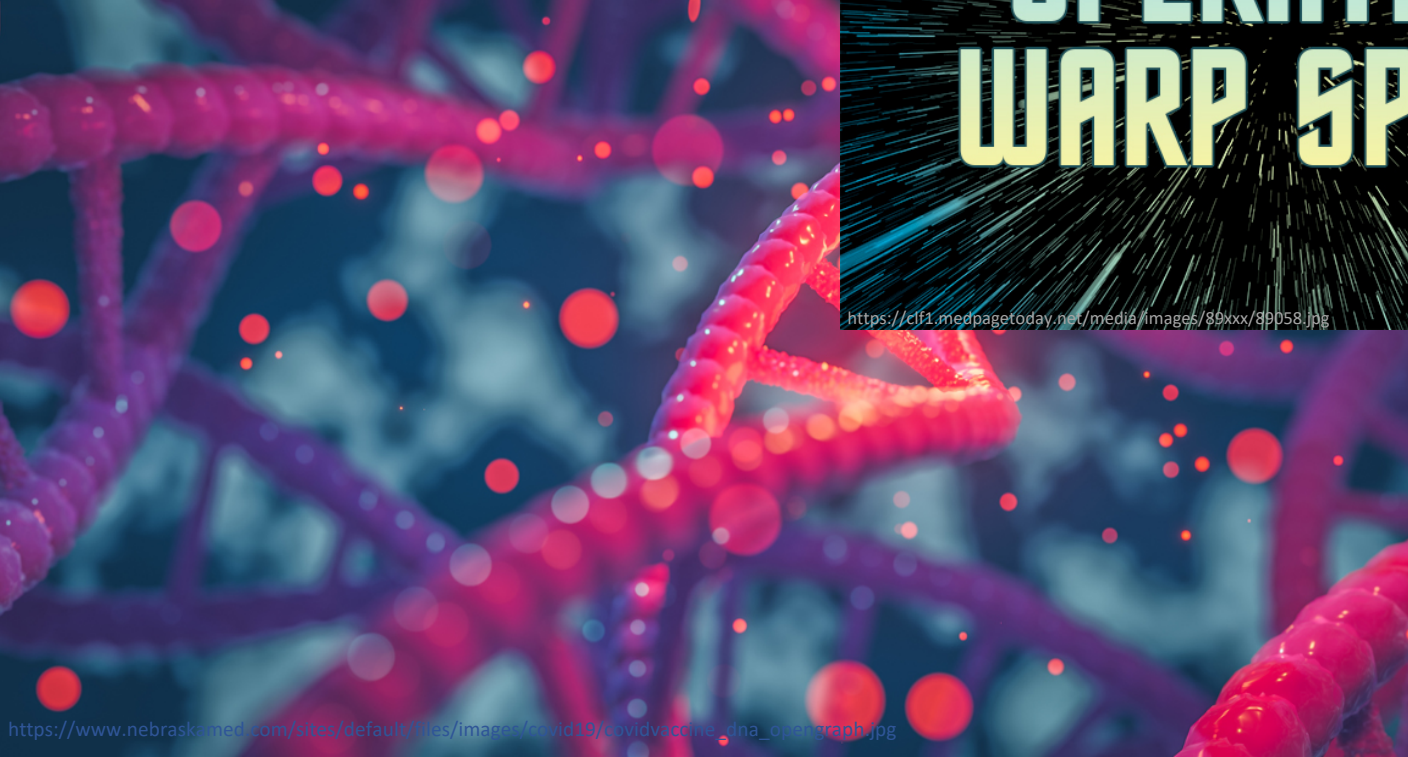
https://www.sciencemag.org/sites/default/files/styles/inline_450w_no_aspect/public/ca_0703NID_COVID

A screenshot of a notification from the World Health Organization (WHO). At the top, there is a purple icon of a document with a speech bubble. Below it, the text reads: "Help Prevent the Spread of Coronavirus". Underneath, it says: "See the latest information from the World Health Organization so you can help prevent the spread of COVID-19." At the bottom, there is a blue button with the text "Go to who.int".

A screenshot of a Facebook post. The post text reads: "According to family, one of the first nurses in Alabama to receive the new vaccine was found dead. Anaphylaxis, maybe? We'll see what happens with the official reporting, I guess. Update: The nurse was age 42, Caucasian female. Time of death was 8-10 hours after getting the vaccine. An autopsy is being conducted. The family wants people to know, but they want to remain anonymous for now." The post has 159 reactions and 117 comments and 168 shares. A large, diagonal red watermark with the text "CONTAINS MISINFORMATION" is overlaid on the post. Below the post, a screenshot of a text message conversation is visible. The messages are: "Omg they just found my aunt dead!" (12:19 AM) and "She was one of the nurses that got the covid vaccine today at her job & they just found her dead" (12:20 AM). A URL is visible at the bottom: https://abc3340.com/resources/media/852527b8-6d8b-4ed7-b2e7-78335b1f903d-large16x9_adph.png?100

The text "OPERATION WARP SPEED" is centered on a background of a warp speed effect, with many lines radiating from the center, creating a tunnel-like appearance. The word "OPERATION" is in a light blue, blocky font, and "WARP SPEED" is in a yellow, blocky font.

<https://cf1.medpagetoday.net/media/images/89xxx/89D58.jpg>



https://www.nebraskamed.com/sites/default/files/images/covid19/covidvaccine_tina_opengraph.jpg

A video frame showing Bill Gates speaking. He is wearing glasses and a dark sweater over a collared shirt. He is gesturing with his hands as he speaks. A speaker icon is in the bottom right corner.

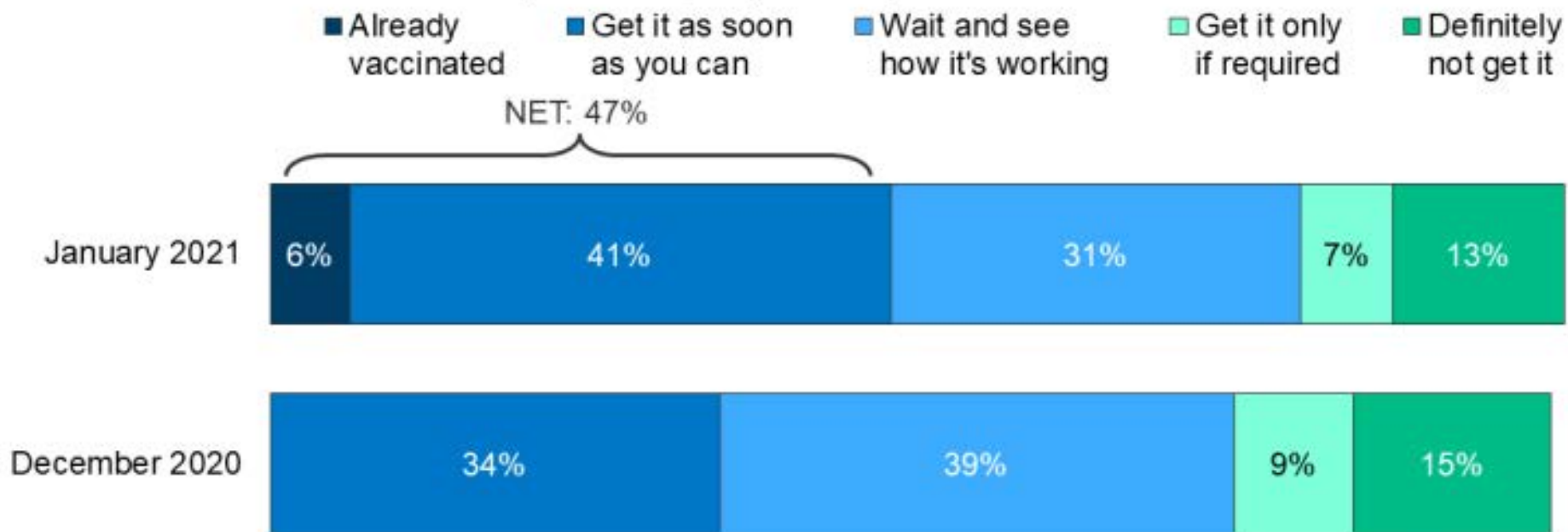
<https://i.insider.com/5f197555aee6a873672c96e6?width=700>

BILL GATES ON VACCINE DISINFORMATION
W.H.O. ESTIMATES VACCINES SAVE 2-3 MILLION LIVES EVERY YEAR

Figure 1

Compared To December, Larger Share Now Want COVID-19 Vaccine “As Soon As Possible,” Fewer Want To “Wait And See”

Have you personally received at least one dose of the COVID-19 vaccine, or not? When an FDA approved vaccine for COVID-19 is available to you for free, do you think you will...?



NOTE: December survey did not have an option for respondents to indicate they had already been vaccinated.

SOURCE: KFF COVID-19 Vaccine Monitor (Nov. 30-Dec. 8, 2020 and Jan. 11-18, 2021). See topline for full question wording.

**KFF COVID-19
Vaccine Monitor**



What is the biggest factor driving vaccine hesitancy?

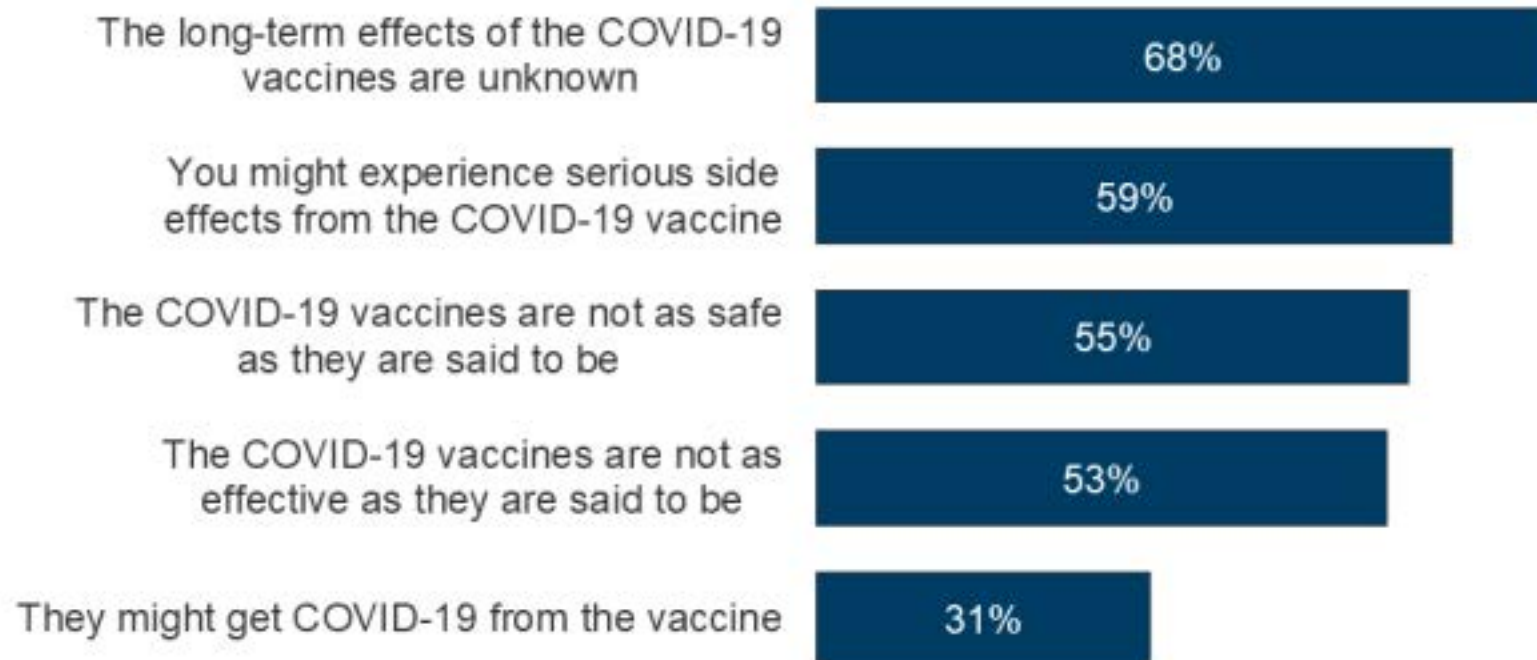
**VACCINE
ANXIETY**



Figure 11

Many Express Concern About COVID-19 Vaccine's Long-Term Effects, Side Effects, Safety, and Effectiveness

Percent who say they are **very or somewhat concerned** about each of the following:



NOTE: Among those who have not been vaccinated against COVID-19

SOURCE: KFF COVID-19 Vaccine Monitor (conducted Jan. 11-18, 2021). See topline for full question wording.

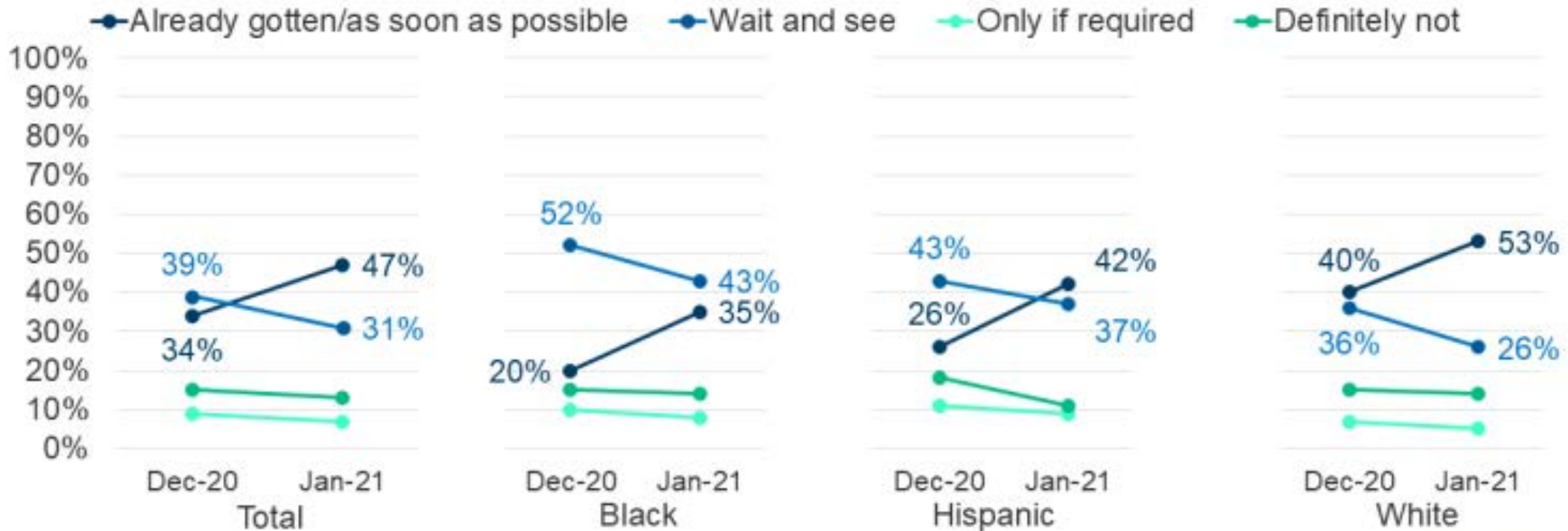
**KFF COVID-19
Vaccine Monitor**



Figure 2

Vaccine Enthusiasm Increased Across Racial/Ethnic Groups, But Black And Hispanic Adults Remain More Wary Than White Adults

Percent who say they will get a COVID-19 vaccine:



SOURCE KFF COVID-19 Vaccine Monitor (Nov. 30-Dec. 8, 2020 and Jan. 11-18, 2021). See topline for full question wording.



It is OK to ask questions about vaccines!



<http://www.jhsph.edu/sebin/fj/covid-vaccine-safety-and-misinformation-820x440.jpg>



How can PAs mitigate vaccine anxiety?

EDUCATION!



As a PA, you must EDUCATE YOURSELF!

For your own health.

For your neighbors.

For your family.

For your community.

For your patients.

For HERD IMMUNITY!

For your coworkers.

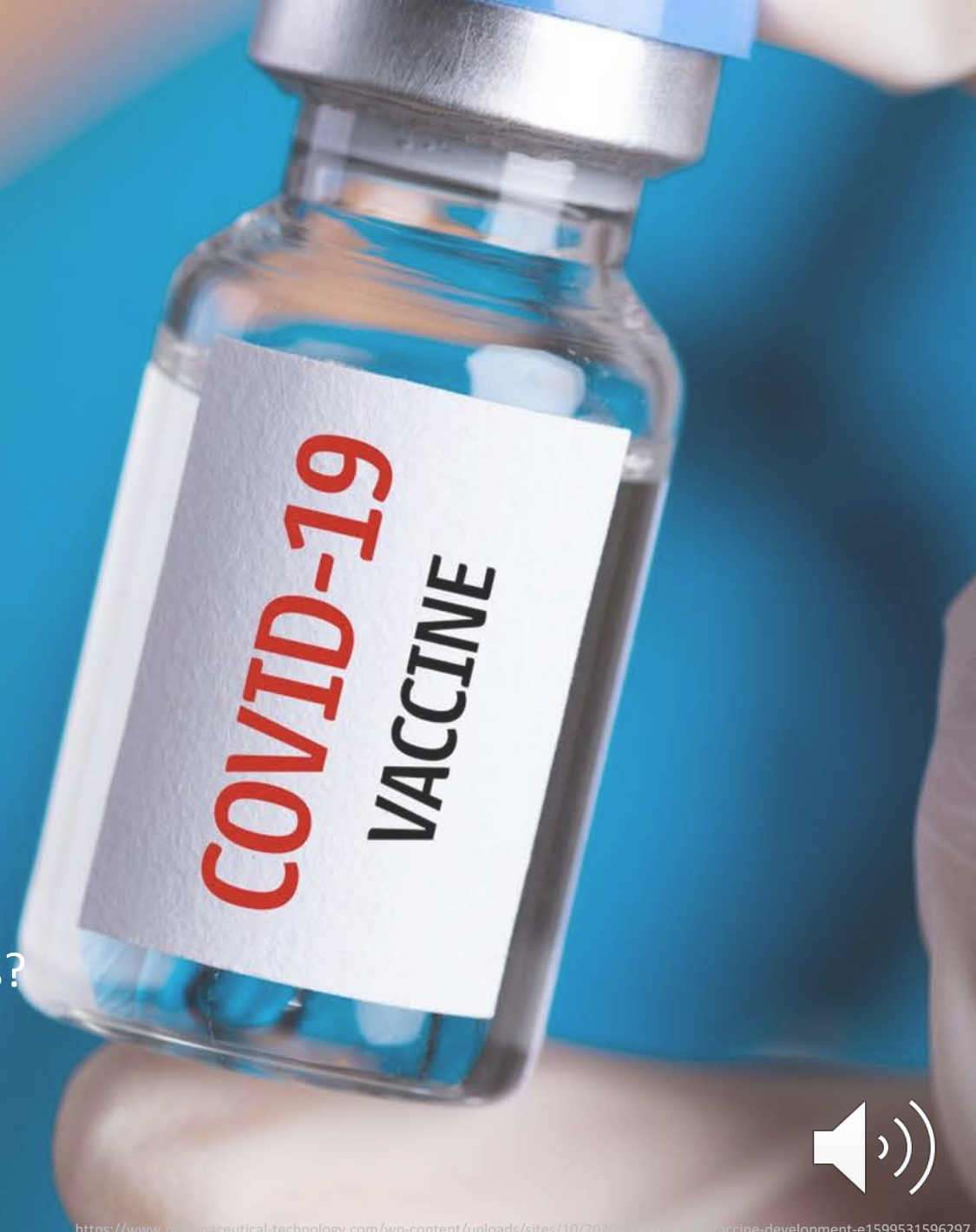


COVID-19 Vaccine Facts



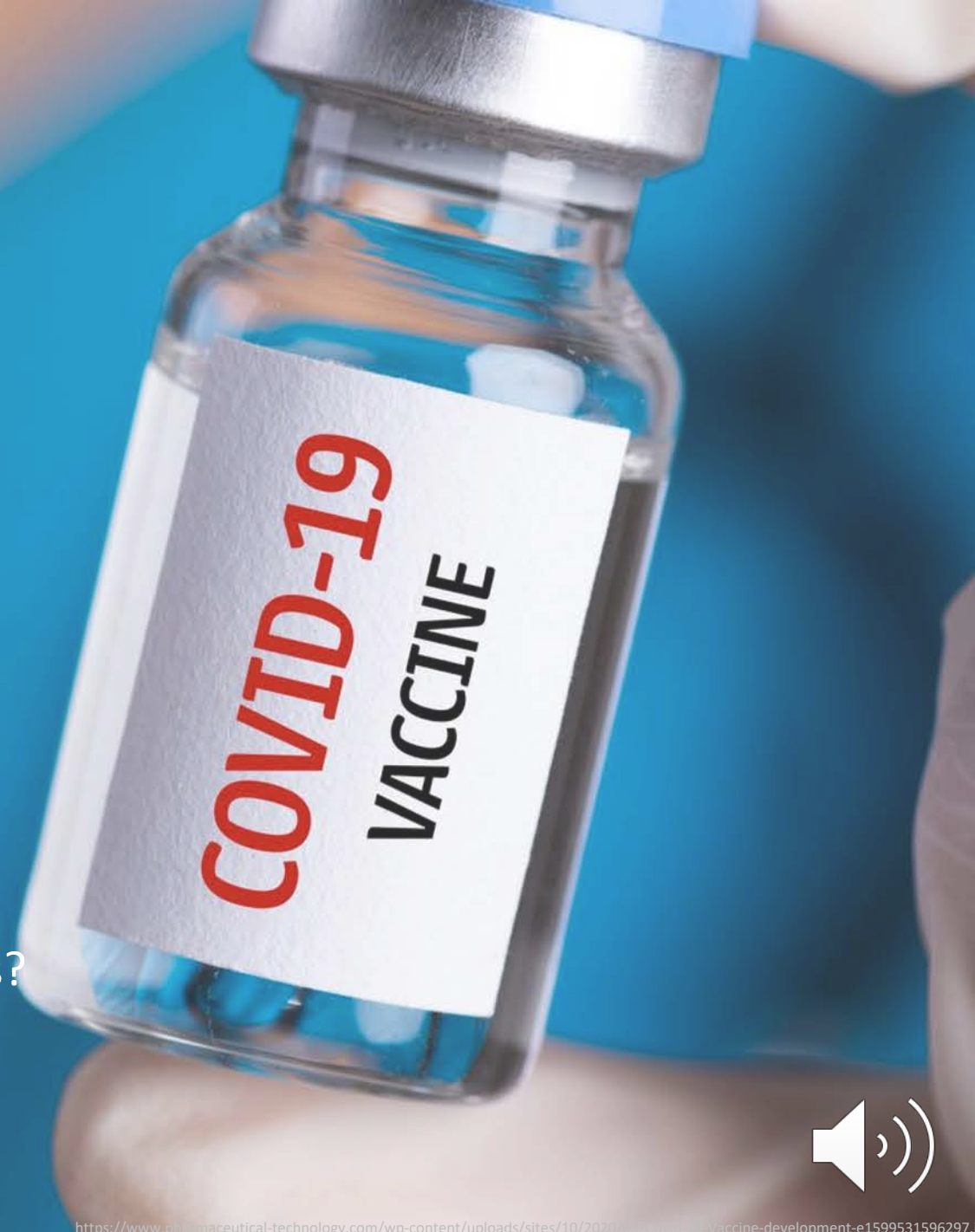
COVID-19 Vaccine Facts

1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. What are the side effects of mRNA vaccines?
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?



COVID-19 Vaccine Facts

1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. What are the side effects of mRNA vaccines?
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?



Was the vaccine process rushed?



So how were we able to develop a COVID-19 vaccine in a matter of months?

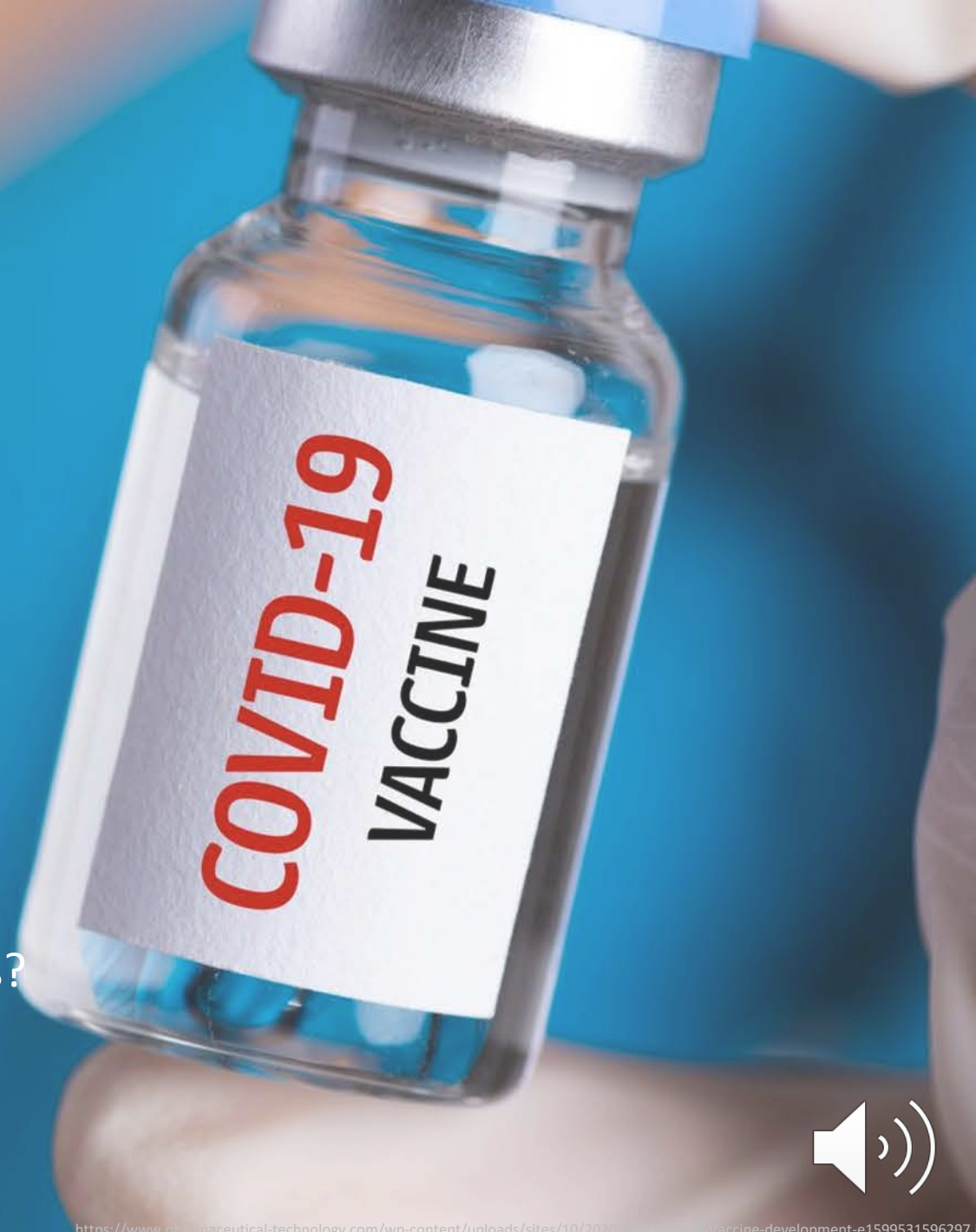
- Urgency
- Funding → Operation Warp Speed
- Phases 1 & 2 were done in tandem
- Recruitment
- Widespread pandemic → easier to assess efficacy

Prospective, double-blinded,
placebo-controlled,
randomized controlled trial



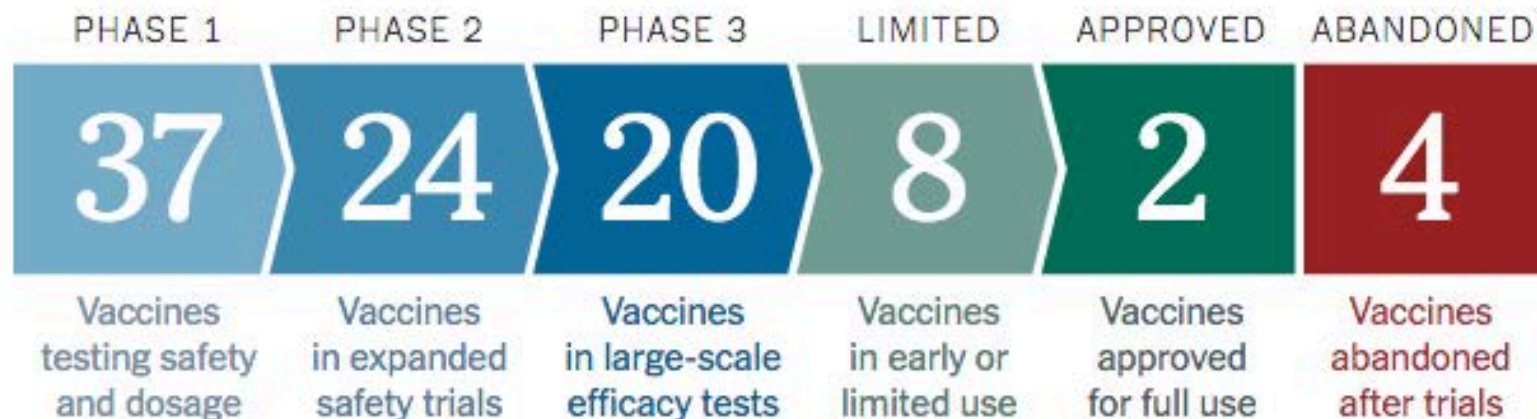
COVID-19 Vaccine Facts

1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. What are the side effects of mRNA vaccines?
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?



Coronavirus Vaccine Tracker

By Carl Zimmer, Jonathan Corum and Sui-Lee Wee Updated Jan. 30, 2021



Vaccines typically require years of research and testing before reaching the clinic, but in 2020, scientists embarked on a race to produce safe and effective coronavirus vaccines in record time. Researchers are currently testing **67 vaccines** in clinical trials on humans, and 20 have reached the final stages of testing. At least 89 preclinical vaccines are under active investigation in animals.



COVID-19 Vaccines

mRNA Vaccines

PHASE 2 PHASE 3 COMBINED PHASES

APPROVED IN SEVERAL COUNTRIES EMERGENCY USE IN U.S., ELSEWHERE



VACCINE NAME: Comirnaty (also known as tozinameran or BNT162b2)

EFFICACY: 95% *

DOSE: 2 doses, 3 weeks apart

TYPE: Muscle injection

STORAGE: Freezer storage only at -94°F (-70°C) *

43,548 participants

PHASE 3 EMERGENCY USE IN U.S., E.U., ELSEWHERE



VACCINE NAME: mRNA-1273 **EUA for age >18 y/o**

EFFICACY: 94.5% *

DOSE: 2 doses, 4 weeks apart

TYPE: Muscle injection

STORAGE: 30 days with refrigeration, 6 months at -4°F (-20°C)

30,420 participants

Adenovirus Viral Vector Vaccines

PHASE 3



VACCINE NAME: Ad26.COV2.S

EFFICACY: 72% in United States, 66% in Latin America, 57% in South Africa

DOSE: 1 dose *

TYPE: Muscle injection

STORAGE: Up to two years frozen at -4° F (-20° C), and up to three months refrigerated at 36-46° F (2-8° C).

43,783 participants

PHASE 2 PHASE 3 COMBINED PHASES

EMERGENCY USE IN BRITAIN, E.U., ELSEWHERE



VACCINE NAME: AZD1222 (also known as Covishield in India)

EFFICACY: 62% to 90%, depending on dosage

DOSE: 2 doses, 4 weeks apart

TYPE: Muscle injection

STORAGE: Stable in refrigerator for at least 6 months

11,636 participants

Protein Vaccines

PHASE 3



VACCINE NAME: NVX-CoV2373

EFFICACY: 89.3% against most variants

DOSE: 2 doses, 3 weeks apart

TYPE: Muscle injection

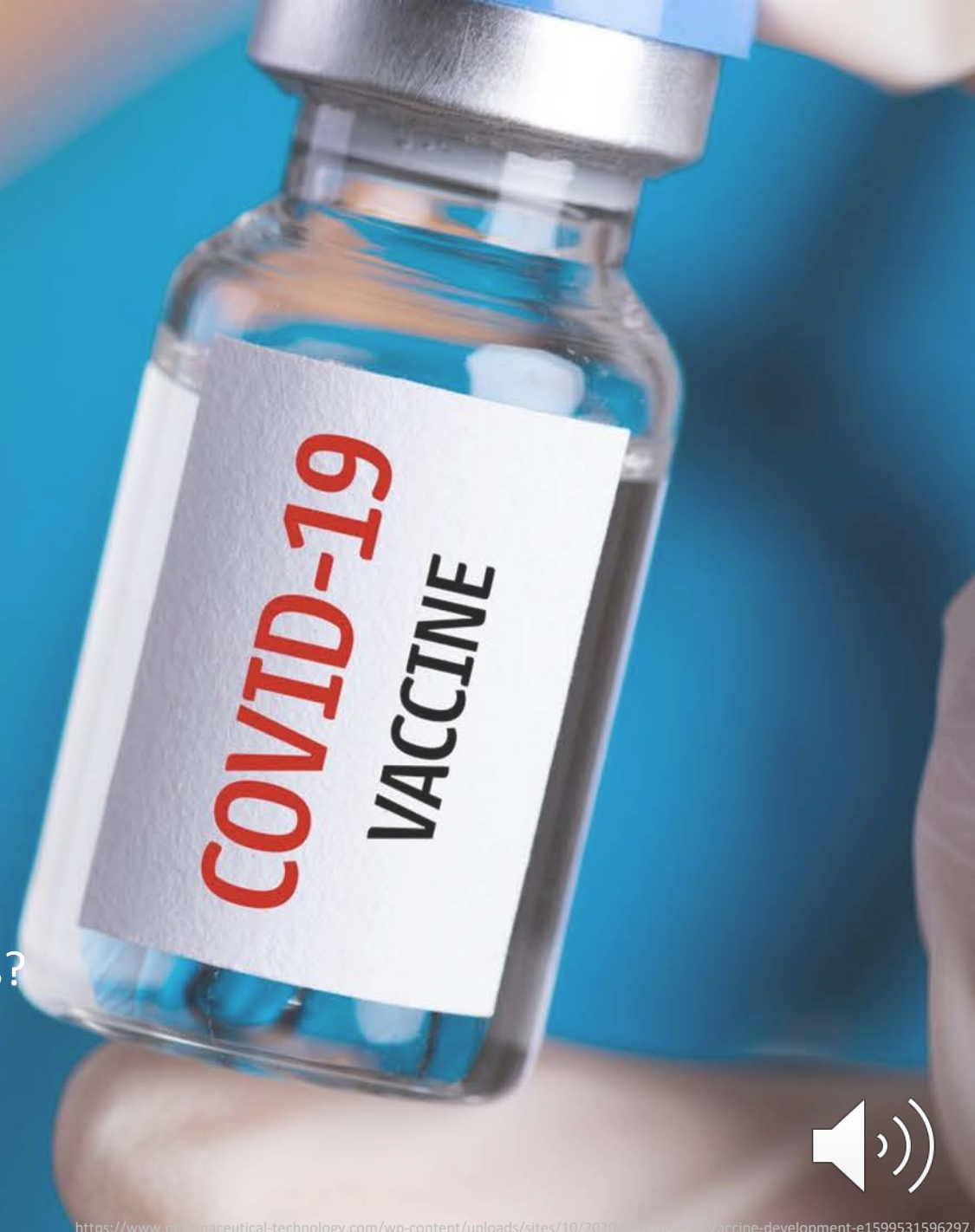
STORAGE: Stable in refrigerator

>37,000 participants

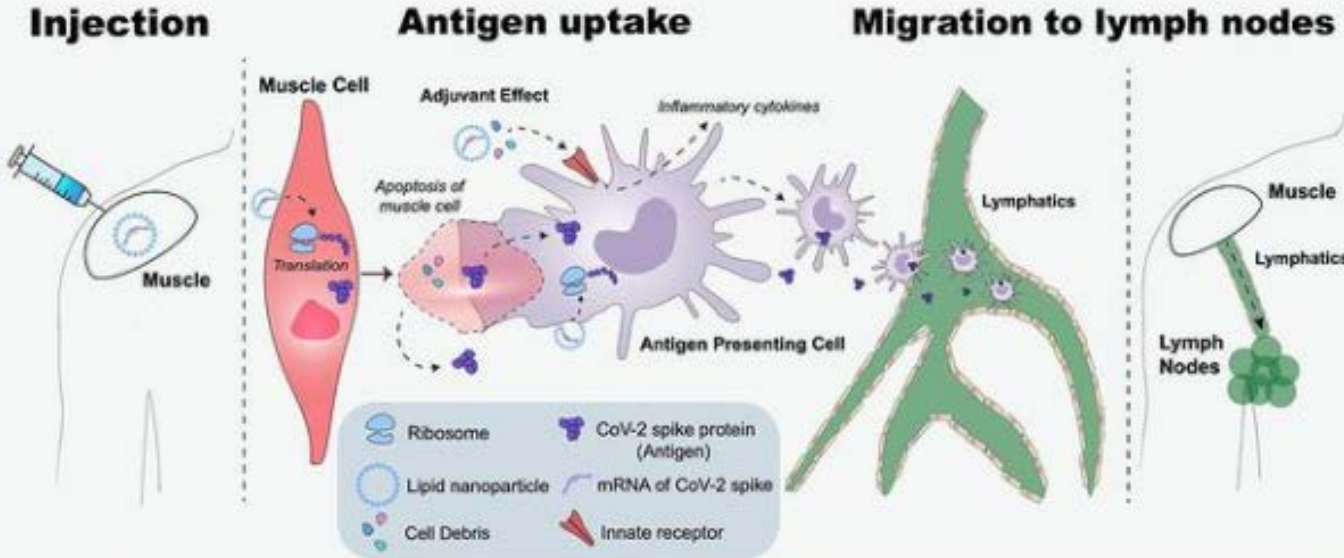
EUA = Emergency Use Authorization

COVID-19 Vaccine Facts

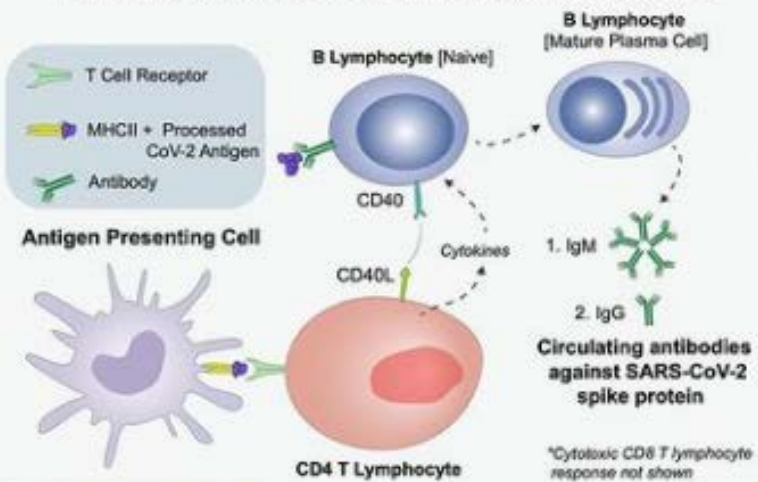
1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. **What are mRNA vaccines?**
4. What are the side effects of mRNA vaccines?
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?



The SARS-CoV-2 mRNA Vaccines



Antibody production in lymph nodes



Key Facts

1. Both mRNA vaccines are **>94% effective** at preventing symptomatic COVID infections
2. mRNA from these vaccines **cannot integrate into the human genome**. It quickly degrades after use for protein synthesis.
3. All patients **should receive 2 doses of the vaccine** to induce long-term immunological memory & protection

Advantages of mRNA Vaccines

- Quick and easy to produce
- mRNA sequence can be updated (variants)
- Not grown in egg culture
- No preservatives
- No gelatin
- No latex

Disadvantages of mRNA Vaccines

- Fragile → require specialized freezers
- Polyethylene glycol allergy



VACCINE INGREDIENTS

Each dose of the Pfizer-BioNTech COVID-19 Vaccine also includes the following ingredients: lipids (0.43 mg (4-hydroxybutyl)azanediylobis(hexane-6,1-diyl)bis(2-hexyldecanoate), 0.05 mg 2[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide, 0.09 mg 1,2-distearoyl-sn-glycero-3-phosphocholine, and 0.2 mg cholesterol), 0.01 mg potassium chloride, 0.01 mg monobasic potassium phosphate, 0.36 mg sodium chloride, 0.07 mg dibasic sodium phosphate dihydrate, and 6 mg sucrose. The diluent (0.9% Sodium Chloride Injection, USP) contributes an additional 2.16 mg sodium chloride per dose.

The Pfizer-BioNTech COVID-19 Vaccine does not contain preservative. The vial stoppers are not made with natural rubber latex.

Each dose of the Moderna COVID-19 Vaccine contains the following ingredients: a total lipid content of 1.93 mg (SM-102, polyethylene glycol [PEG] 2000 dimyristoyl glycerol [DMG], cholesterol, and 1,2-distearoyl-sn-glycero-3-phosphocholine [DSPC]), 0.31 mg tromethamine, 1.18 mg tromethamine hydrochloride, 0.043 mg acetic acid, 0.12 mg sodium acetate, and 43.5 mg sucrose.

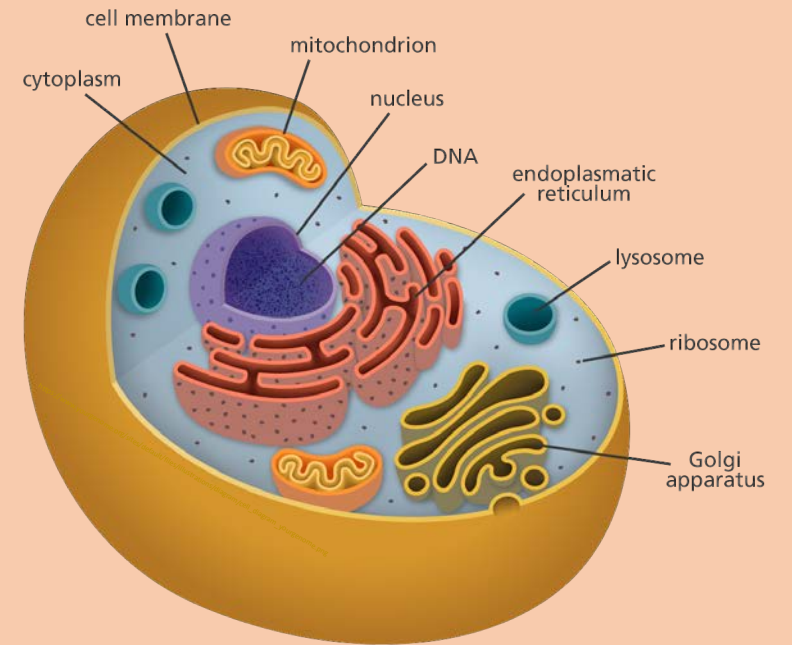
Moderna COVID-19 Vaccine does not contain a preservative.

The vial stoppers are not made with natural rubber latex.

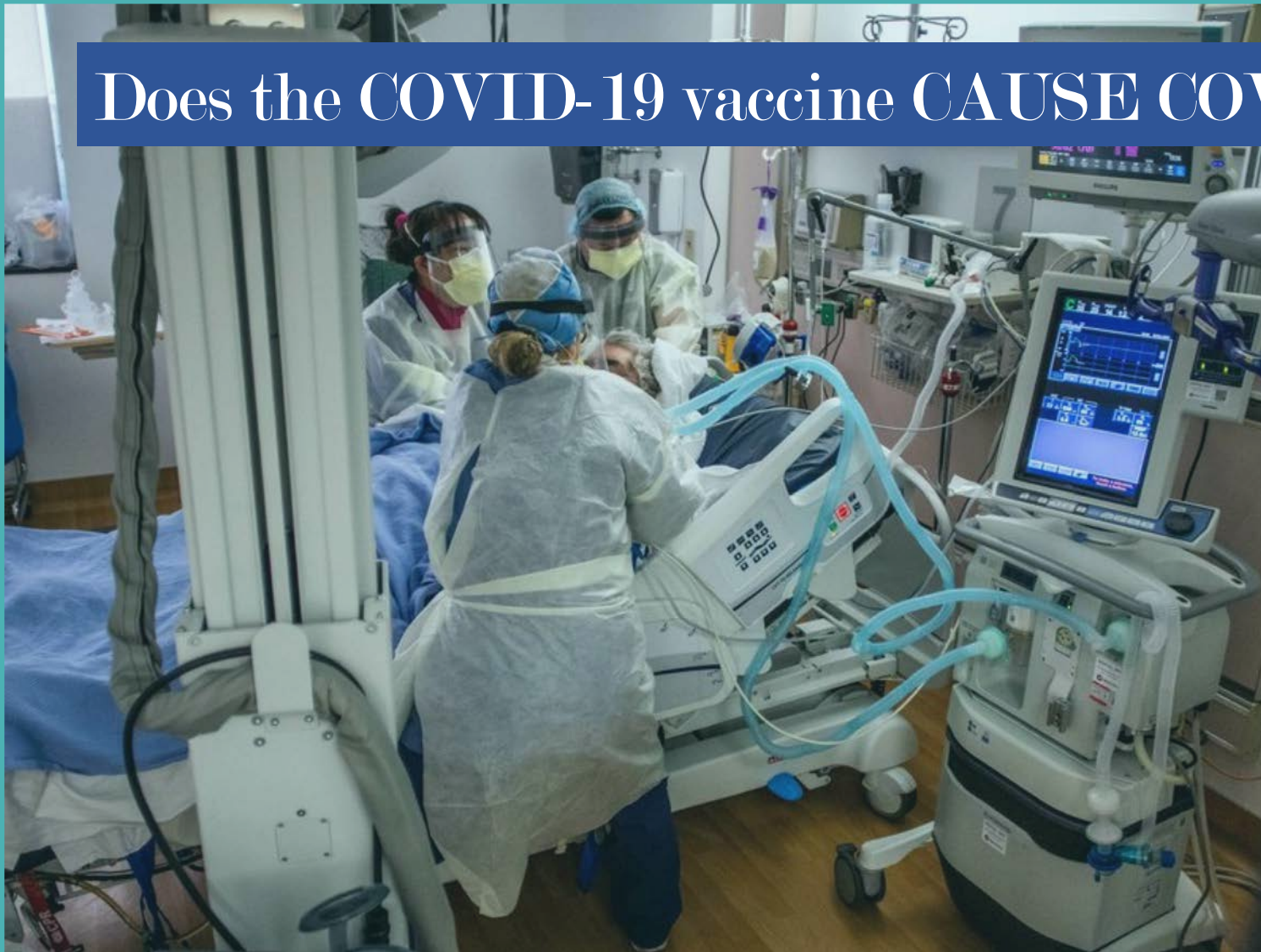


Will an mRNA vaccine alter my DNA?

No!



Does the COVID-19 vaccine CAUSE COVID-19 disease?

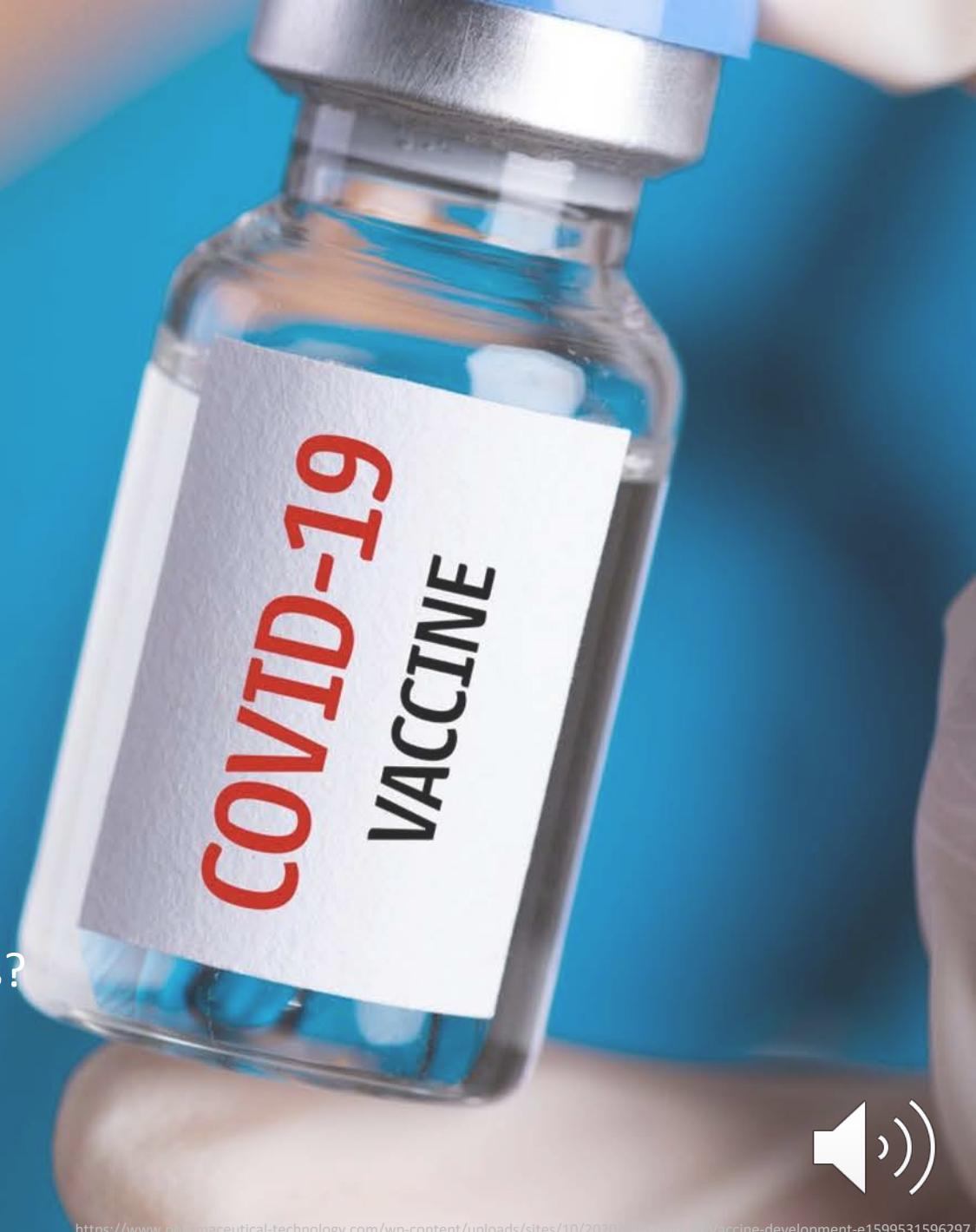


No!



COVID-19 Vaccine Facts

1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. **What are the side effects of mRNA vaccines?**
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?



What are the side effects of mRNA vaccines?

Table 1. Mild Side Effects Among All Study Participants*

	Injection Site Reactions	Fatigue	Chills	Muscle Pain	Joint Pain	Headaches
Moderna	91.6%	68.5%	43.4%	59.6%	44.8%	63%
Pfizer-BioNTech	84.10%	62.90%	31.90%	38.30%	23.60%	55.10%

Reactogenicity = immediate side effects
Immune response!

*Fever was the least common side effect reported; see text above for data on frequency of fever

Pfizer Vaccine Data: “Mild reactogenicity, low incidence of severe or serious events, and no clinically concerning safety observations. The vaccine appears to be safe and well-tolerated across the safety population and within demographic subgroups based on age, sex, race/ethnicity, country, and baseline SARSCoV-2 status.”



What to Expect after Getting a COVID-19 Vaccine

Accessible version: <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/expect/after.html>

COVID-19 vaccination will help protect you from getting COVID-19. You may have some side effects, which are normal signs that your body is building protection. These side effects **may feel like flu** and **may even affect your ability** to do daily activities, but they should go away in a few days.

Common side effects

On the arm where you got the shot:

- Pain
- Swelling

Throughout the rest of your body:

- Fever
- Chills
- Tiredness
- Headache

Helpful tips

If you have pain or discomfort, talk to your doctor about taking an over-the-counter medicine, such as ibuprofen or acetaminophen.

To reduce pain and discomfort where you got the shot:

- Apply a clean, cool, wet washcloth over the area.
- Use or exercise your arm.

To reduce discomfort from fever:

- Drink plenty of fluids.
- Dress lightly.

When to call the doctor

In most cases, discomfort from fever or pain is normal. Contact your doctor or healthcare provider:

- If the redness or tenderness where you got the shot increases after 24 hours
- If your side effects are worrying you or do not seem to be going away after a few days

Remember

- Side effects may feel like flu and even affect your ability to do daily activities, but they should go away in a few days.
- With most COVID-19 vaccines, you will need 2 shots in order for them to work. Get the second shot even if you have side effects after the first one, unless a vaccination provider or your doctor tells you not to get a second shot.
- It takes time for your body to build protection after any vaccination. COVID-19 vaccines that require 2 shots may not protect you until a week or two after your second shot.
- It's important for everyone to continue using all the tools available to help stop this pandemic as we learn more about how COVID-19 vaccines work in real-world conditions. Cover your mouth and nose with a mask when around others, stay at least 6 feet away from others, avoid crowds, and wash your hands often.



Ask your healthcare provider about getting started with v-safe

Use your smartphone to tell CDC about any side effects after getting the COVID-19 vaccine. You'll also get reminders if you need a second dose

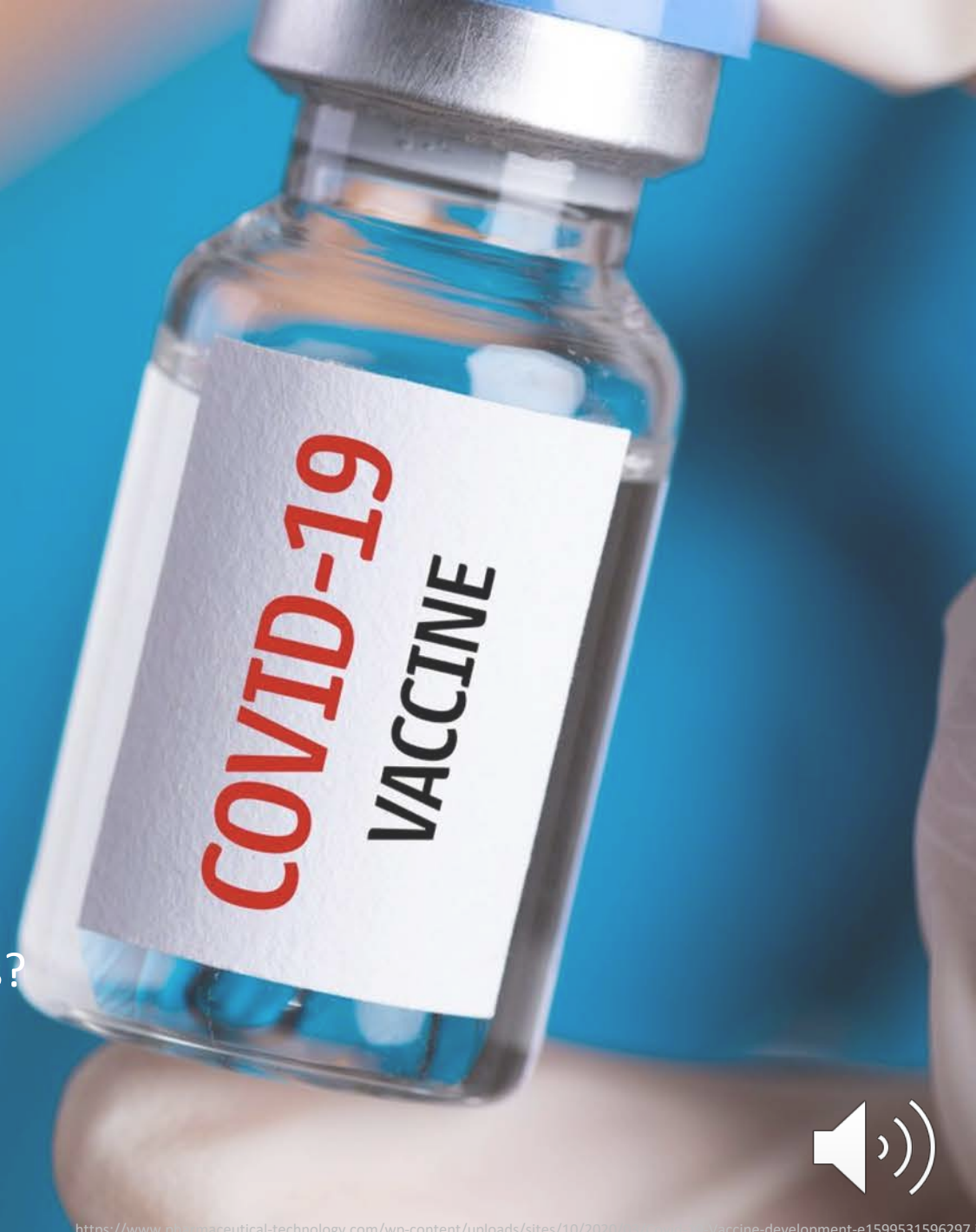
Learn more about v-safe.
www.cdc.gov/vsafe

Printable pdf from the CDC in English and Spanish:
<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/expect/after.html>



COVID-19 Vaccine Facts

1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. What are the side effects of mRNA vaccines?
5. **Does the vaccine cause Bell's palsy?**
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?



Does the COVID-19 vaccine cause Bell's palsy?

Rate of Bell's Palsy Occurrence in COVID-19 Vaccine Phase 3 Trials

	Vaccine Group	Placebo Group	Total	Rate per 10,000
Pfizer/BioNTech	4	0	4	0.9
Moderna	3	1	4	1.3

Bell's palsy:
2-3 cases per
10,000
people per
year

Correlation
vs.
Causation

THE LANCET

The Lancet, Volume 351, Issue 9103, Pages 637 - 641, 28 February 1998
doi:10.1016/S0140-6736(97)11096-0

This article was retracted

RETRACTED: Ileal-lymphoid-nodular hyperplasia and
pervasive developmental disorder in children

Dr A.J. Wakefield FRCS [1](#), SH Murch MB B, A. Anthony MB B, J. Linnell PhD B, DM Casson
MRCPath B, MA Thomson FRCP B, P. Harvey FRCP B, A. Valentine FRCP B, SE Davies MRCPath B, JA Walker-Smith FRCP B

Summary

Background

We investigated a consecutive series of children with chronic enterocolitis and regressive developmental disorder.

Methods

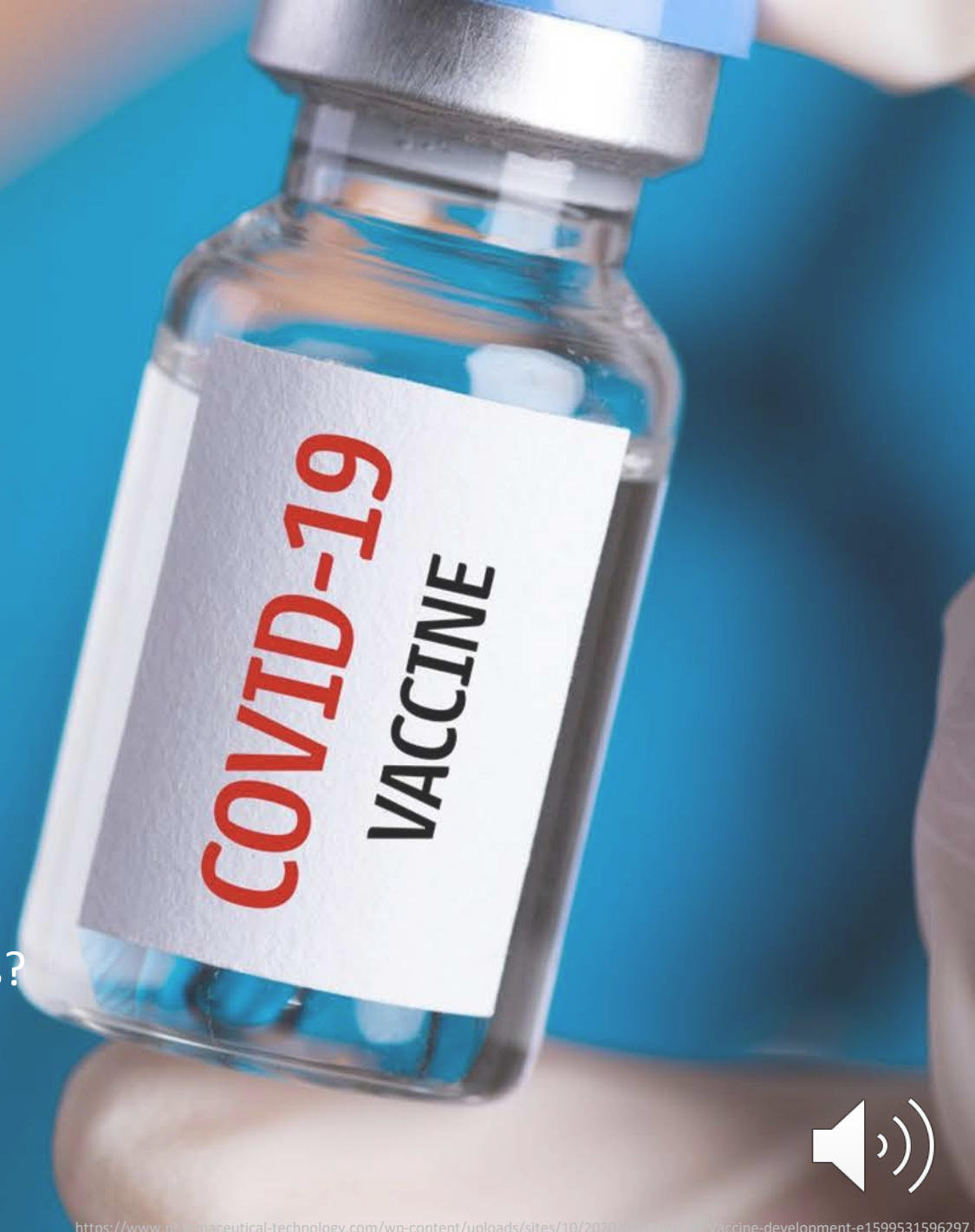
12 children (mean age 6 years [range 3-10], 11 boys) were referred to a paediatric gastroenterology unit with a history of normal development followed by loss of acquired skills, including language, together with diarrhoea and abdominal pain. Children underwent gastroenterological, neurological, and developmental assessment and review of developmental records. Ileocolonoscopy and biopsy sampling, magnetic-resonance imaging (MRI), electroencephalography (EEG), and lumbar puncture were done under sedation. Barium follow-through radiography was done where possible. Biochemical, haematological, and immunological profiles were examined.

MMR vaccine
& autism



COVID-19 Vaccine Facts

1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. What are the side effects of mRNA vaccines?
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?



What about the risk of anaphylaxis?

Centers for Disease Control and Prevention

MMWR

Morbidity and Mortality Weekly Report

January 15, 2021

Vaccine Adverse Event Reporting System (VAERS)

- **21 cases of anaphylaxis** after administration of a reported *1,893,360 first doses* of the Pfizer-BioNTech COVID-19 vaccine (**11.1 cases per million doses**)
- 17 in persons with a documented *history of allergies or allergic reactions*, seven of whom had a history of anaphylaxis.
- 71% of these occurred within 15 minutes of vaccination.

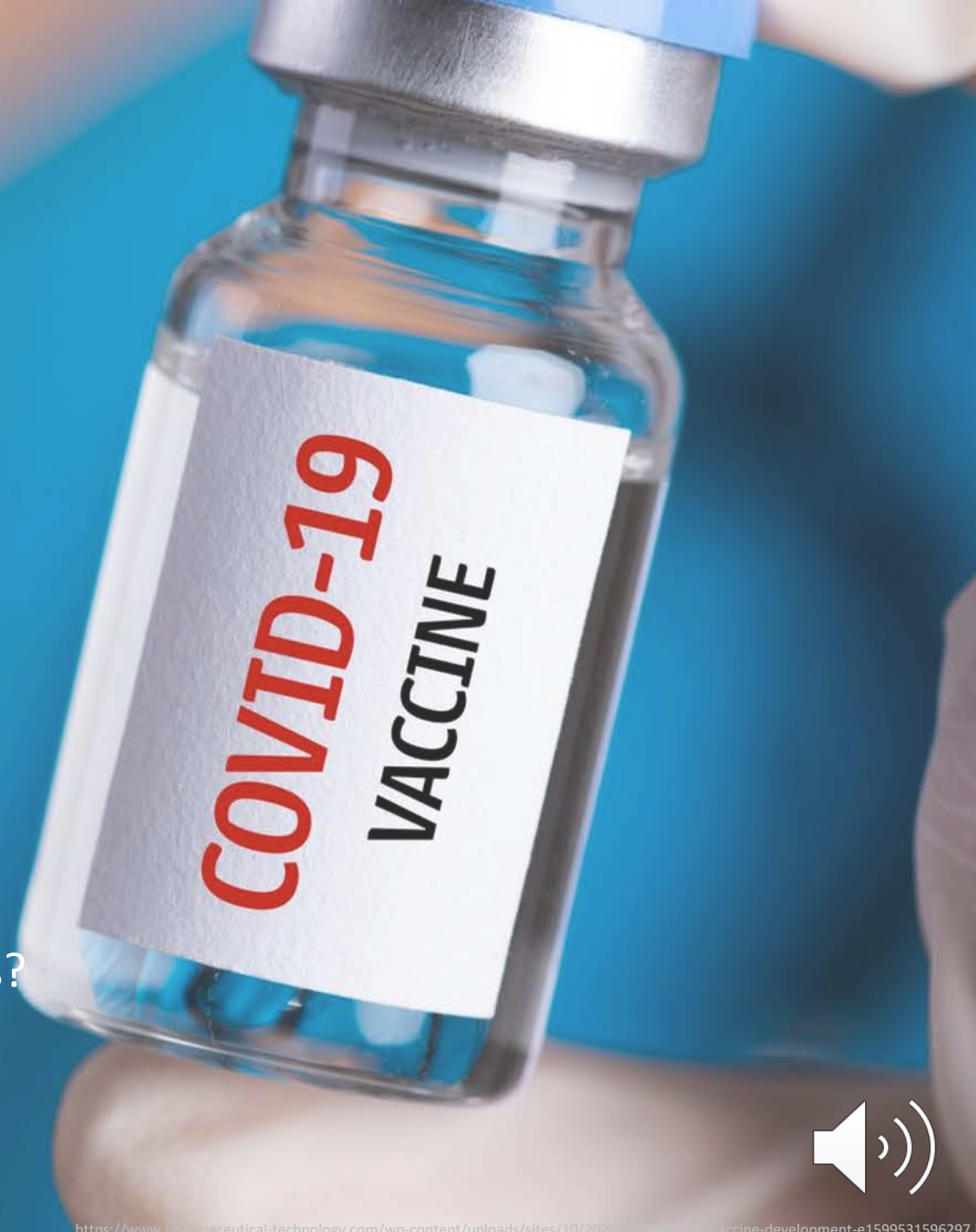
What are the implications for public health practice?

- Screen recipients for contraindications and precautions
 - Polyethylene glycol allergy
 - Polysorbate allergy
- Prepare necessary supplies available to manage anaphylaxis
- Implement the recommended postvaccination observation periods
- Immediately treat suspected cases of anaphylaxis with intramuscular injection of epinephrine



COVID-19 Vaccine Facts

1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. What are the side effects of mRNA vaccines?
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. **Are the COVID-19 vaccines safe?**
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?





Ashish K. Jha, MD, MPH ✓

@ashishkjha

Physician, researcher, advocate for the notion that an thousand pounds of opinion

Views here surely my own

Professor, Dean @Brown_SPH

Providence, RI brown.edu/academics/publ...

559 Following 168.4K Followers

Vaccine trial	Approximate # of people who received the vaccine	Of people vaccinated in the trial		
		# hospitalized for COVID	# who died from COVID	# who died from the vaccine
Moderna	15,000	0	0	0
Pfizer	18,600	0	0	0
Novavax*	13,000	0	0	0
Astra-Zeneca	5,800	0	0	0
J&J*	22,000	0	0	0



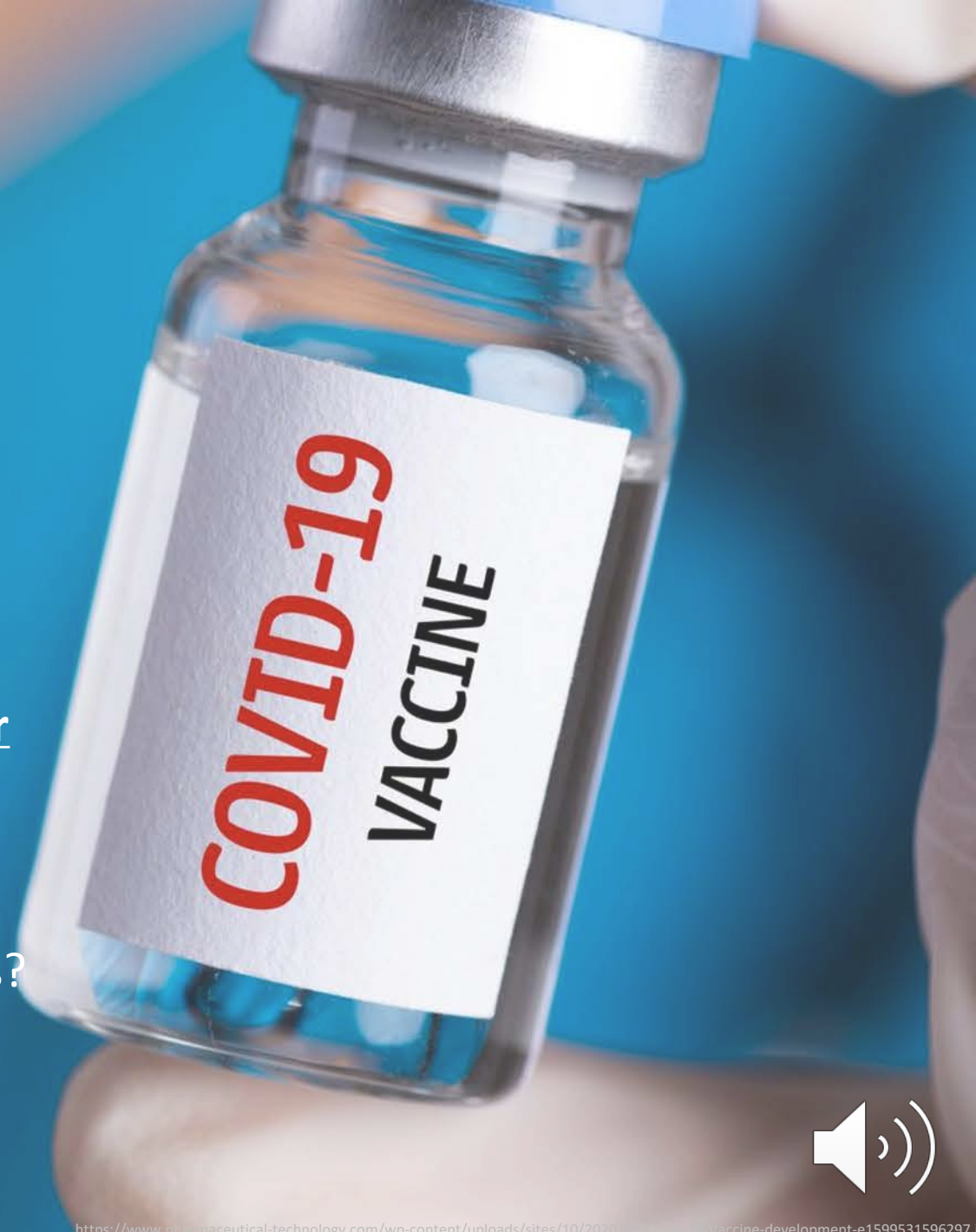
Vaccines prevent SEVERE COVID and DEATH

Vaccines are SAFE

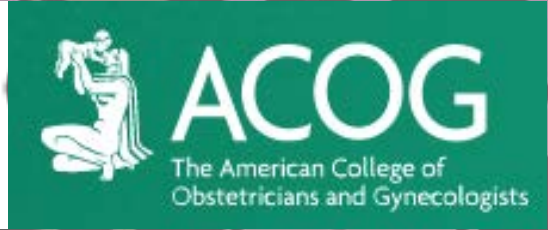


COVID-19 Vaccine Facts

1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. What are the side effects of mRNA vaccines?
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. **Is the vaccine safe for persons who are pregnant or breastfeeding?**
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?



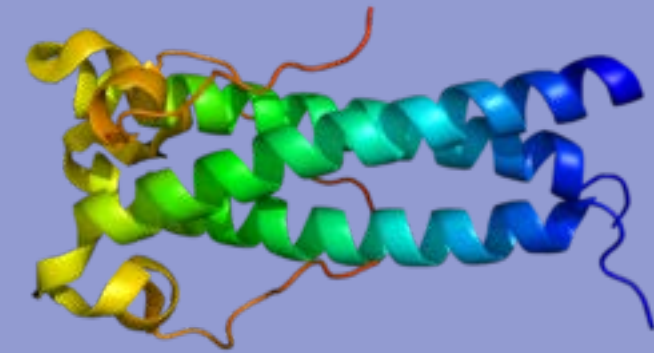
What about people who are pregnant or breastfeeding?



- Limited data!
- Pregnancy is a risk factor for severe COVID-19 illness.
- Risks vs. benefits
- Offer the vaccine.
- Respect autonomy. Personal choice!



Does the vaccine cause infertility?

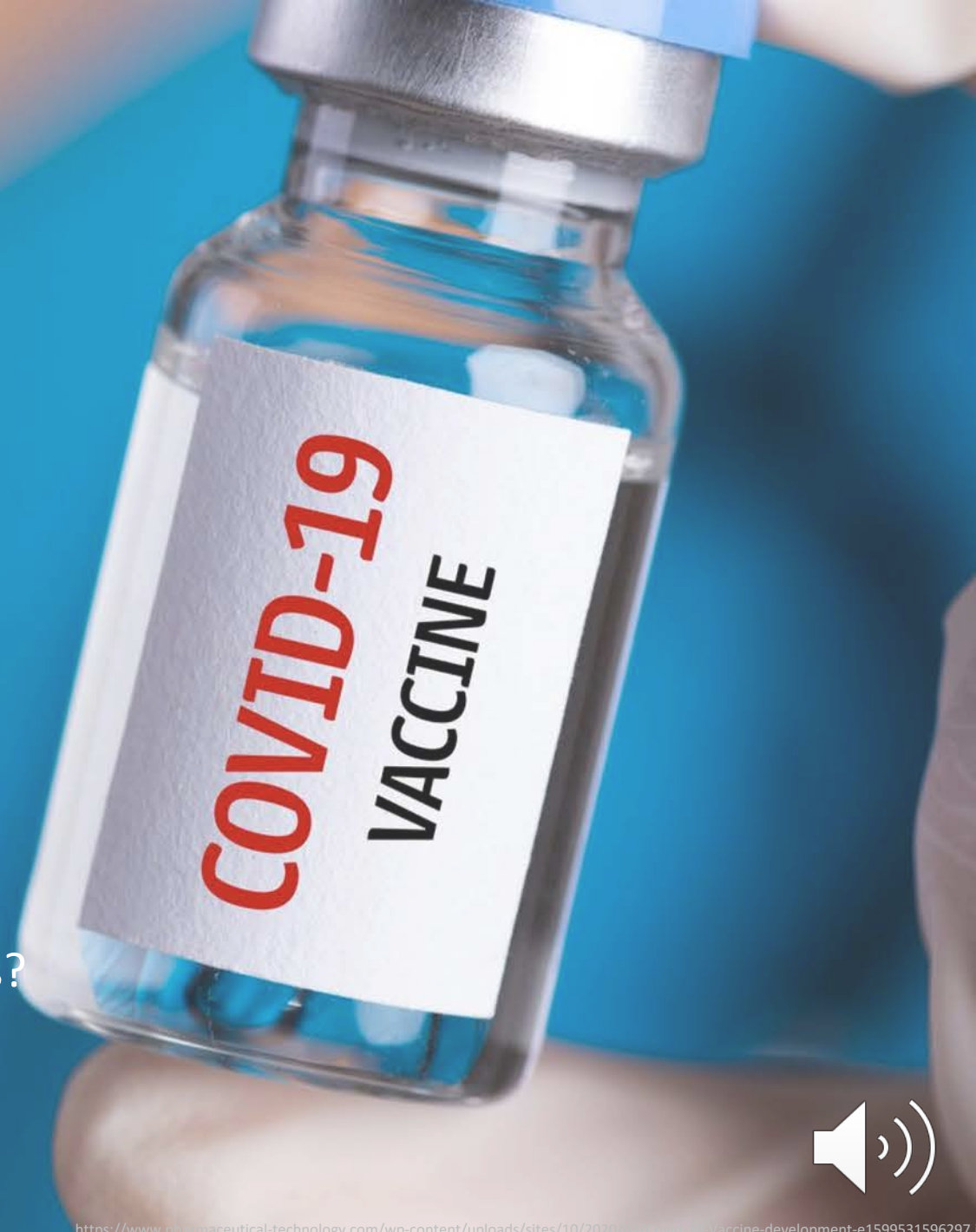


syncytin-1 protein



COVID-19 Vaccine Facts

1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. What are the side effects of mRNA vaccines?
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?



What about long-term side effects?

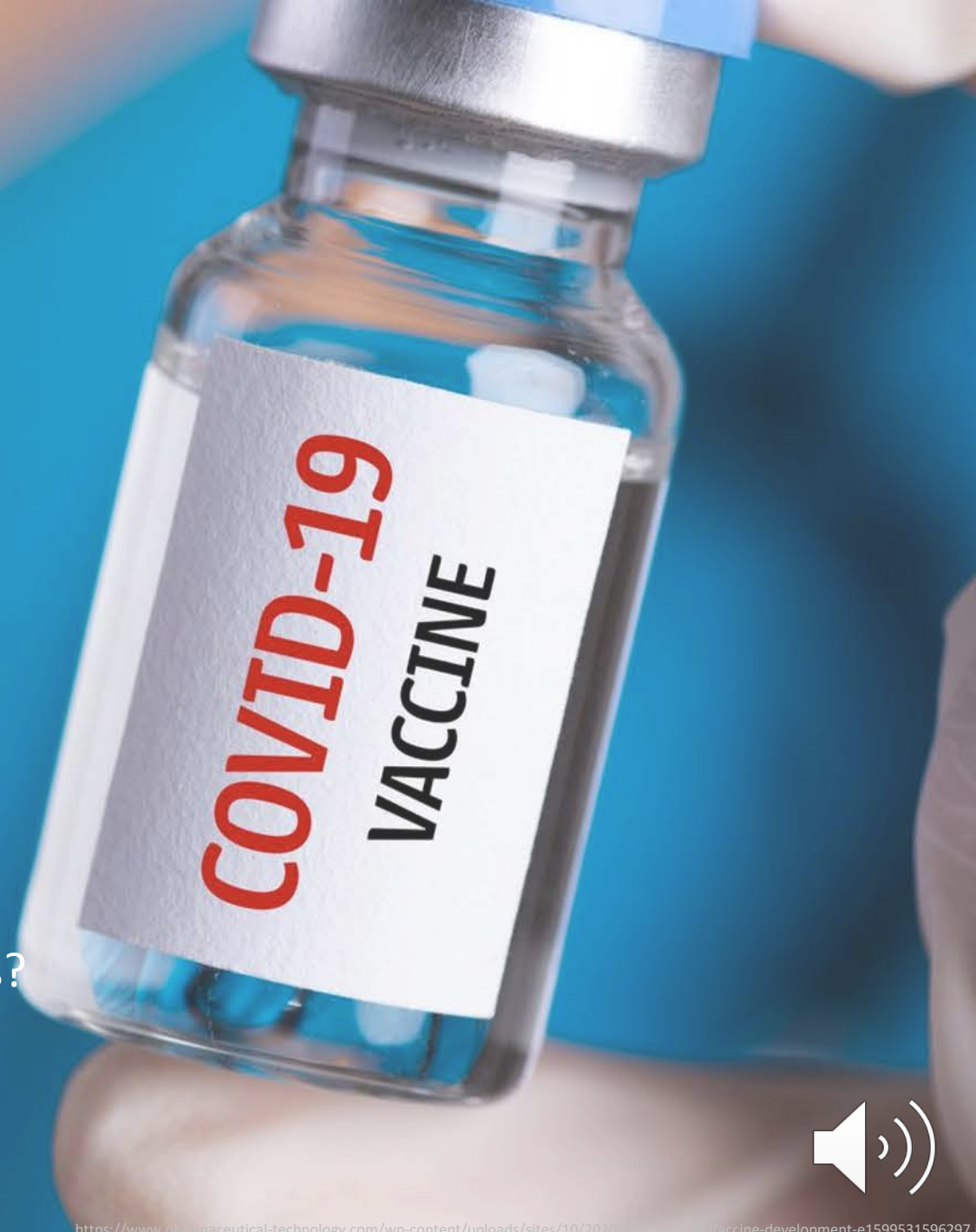
Most side effects
from vaccines
are acute!
Hours to days
to weeks

Remember:
the mRNA is
only in your
body for a short
period of time!

Two months of post-vaccination data required to submit for EUA 

COVID-19 Vaccine Facts

1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. What are the side effects of mRNA vaccines?
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?



Do the vaccines prevent COVID-19 transmission?

...can vaccinated individuals have asymptomatic disease AND transmit the virus?

Primary endpoints → prevention of symptomatic transmission

Pfizer Phase 3 Trial

Trial participants were tested for COVID-19 only if they developed symptoms

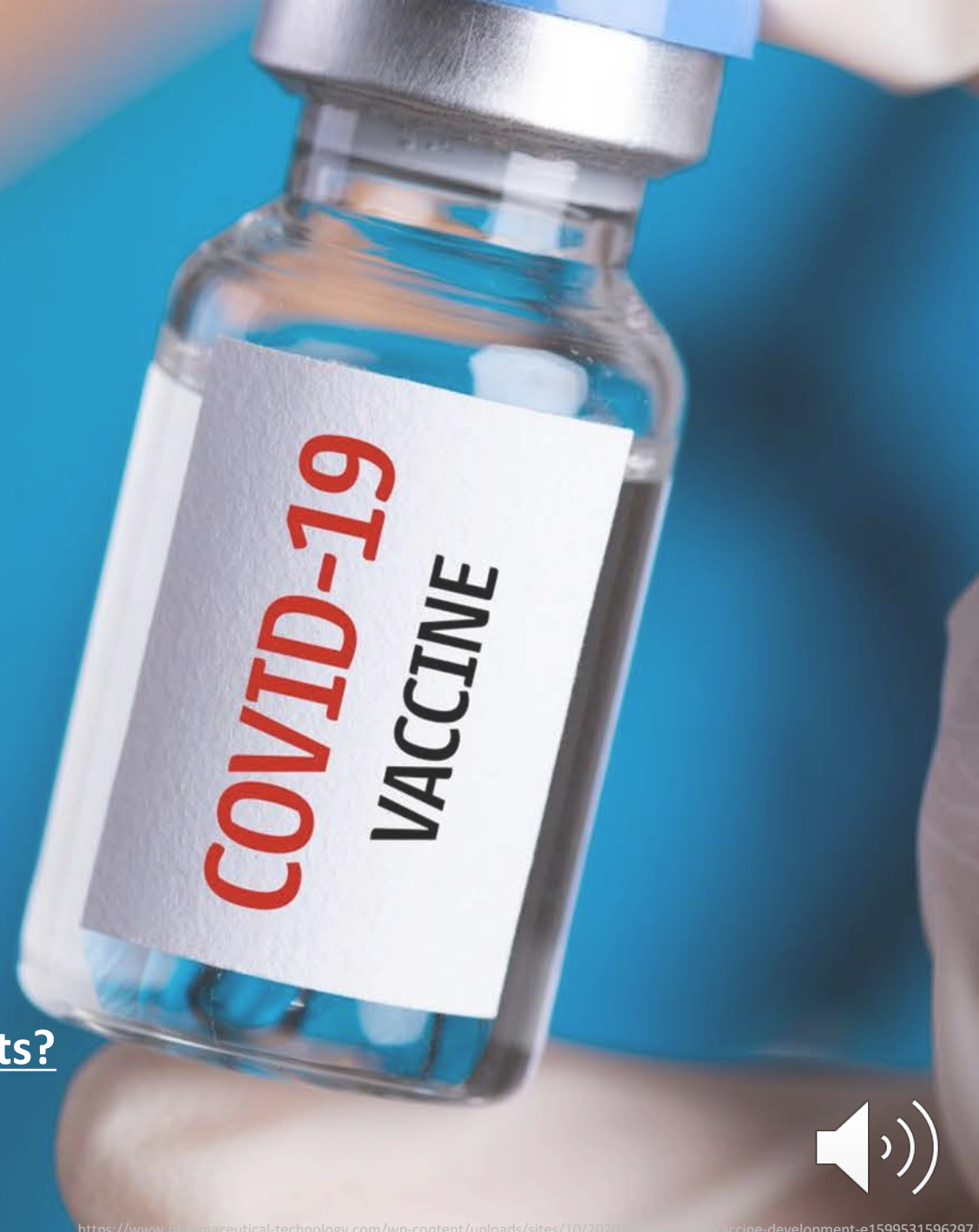
Moderna Phase 3 Trial

	Vaccine Group	Placebo Group
Pre-dose 1 swab Asymptomatic	0	0
Pre-dose 2 swab Asymptomatic	14	38



COVID-19 Vaccine Facts

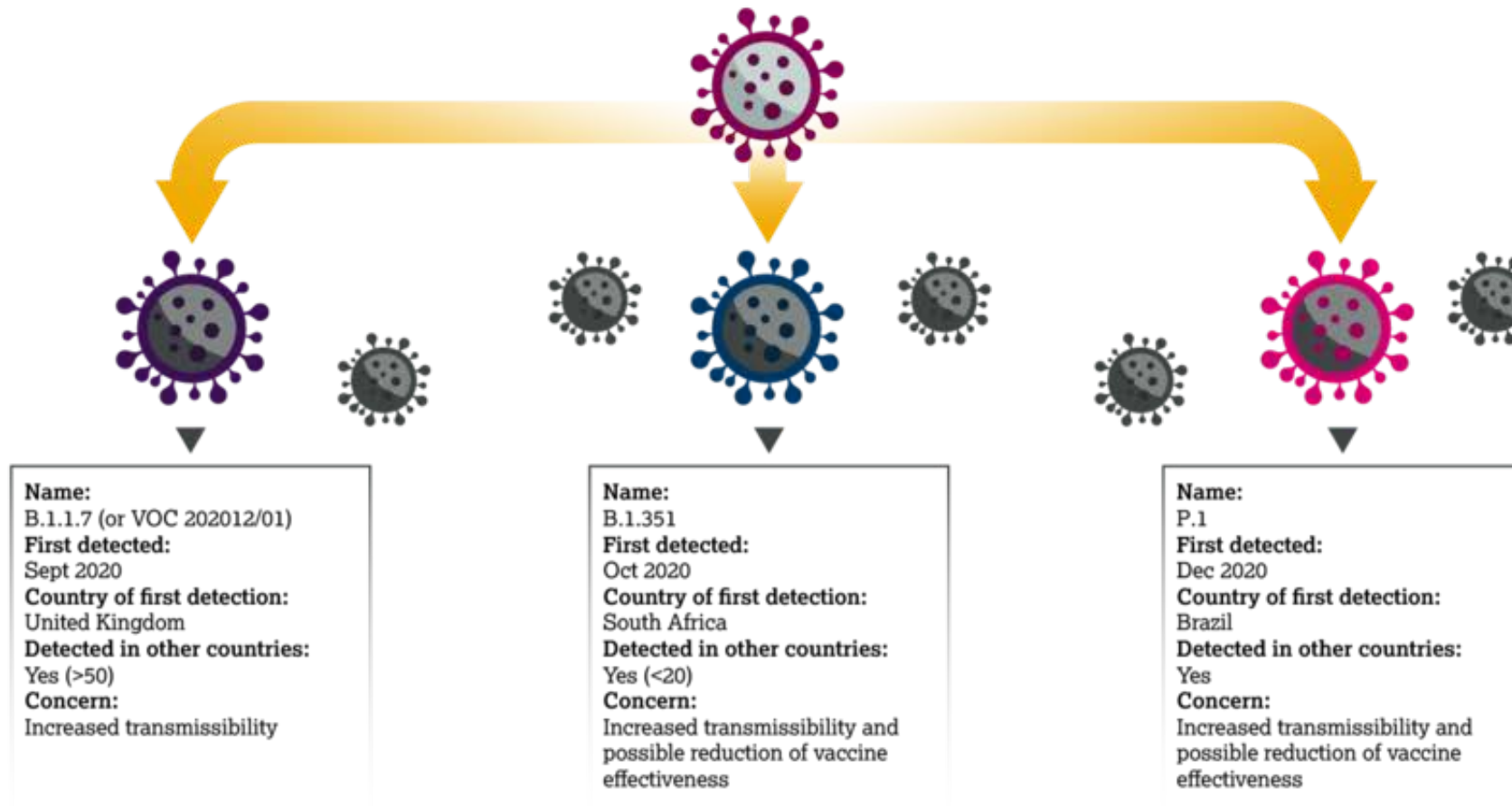
1. Was the vaccine development process rushed?
2. How many vaccines for COVID-19 are there?
3. What are mRNA vaccines?
4. What are the side effects of mRNA vaccines?
5. Does the vaccine cause Bell's palsy?
6. What about the risk of anaphylaxis?
7. Are the COVID-19 vaccines safe?
8. Is the vaccine safe for persons who are pregnant or breastfeeding?
9. What about long-term side effects of the vaccine?
10. Do the vaccines prevent COVID-19 transmission?
11. Are the vaccines effective against COVID-19 variants?





Mutations of SARS-CoV-2: current variants of concern

Mutations of SARS-CoV-2 that cause COVID-19 have been observed globally. While some mutations may not have a significant impact, others may provide the virus with a selective advantage, such as increased transmissibility



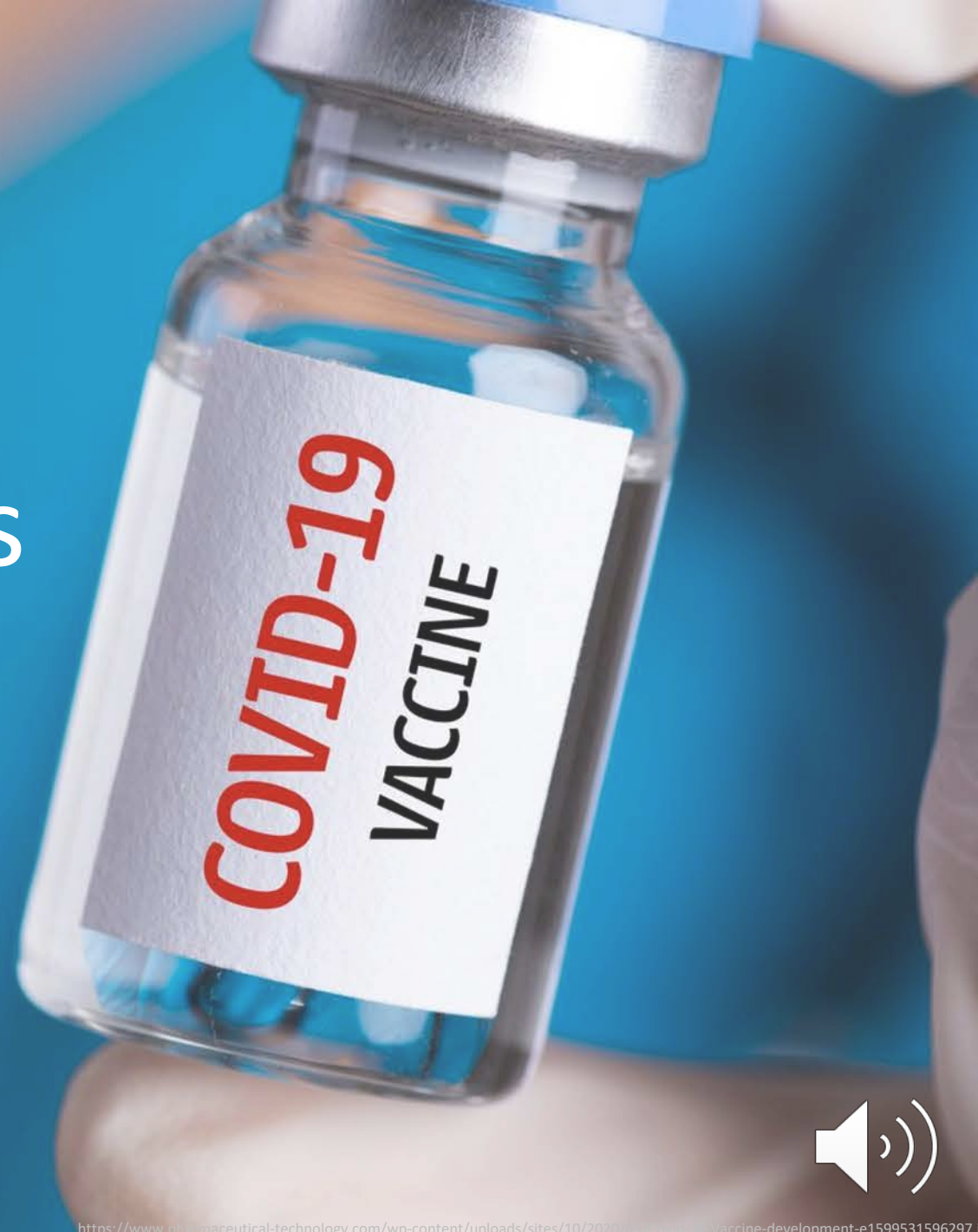
Are the vaccines effective against COVID-19 variants?

STOP infections → STOP mutations

	B.1.1.7 variant	B.1.351 variant	P.1 variant	
Pfizer/BioNTech	No reduction in neutralization	2-fold reduction in neutralization	---	
Moderna	No significant reduction in neutralization	6-fold reduction in neutralization	---	Planning a booster
Johnson & Johnson	72% efficacy	57% efficacy	66% efficacy	
AstraZeneca	75% efficacy	---	---	
Novavax	85.6% efficacy	60% efficacy	---	Planning a bivalent vaccine



COVID-19 Vaccine Facts



Can healthcare workers refuse the COVID-19 vaccine?

Yes

Autonomy

Risk
vs.
Benefit

Can hospitals require employees to be vaccinated against COVID-19?

No!

EUUA

When COVID-19 vaccines are FDA approved, can hospitals require it?

Yes!

Influenza vaccine

Rationale for refusal?

Reasonable accommodation



Perceived

RISK VS. BENEFIT



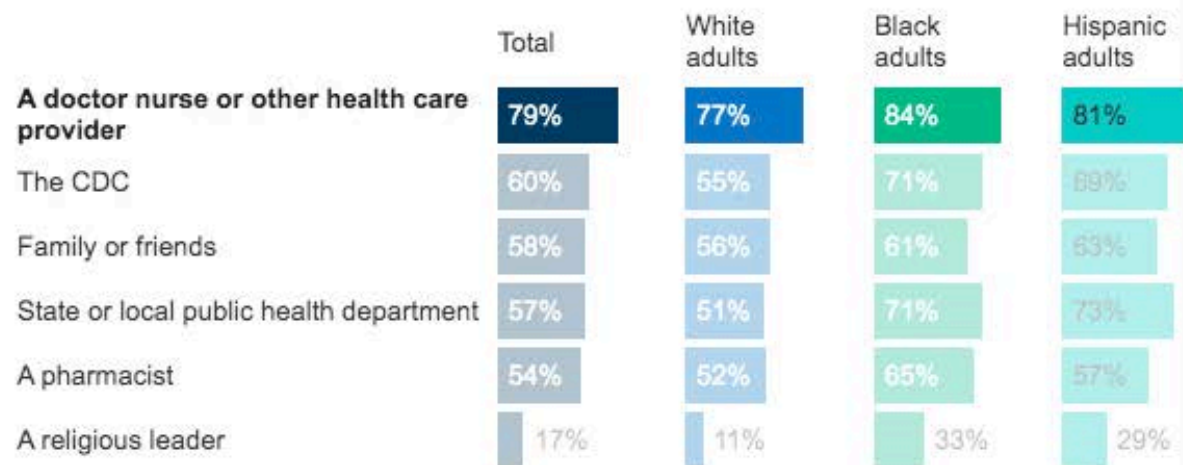
Risk of COVID-19	Risk of the Vaccine
Morbidity Mortality Long term sequelae of disease Infecting others ...immune compromised ...elderly ...those with chronic conditions Loss of income No end to this pandemic!	Reactogenicity Anaphylaxis
Benefit of COVID-19	Benefit of Vaccine
? Some protection from antibodies	Protection from disease, hospitalization, death Support herd immunity Protect those most vulnerable End this pandemic...hopefully!



Eight In Ten Say They Will Turn To Health Care Providers When Deciding Whether To Get Vaccinated

Doctors, nurses, and health care providers are the source where most people say they will likely to turn for information when deciding to get a COVID-19 vaccine. This is followed by the CDC, family or friends, state or local public health departments, pharmacists, and religious leaders. Despite the fact that health care providers are the source people say they are most likely to turn to for vaccine information, relatively few (24%) of those who have not yet been vaccinated say they have already asked a doctor or other health care professional for information about the vaccine.

Percent who say they are likely to turn to each of the following when deciding whether to get a COVID-19 vaccine:



NOTE: Among those who have not yet been vaccinated. See topline for full question wording.
SOURCE: [KFF COVID-19 Vaccine Monitor \(Jan. 11-18, 2021\)](#) • [Download PNG](#)

[KFF COVID-19 Vaccine Monitor](#)



What else can I do as a PA to encourage vaccination?

Ask your family and friends if they plan to get the vaccine!

Help your elderly friends and family locate their local vaccination site!

NORMALIZE vaccination!



Make vaccination exciting!

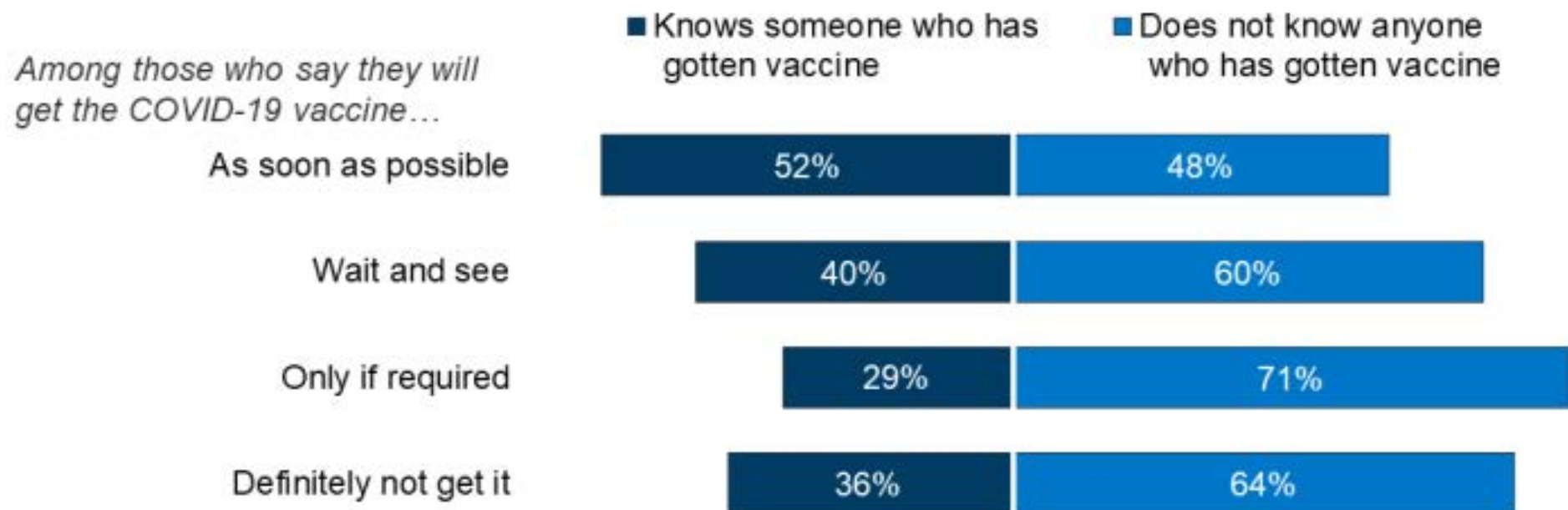
Display a sticker or badge buddy proudly!



Figure 10

Knowing Someone Who Has Been Vaccinated For COVID-19 Is Correlated With Vaccine Enthusiasm

Do you personally know anyone who has been vaccinated for COVID-19, or not?



NOTE: Among those who have not been vaccinated against COVID-19

SOURCE: KFF COVID-19 Vaccine Monitor (conducted Jan. 11-18, 2021). See topline for full question wording.

**KFF COVID-19
Vaccine Monitor**

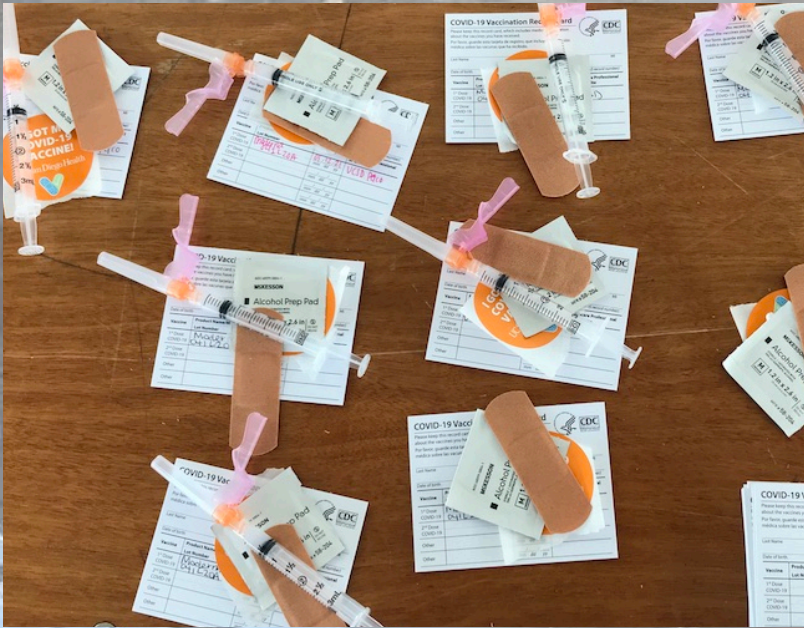




Share your experience on social media!

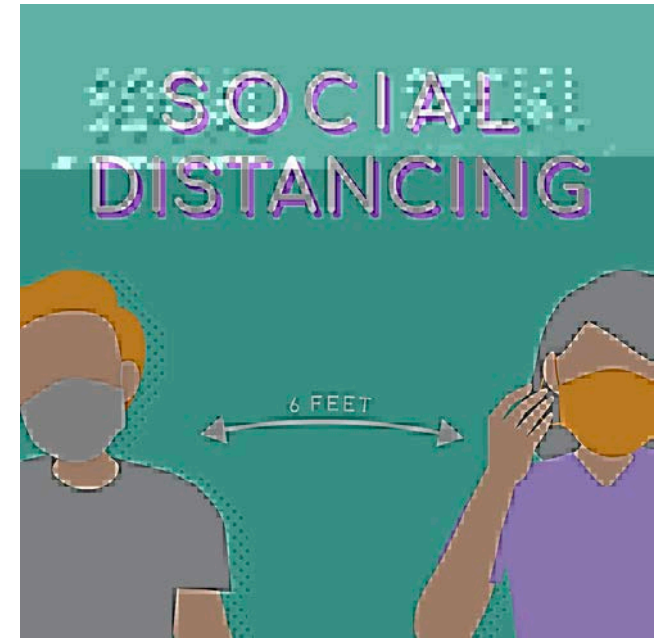


Volunteer to vaccinate!





This Photo by Unknown Author is licensed under [CC BY-NC](#)



This Photo by Unknown Author is licensed under [CC BY-SA-NC](#)



References

1. Roberts S. The Swiss Cheese Model of Pandemic Defense. *New York Times*. <https://www.nytimes.com/2020/12/05/health/coronavirus-swiss-cheese-infection-mackay.html>. Published December 5, 2020. Accessed February 6, 2021.
2. McClung N, Chamberland M, Kinlaw K, et al. The Advisory Committee on Immunization Practices' Ethical Principles for Allocating Initial Supplies of COVID-19 Vaccine — United States, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69:1782-1786. doi:10.15585/mmwr.mm6947e3external icon
3. U.S. Centers for Disease Control and Prevention. How CDC Is Making COVID-19 Vaccine Recommendations. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations-process.html>. Published December 30, 2020. Accessed February 6, 2021.
4. Horsey D. Roll the dice and you might get to roll up your sleeve. *The Seattle Times*. <https://www.seattletimes.com/opinion/roll-the-dice-and-you-might-get-to-roll-up-your-sleeve/>. Published February 3, 2021. Accessed February 7, 2021.
5. Hamel L, Kirzinger A, Lopes L, et al. KFF COVID-19 Vaccine Monitor: January 2021 - Vaccine Hesitancy. <https://www.kff.org/report-section/kff-covid-19-vaccine-monitor-january-2021-vaccine-hesitancy/>. Published January 27, 2021. Accessed February 6, 2021.
6. Ward A. Vaccine Infodemiology (COVID-19 IMMUNITY) with Jessica Malaty Rivera. *Ologies*. January 5, 2021. <https://www.alieward.com/ologies/vaccineinfodemiology>. Accessed January 12, 2021.
7. Damania Z. Addressing Vaccine Fears, Live. *ZDoggMD*. January 25, 2021. <https://zdoggm.com/podcasting/vaccine-fears/>. Accessed February 1, 2021.
8. Slaoui M, Hepburn M. Developing Safe and Effective Covid Vaccines - Operation Warp Speed's Strategy and Approach. *N Engl J Med*. 2020;383(18):1701-1703. doi:10.1056/NEJMp2027405
9. Zimmer C, Corum J, Wee S. Coronavirus Vaccine Tracker. *New York Times*. <https://www.nytimes.com/interactive/2020/science/coronavirus-vaccine-tracker.html>. Published January 30, 2021. Accessed January 30, 2021.
10. Cennimo DJ. COVID-19 Vaccines. Overview, Vaccines in Late-Stage Development, Viral Variants and Vaccines. https://emedicine.medscape.com/article/2500139-overview?&src=WNL_mdplsnews_YMMDD_mscpedit_inf&uac=&spon=3&impID=2947343&faf=1#a1. Published February 4, 2021. Accessed February 6, 2021.
11. @thecurbsiders. The SARS-CoV-2 mRNA Vaccines. Posted January 28, 2021. Accessed February 2, 2021. <https://www.instagram.com/p/CKmJQLehePf/>.
12. Patterson JE, Ehwarime RI. 'Will the Vaccine Alter My Genes?' -- and Other Patient FAQs. *Medscape*. https://www.medscape.com/viewarticle/944213?src=mkm_covid_update_210121_MSCPEDIT&uac=143382MG&impID=3145783&faf=1#vp_2. Published January 21, 2021. Accessed February 6, 2021.
13. @ashishkjha. Am often asked about different vaccines and their efficacy Each trials tracks, reports efficacy differently Currently, we have preliminary results for Novavax and J&J But what numbers matter? What should you look for? Here's one set of data to track. In a simple table. Posted January 31, 2021. Accessed February 1, 2021. <https://twitter.com/ashishkjha/status/1356079020878786561>.
14. Damania Z. COVID Variants Vs. Vaccine (W/Dr. Paul Offit). *ZDoggMD*. February 5, 2021. <https://zdoggm.com/podcasting/paul-offit-6/>. Accessed February 5, 2021.
15. Sax PE. Covid-19 Vaccine - Frequently Asked Questions. *New England Journal of Medicine*. https://www.nejm.org/covid-vaccine/faq?cid=DM108101_&bid=351647437. Accessed February 7, 2021..
16. FDA Briefing Document. Pfizer-BioNTech COVID-19 Vaccine. Vaccines and Related Biological Products Advisory Committee Meeting. December 10, 2020. <https://www.fda.gov/media/144245/download>
17. FDA Briefing Document. Moderna COVID-19 Vaccine. Vaccines and Related Biological Products Advisory Committee. December 17, 2020. Meeting Briefing Document. <https://www.fda.gov/media/144434/download>.
18. Allergic Reactions Including Anaphylaxis After Receipt of the First Dose of Pfizer-BioNTech COVID-19 Vaccine — United States, December 14–23, 2020. *MMWR Morb Mortal Wkly Rep*. 2021;70:46–51. doi:10.15585/mmwr.mm7002e1external icon
19. U.S. Centers for Disease Control and Prevention. Vaccination Considerations for People who are Pregnant or Breastfeeding. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/pregnancy.html>. Published January 7, 2021. Accessed February 7, 2021.
20. American College of Obstetricians and Gynecologists. Vaccinating Pregnant and Lactating Patients Against COVID-19. <https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2020/12/vaccinating-pregnant-and-lactating-patients-against-covid-19>. Published February 4, 2021. Accessed February 7, 2021.
21. Gilden DH. Clinical practice. Bell's Palsy. *N Engl J Med*. 2004;351(13):1323-1331. doi:10.1056/NEJMc041120
22. Infectious Disease Society of America. Vaccines FAQ. IDSA Home. <https://www.idsociety.org/covid-19-real-time-learning-network/vaccines/vaccines-information--faq/>. Published January 4, 2021. Accessed February 7, 2021.
23. @dr.risahoshino. Will the C-VID SHOT Still Work? Posted February 1, 2021. Accessed February 6, 2021. <https://www.instagram.com/p/CKwV2CvBXik/>
24. Buppert C. Can a Healthcare Worker Refuse the COVID-19 Vaccine? *Medscape*. https://www.medscape.com/viewarticle/942296?src=WNL_mdplsfeat_mscpedit_PA&uac=143382MG&impID=2951326&faf=1. Published December 9, 2020. Accessed February 7, 2021.
25. Caplan AL. Should COVID-19 Vaccinations Be Mandatory? Some Think So. *Medscape*. https://www.medscape.com/viewarticle/943882?src=mkm_covid_update_210121_MSCPEDIT&uac=143382MG&impID=3145783&faf=1. Published January 20, 2021. Accessed February 7, 2021.
26. Kaiser Family Foundation. KFF COVID-19 Vaccine Monitor Dashboard. <https://www.kff.org/coronavirus-covid-19/dashboard/kff-covid-19-vaccine-monitor/>. Published February 4, 2021. Accessed February 7, 2021.
27. Denne E. Improve Immunization Rates in Your Adult Patients. *American Academy of Physician Assistants*. <https://www.aapa.org/news-central/2021/01/improve-immunization-rates-in-your-adult-patients/>. Published January 25, 2021. Accessed February 7, 2021.



Thank you so much for your time today!

COVID-19 Vaccination Record Card 

Please keep this record card, which includes medical information about the vaccines you have received.
Por favor, guarde esta tarjeta de registro, que incluye información médica sobre las vacunas que ha recibido.

Last Name _____ First Name _____

Date of birth _____ Patient number (medical record or ID record number) _____

Vaccine	Product Name/Manufacturer	Lot Number	Date	Healthcare Professional or Clinic Site
1 st Dose COVID-19			mm dd yy	
Dose 2 nd COVID-19			mm dd yy	

Please feel free to contact me with any questions!

Rachel La Costa, PA-C
rachelmlacosta@gmail.com

