

# Welcome to Immunize Colorado's Addressing COVID-19 Vaccine Hesitancy Webinar

This webinar will begin shortly!

- All attendees will automatically be muted with their video's off for the duration of the webinar.
- If you experience any technical difficulties, please post your comments in the chat box.
- If you have any questions for our presenters, please post your questions in the Q&A box.



# Immunize Colorado Education Series: Addressing COVID-19 Vaccine Hesitancy

Erika Bonnevie – Director of Research at The Public Good Projects

Ben Ernst – Advocacy Manager at The Public Good Projects

Dr. Sean O'Leary, MD, MPH - Pediatric Infectious Disease Specialist

Dr. Chad Morris, Ph.D. - Professor of Psychiatry and Director of the  
Behavioral Health & Wellness Program

March 24, 2021

# Agenda

- **IC Updates and Speaker Introductions**
- **Erika Bonnevie:** Tracking Vaccine Sentiment Online through Project VCTR
- **Ben Ernst:** Addressing Vaccine Hesitancy on a National Level through Project Stronger
- **Q&A**
- **Dr. Sean O'Leary:** The COVID-19 Vaccines and Vaccine Safety Systems
- **Dr. Chad Morris:** Motivational Interviewing and Other Strategies to Reduce Vaccine Hesitancy in Clinical Setting
- **Q&A**

# Partnering to KEEP COLORADO COMMUNITIES HEALTHY

## OUR MISSION

Founded in 1991, Immunize Colorado (formerly the Colorado Children's Immunization Coalition) is a statewide 501(c)3 nonprofit that serves to protect Colorado families, schools and communities from vaccine-preventable diseases.

# What We Do



**Coalition Building:** Strengthen and expand Colorado's immunization initiatives and data through partnerships and collaboration



**Public Policy:** Advocate for policies that aim to better protect Colorado children and communities



**Free and Low-Cost Vaccines:** Partner to provide free and low-cost vaccines to families in need



**Community Outreach and Awareness:** Communicate vaccine information with healthcare providers, parents, the media and organizations



**Provider Education:** Educate health care professionals on crucial and timely vaccine-related topics



**Data Translation and Action:** Spearhead partnerships to advance the understanding and utilization of local, state and national immunization data

# Immunize Colorado Updates & Resources

- **NEW!** COVID-19 Vaccines Approved for Emergency Use Authorization in the U.S. Factsheet ([Here](#))
- Colorado Vaccine Equity Taskforce Websites ([English](#) and [Spanish](#))
- IC's COVID-19 For Health Care Professionals Page ([Here](#))

## COVID-19 VACCINES APPROVED FOR EMERGENCY USE AUTHORIZATION IN THE U.S.

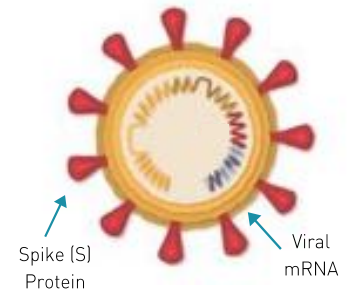


Many vaccines are currently being tested as a tool to combat the COVID-19 pandemic. Here, the vaccines that are currently approved for Emergency Use Authorization (EUA) by the FDA are explained. More information on the vaccine approval process can be found at the [CDC](#). Graphics are from the [New York Times Coronavirus Vaccine Tracker](#).

### The virus that causes COVID-19

- Coronavirus disease (COVID-19) is caused by a newly found coronavirus, SARS-CoV-2. Its structure is a membrane capsule that carries RNA. RNA are the genetic instructions used to make more copies of the virus.
- The outermost shell of the coronavirus is covered in spike (S) proteins, which are like keys that let the coronavirus into human cells to cause infection.

#### SARS-CoV-2



- Many of the vaccines being developed for COVID-19 are aimed at safely exposing the body to the S protein, a small, inactive piece of the virus, but not the virus itself. After exposure, the body can build antibodies that recognize the S protein and can fight off future SARS-CoV-2 infections.

# Erika Bonnievie

Director of  
Research at the  
Public Goods  
Project



Ben  
Ernst

Advocacy  
Manager at  
Public Goods  
Projects





# Project VCTR

Vaccine Communication  
Tracking & Response



PROJECT VCTR

# Project VCTR

Vaccine opposition is a threat to global health. Digital and social media are a primary source of misinformation and means of organizing vaccine opposition.

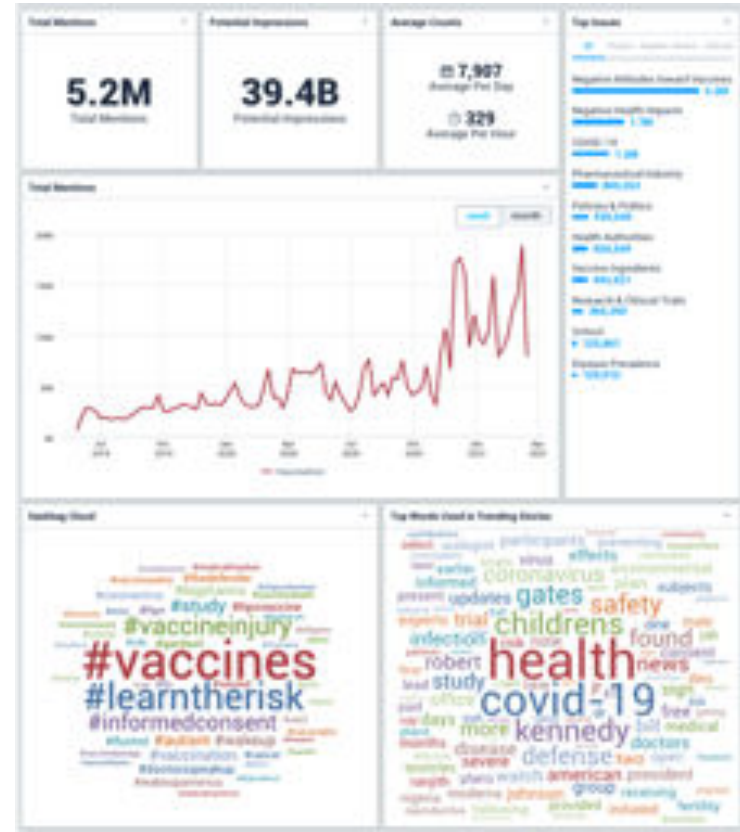
**Project VCTR** is a systematic, sustained effort to identify, track, and report publicly available media data around vaccines, across various media sources.



# Vaccine Opposition

Since June 2019, Project VCTR has collected **5.2 million** mentions of vaccine opposition, garnering over **40B** potential impressions on content.

This equates to about **7,889** mentions per day, or almost **329** per hour.



*References to Vaccine Opposition  
June 2019 - March 2021*

# Vaccine Hesitancy in Black & Latinx Communities

Hesitancy and opposition toward vaccines appears to be at an all time high in the US, likely fomented by a rise in the anti-vaccination movement during the COVID-19 pandemic.

Mis- and disinformation has a major impact on vaccine perceptions and uptake.

25% of African Americans do not plan on getting the COVID-19 vaccine.<sup>1</sup>

37% of Latinos do not plan on getting the COVID-19 vaccine.<sup>1</sup>

4 in 10 African Americans want to “wait and see.”<sup>2</sup>

4 in 10 Latinos want to “wait and see.”<sup>3</sup>

1. <https://www.npr.org/sections/coronavirus-live-updates/2021/03/12/976172586/little-difference-in-vaccine-hesitancy-among-white-and-black-americans-poll-find>
2. <https://www.kff.org/coronavirus-covid-19/poll-finding/attitudes-towards-covid-19-vaccination-among-black-women-and-men/>
3. <https://www.kff.org/coronavirus-covid-19/poll-finding/vaccine-hesitancy-among-hispanic-adults/>

# Public Recorded Webinars

Two public webinars were recorded on vaccine misinformation in Black and Latinx communities. To view the webinars, [click here](https://covidcommunityresources.org/other-resources) or go to [covidcommunityresources.org/other-resources](https://covidcommunityresources.org/other-resources).

PROJECT VOTE PRESENTS:

## Vaccine Messaging & Misinformation in Latino Communities

A conversation about the impact of vaccine disinformation in Latino communities and how to address it.



THURSDAY, MARCH 11,  
3:00PM - 4:30PM EST /  
12:00PM - 1:30PM PST

Register at <https://bit.ly/3eodpT3>

Logos: NEW YORK STATE HEALTH FOUNDATION, PROJECT VOTE, and others.

PROJECT VOTE AND THE NEW YORK STATE HEALTH FOUNDATION PRESENT:

## Race + Vaccines: Understanding perspectives in the Black community

A conversation around perceptions and responses to the COVID-19 vaccine in Black communities

WEDNESDAY, FEBRUARY 3RD,  
12:30PM - 1:30PM EST

Register at <https://bit.ly/3sGxPIY>

Hear from the Project VOTE team and community health professionals at the Race Community Health Center and Beaufort-Jasper Hampton Comprehensive Health Services.

Dr. Faith L. Poku, MD, MPH  
Dr. Nello Alunni, MD



# Top COVID-19 Vaccine Misinformation

## Misinformation

*“Vaccines can cause infertility”*

**FACT:** There is **no evidence** that Covid-19 vaccines affect women’s or men’s fertility

Source: [Factcheck.org](#), [Boomlive](#), [afp.com](#), [fullfact.org](#)

*“Vaccines contain aborted fetuses or fetal tissues.”*

**FACT:** Cells from two abortions performed in the 70s & 80s have been propagated in labs for many years, creating “cell lines.” These cell lines have been used in various scientific advancements. **Fetal cell lines are not the same as fetal tissue.** Vaccines do not contain fetal tissues.

Source: [Snopes](#), [fullfact.org](#), [nebraskamed.com](#)

## Misleading Information

*“Use of VAERS data to associate vaccines with deaths or serious adverse side effects.”*

**FACT:** VAERS is system in which any individual can self-report any health problem following self-reported immunization. VAERS is the official US vaccine adverse event reporting system. However, **reports to the VAERS do not determine if a vaccine caused a reaction or death**; if a report is found to have merit, it begins the first of many subsequent steps taken by health officials to investigate adverse events.

Source: [fullfact.org](#)

For more information:  
[info@projectvctr.com](mailto:info@projectvctr.com)



# Misinformation

And What To Do About It

*stronger.*



# Stronger

**Stronger** is a national campaign fighting on behalf of science, medicine, and vaccines.

It is the **first vaccine advocacy campaign** to focus on the root cause of vaccine hesitancy - misinformation.

We do this by working with partner organizations, sharing correct information, and arming people with ways to **fight back**.



# Examples From Stronger



# Adjust Your Approach

## DO

- Be personal and empathetic
- Listen and validate the person's concerns
- Rely on science and data - and personal experience
- Account for the varying experiences of people in different demographic groups
  - Many communities of color have valid historical reasons to be skeptical of the health system

## DON'T

- Get political
- Repeat misinformation
- Take it personally
- Vilify the sharer
- Rely on fear

# Using Specific Language Can Help

## DO USE

- The pandemic
- Eliminate/eradicate/get rid of the virus
- Public health agencies
- Safe and effective vaccines
- Policies that are based on facts/science/data
- Essential workers
- Social distancing

## DON'T USE

- The coronavirus
- Defeat/crush/knock out the virus
- Government health agencies
- A vaccine developed quickly
- Policies that are sensible/impactful/reasonable
- Frontline workers
- Physical distancing

# We Provide Training For Three Main Response Scenarios

## Debunk

- Respond to false information where you find it
- Provide science, data, or true information

## Inoculate

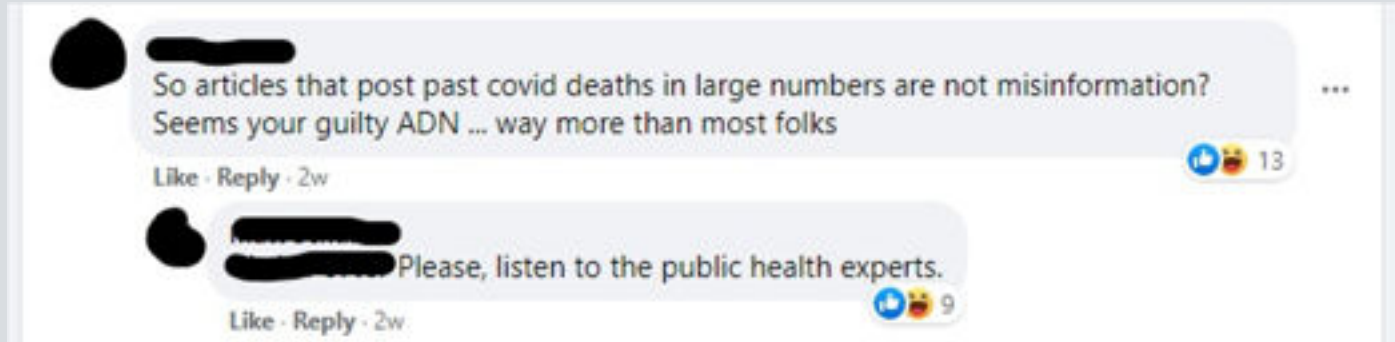
(Prebunk)

- Equip people with counter-arguments to build resistance to future misinformation
- If people see truth before fiction, they're more likely to believe the truth

## Report

- Help hold social platforms accountable
- Help social platforms hold super spreader users accountable

# Debunking Example: Observational Correction



Two targets for any corrective message:

1. **The Sharer:** May have a higher resistance to correction. Values and reputation are at stake.
2. **Observers:** Anyone who sees this post.

**Research has consistently documented the ability of observational correction to reduce health misperceptions across platforms and topics, and including correction from a variety of sources.**

# Resources

## FACT CHECKING

- [Healthfeedback.org](https://healthfeedback.org)
- [Fullfact.org](https://fullfact.org)
- [Politifact \(poynter\)](https://politifact.com/poynter/)
- [Snopes](https://snopes.com)
- [AFP Fact Check](https://www.aafp.org/fact-check)
- Mayo Clinic “[Expert Answers](https://www.mayoclinic.org/expert-answers)”
- Fact checks from [USA Today](https://www.usatoday.com), [Reuters](https://www.reuters.com), [AP](https://www.ap.com), etc.
- [CDC](https://www.cdc.gov)
- [WHO](https://www.who.int)
- [Google Fact Check Explorer](https://www.google.com/factcheck/)

## FURTHER READING

- [WHO: How infodemics affect the world & how they can be managed](https://www.who.int/news-room/feature-stories/infodemics)
- [Debunking Handbook](https://www.climate.gov/debunking-handbook) 2020 (climate change)
- [Vaccine Misinformation Management Field Guide](https://www.vaccine.gov/field-guide)
- [Changing the COVID Conversation Communications Cheat Sheet](https://www.facebook.com/communicationscheatsheet)
- [Facebook’s misinformation policies](https://www.facebook.com/policies)

**Q&A**



# THANK YOU!

Email: [info@stronger.org](mailto:info@stronger.org)

Social: @strongerorg



# Q&A Session

Questions?

Please put in the Q&A box!

# Dr. Sean O'Leary

Pediatric Infectious  
Disease Specialist at  
Children's Hospital  
Colorado





# An Introduction to COVID-19 Vaccines



Sean O'Leary, MD, MPH, FAAP

March 24, 2021





# Outline

- COVID-19 Vaccines
    - What they are and how they work
  - Vaccine Safety and Safety Monitoring
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# US COVID-19 Vaccines

## mRNA

- Moderna
- Pfizer/BioNTech

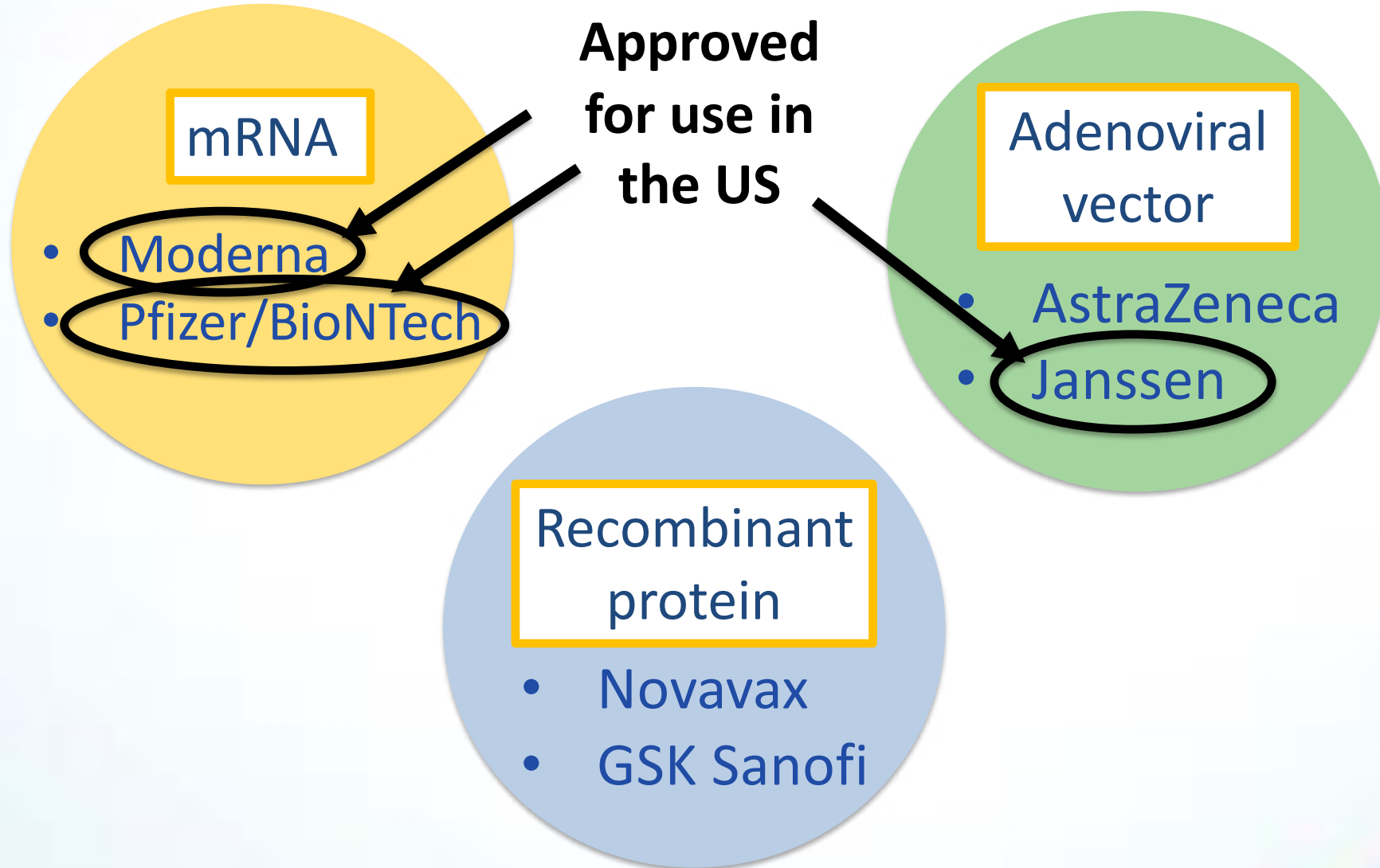
## Adenoviral vector

- AstraZeneca
- Janssen

## Recombinant protein



- Novavax
- GSK Sanofi

# US COVID-19 Vaccines



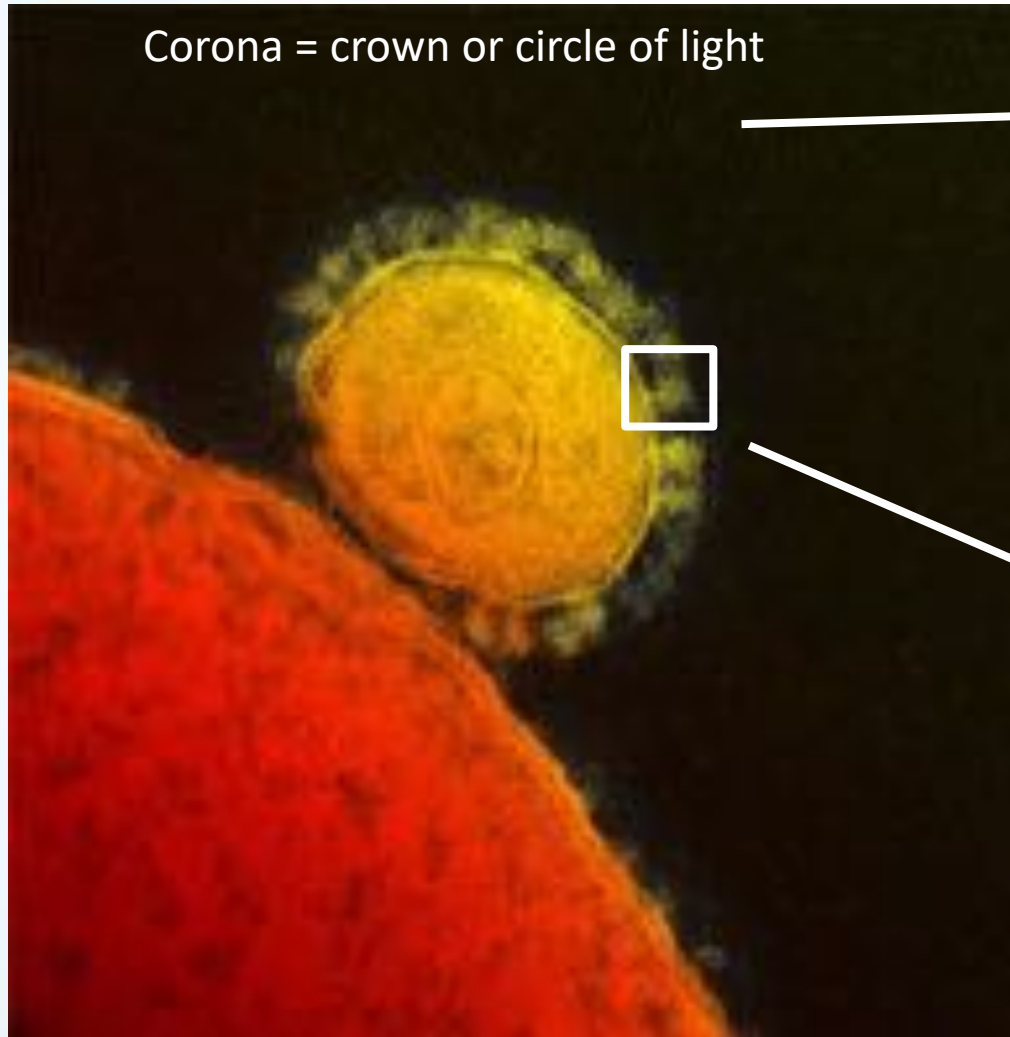


## General Summary of Information So Far for US Vaccines

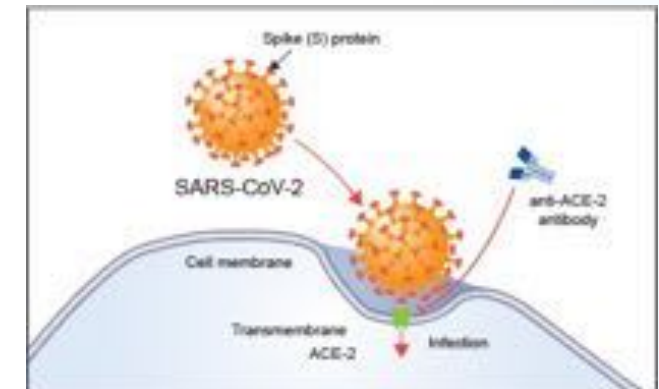
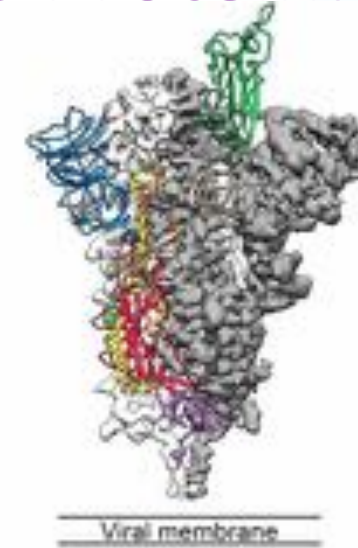
- They all produce a strong immune response in the body
  - Safety profiles also look very good
    - Some temporary reactions, like fever and fatigue, but overall very safe
  - The companies have been successful at enrolling diverse populations, in terms of race/ethnicity, age, and underlying conditions
  - Available data for the 3 approved vaccines are very encouraging
    - Close to 100% protection against hospitalization and death
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- 



# SARS-CoV-2 Spike Protein: Viral Entry

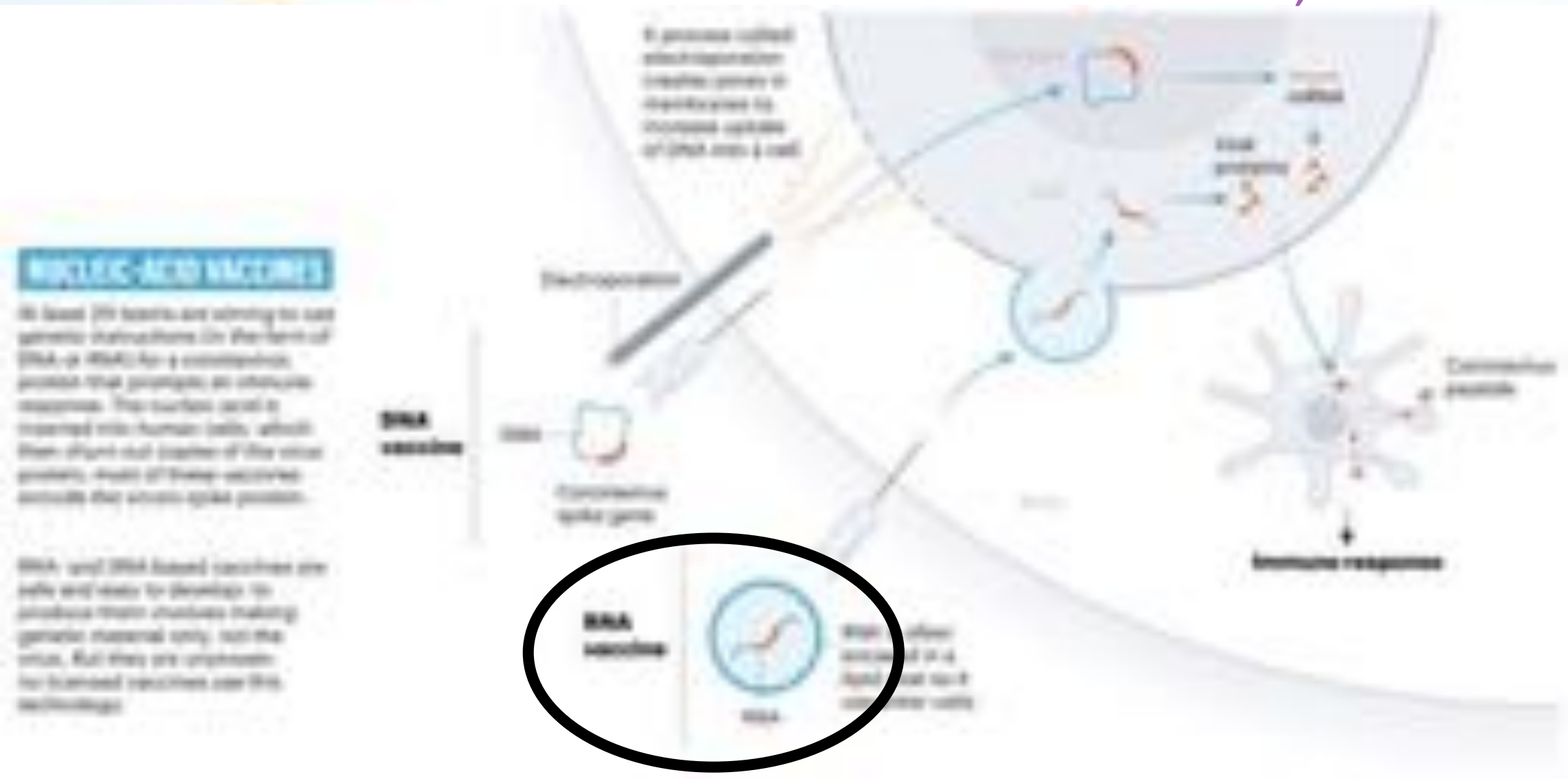


**Spike Protein**



Wrapp D, Wang N, Corbett KS, Goldsmith JA, Hsieh CL, Abiona O, Graham BS, McLellan JS. Cryo-EM structure of the 2019-nCoV spike in the prefusion conformation. Science. 2020 Feb 19:eabb2507. doi: 10.1126/science.abb2507.

# mRNA Vaccines: Pfizer, Moderna



# Viral-vector vaccines

- Janssen (Johnson and Johnson)
- AstraZeneca/Oxford
  - EUA April 2021?

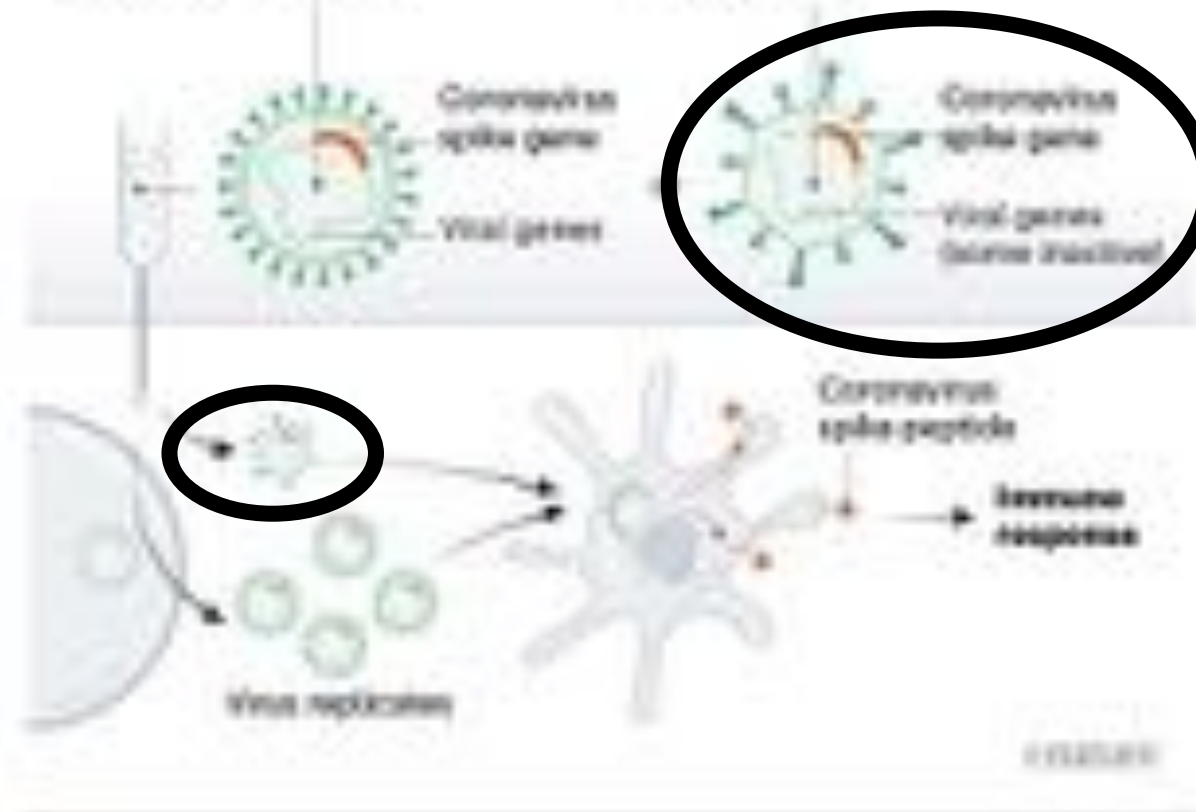
## VIRAL-VECTOR VACCINES

### Replicating viral vector (such as weakened measles)

The newly approved Ebola vaccine is an example of a viral vector vaccine that replicates within cells. Such vaccines tend to be safe and provide a strong immune response. Existing immunity to the vector could blunt the vaccine's effectiveness, however.

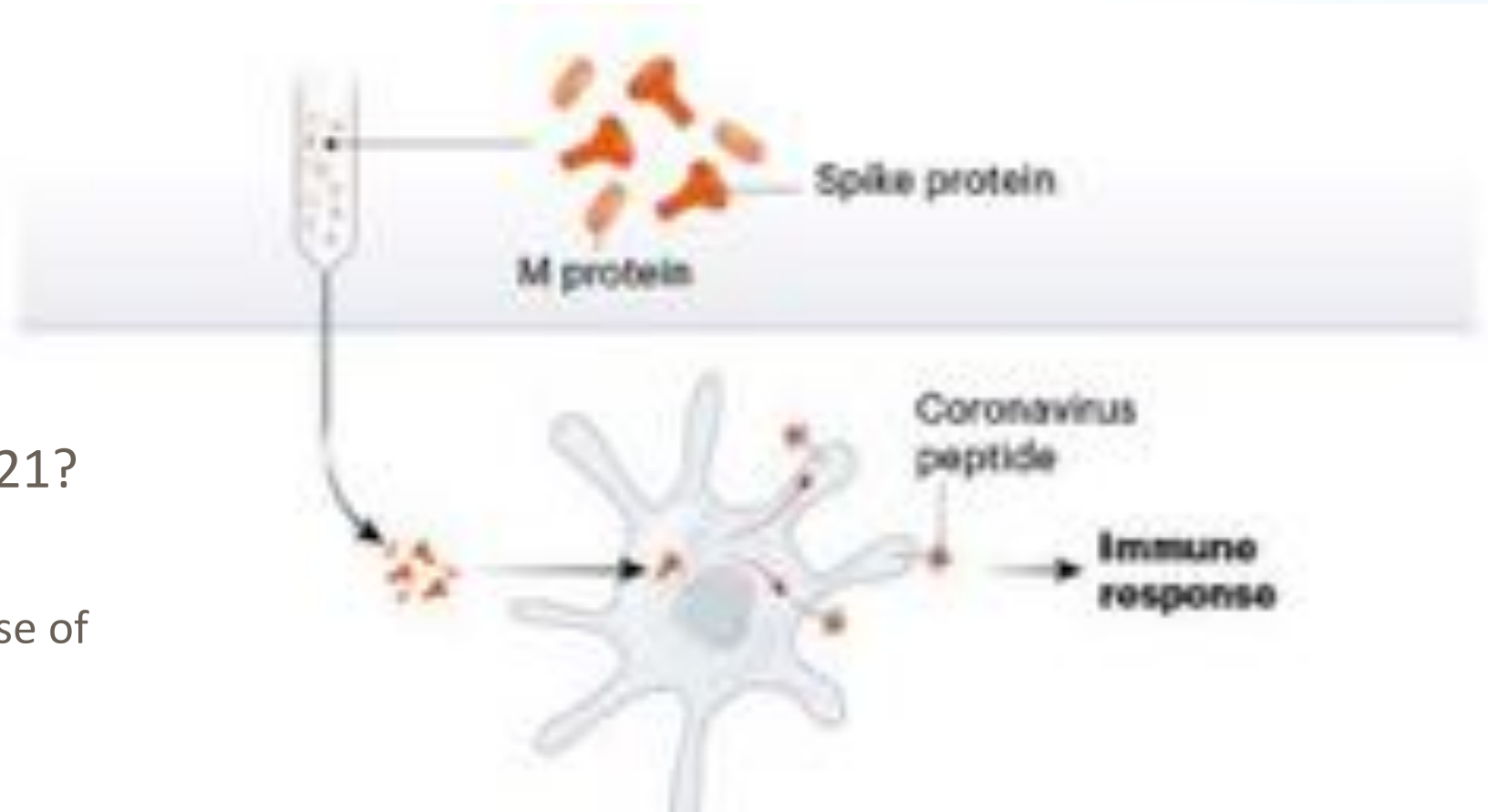
### Non-replicating viral vector (such as adenovirus)

As reviewed previously, this method, but they have a long history in gene therapy. Booster shots can be needed to induce long lasting immunity. US-based drug giant Johnson & Johnson is working on this approach.



# Protein Subunit Vaccines

- US Candidates:
  - Novavax: EUA May 2021?
  - GSK/Sanofi
    - Study in earlier phase of development





**Pfizer, Moderna or maybe J&J? Right now, the best vaccine for you is the one you can get.**

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Washington Post





# POST-LICENSURE SAFETY MONITORING







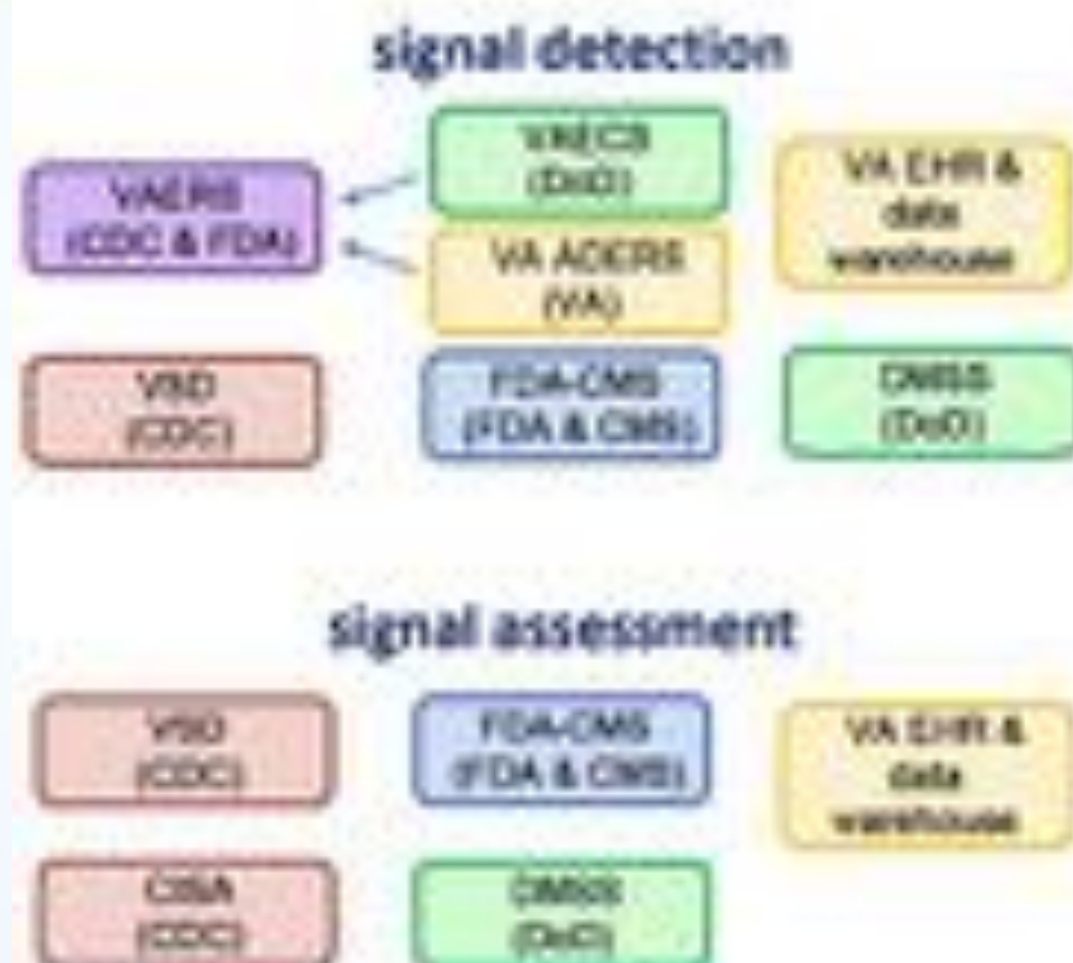
# Rationale for Post-Licensure Vaccine Safety Monitoring

- Safety standards for vaccines are high
  - Because vaccines are generally given to a large population to prevent disease, they are held to much higher safety standards than any other medicine we give (we'll tolerate significant side effects for some medicines, but not vaccines)
- Pre-licensure trials are typically not designed to
  - Detect rare adverse events
  - Monitor vaccine safety in a real-world environment
  - Assess safety in special populations (often excluded)

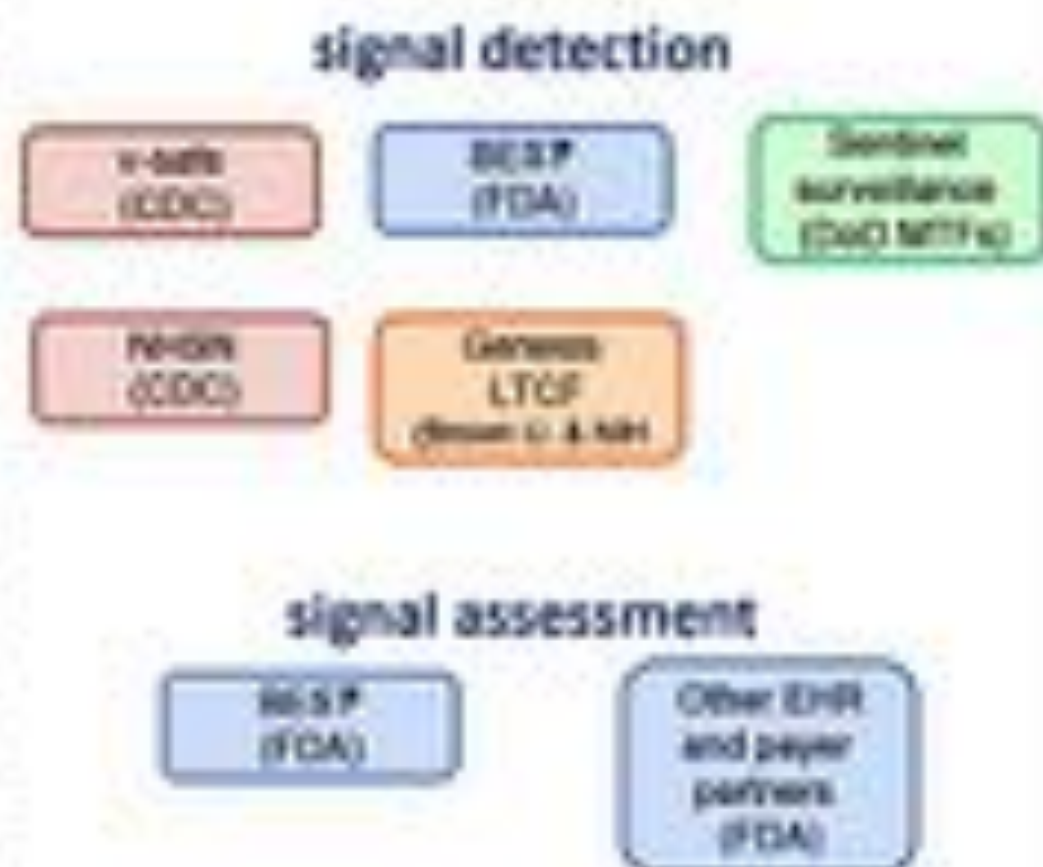


**The existence of a comprehensive robust vaccine safety monitoring system can bolster confidence in the safety of vaccines**

## Routine systems



## New systems



\*DoD and NIH have VAERS data sharing agreements with CDC. \*BEST includes most of the major partners from Sentinel PRISM

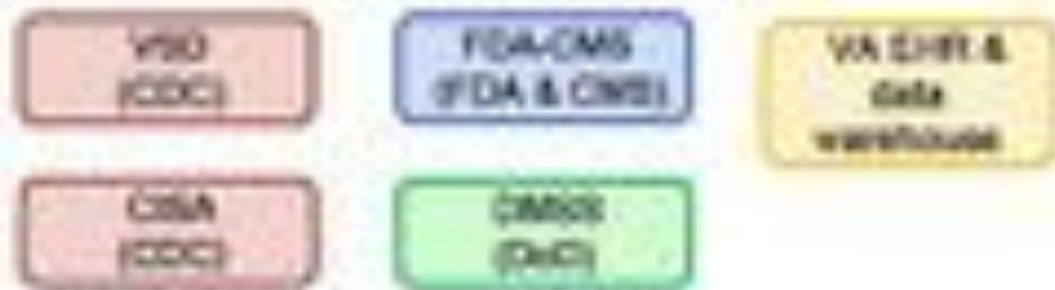


## Routine systems

### signal detection



### signal assessment



## New systems

### signal detection



### signal assessment



\*DoD and NIH have VAERS data sharing agreements with CDC. \*DESP includes most of the major partners from Sentinel PRISM



# Vaccine Adverse Event Reporting System (VAERS)

- Created in 1990
- Overseen jointly by CDC and FDA
- Spontaneous, voluntary, national reporting system which collects reports of adverse events occurring after vaccination
- Each year, VAERS receives ~ 30,000 reports

Public Health  
17.2) CDC  
2003:52(80)





# The Role of VAERS

- Can help identify unanticipated, new, rare adverse events
- Can't be used to determine if a vaccine did or did not cause a particular event
  - All things that can happen after a vaccine can also happen in the absence of vaccination
  - “Association does not equal causation”
- If unusually high number of adverse events after particular vaccine, “focused studies in other systems are done to determine if the adverse event is or is not a side effect of the vaccine”



# VAERS Data Can Be Readily Misrepresented



The screenshot shows the homepage of the Natural News website. At the top, there is a navigation bar with links like Home, About Us, and Contact Us. Below the navigation bar is the Natural News logo and a search bar. A yellow banner across the page reads "EXCLUSIVE: Science at risk, Flu shot has killed, Different vaccine exposed, Measles still in U.S., Vaccine safety under fire, CDC whistleblower warns". The main headline is "Zero U.S. measles deaths in 10 years, but over 100 measles vaccine deaths reported". To the left of the headline is a graphic with two columns: "Over 10 Measles Deaths" with "ZERO" below it, and "Over 10 Measles Vaccine Deaths" with "108" below it. Below the headline is a sub-headline "FREE REPORT: Reveals The 1 Single Ingredient That DESTROYS Cancer, Diabetes, And Other Devastating Diseases..." and a button "Click here!". To the right of the headline is an advertisement for "Turkish Gold" featuring a bottle of the product. The bottom of the page has a footer with copyright information and social media links.

**Natural News**

EXCLUSIVE: Science at risk, Flu shot has killed, Different vaccine exposed, Measles still in U.S., Vaccine safety under fire, CDC whistleblower warns

Deaths in the U.S. during the past 10 years:

Over 10 Measles Deaths	Over 10 Measles Vaccine Deaths
<b>ZERO</b>	<b>108</b>

**Zero U.S. measles deaths in 10 years, but over 100 measles vaccine deaths reported**

FREE REPORT: Reveals The 1 Single Ingredient That DESTROYS Cancer, Diabetes, And Other Devastating Diseases...  
Learn all about the miracle cure for the world's greatest health crisis in under 10 minutes!

[Click here!](#)

TURKISH GOLD

# VAERS Data Can Be Readily Misrepresented

**WASH POST** News

## Anti-Vaxxers Misuse Federal Data to Falsely Claim COVID Vaccines Are Dangerous

VAERS, a database of reports of vaccine side effects, is being abused by people trying to sow fear. It's not the first time.



By David L. Katz



By Anna Meltzer

February 8, 2021, 9:00am



# Overview of the Vaccine Safety Datalink (VSD)

- Created in 1995
- Collaboration between 9 medical care organizations and CDC
- > 12 million children and adults
- Integrated delivery systems, enrolled populations, electronic health records



VSD

Vaccine  
Safety  
Datalink





9 participating integrated healthcare organizations

Data on over 12 million persons per year



## Vaccine Safety Datalink

- Vaccine data highly accurate
  - Large populations of people who get essentially all of their health care (vaccines, hospitalizations, emergency room visits, clinic visits) in a single system
  - VSD *can* study if vaccines are related to a specific side effect
- 
- 

Preliminary results of the VSD unvaccinated concurrent comparator analysis for COVID-19 vaccine safety after either dose of any mRNA vaccine as of February 13, 2021

VSD Medical Event Category (Prespecified Comparator and VSD ID)	Comparator (Unvaccinated)	Time Window	Unvaccinated	Adjusted expected counts (95% CI)
Acute disseminated encephalomyelitis	Unvaccinated	1-21 days	0	0
Acute myocardial infarction	Unvaccinated	1-21 days	19	26.0
Acute respiratory distress syndrome	Unvaccinated	N/A	0	N/A
Asphyxia	Unvaccinated	0-1 days	22	N/A
Appendicitis	Unvaccinated	1-21 days	11	23.6
Birth palsy	Unvaccinated	1-21 days	11	20.1

+ No statistically significant increased risks detected for any prespecified

Slide from a recent CDC meeting: An example of the level of detail with which these vaccines are being monitored for safety

Vaccine administration site	Unvaccinated	1-21 days	1	0.1
Vasculopathy and vasculitis	Unvaccinated	N/A	1	N/A
Vasculitis, hemorrhagic	Unvaccinated	1-21 days	0	3.0
Vasculitis, ischemic	Unvaccinated	1-21 days	41	98.4
Transverse myelitis	Unvaccinated	1-21 days	0	0
Viscous thromboembolism	Unvaccinated	1-21 days	36	26.1
Subcutaneous emphysema (subset of VTE)	Unvaccinated	1-21 days	20	21.0

CDC





- **V-safe** is a new smart-phone based active surveillance program for COVID-19 vaccine safety
  - Uses text messaging to initiate web-based survey monitoring
  - Conducts electronic health checks on vaccine recipients
    - Daily for first week post-vaccination; weekly thereafter until 6 weeks post-vaccination
    - Additional health checks at 3, 6, and 12 months post-vaccination
  - Includes active telephone follow-up through the VAERS program with vaccine recipients reporting a clinically important event during any **v-safe** health check
    - A VAERS report will be taken during telephone follow-up, if appropriate
  - Captures information on pregnancy status and enables follow-up on pregnant women

# V-safe pregnancy registry outcomes of interest in COVID-19 vaccinated pregnant women as of February 18, 2021\*

Outcomes	Background rates <sup>†</sup>	V-safe pregnancy registry rates <sup>‡</sup>
<b>Pregnancy outcomes</b>		
Miscarriage (≤20 weeks)	26%	15% <sup>§</sup>
Stillbirth (≥20 weeks)	0.8%	1%
<b>Pregnancy complications</b>		
Gestational diabetes	7-14%	10%
Hypertension or gestational hypertension <sup>¶</sup>	10-15%	15%
Preeclampsia	0-17%	0%
Premature rupture of membranes	3-7%	1%
<b>Neonatal outcomes</b>		
Prematurity	10-14%	10%
Congenital Anomalies <sup>¶</sup>	5%	4%
Small for gestational age <sup>¶</sup>	1-7%	4%
Neonatal death	0-18%	0%



# Safety Considerations Specific to mRNA Vaccines

- Manufacturing process does not require chemicals or cell cultures that could become contaminated
  - Avoids the common risks associated with other vaccine platforms, like live virus, viral vectors, inactivated virus, and protein subunit
- Short manufacturing time for mRNA presents few opportunities for contamination
- Theoretical risks of infection or integration of the vector into host cell DNA are not a concern for mRNA
- Generally considered a very safe vaccine format



## Safety Considerations Specific to mRNA Vaccines

- While the speed with which these mRNA vaccines have been developed seems fast, the technology has been in development for over 30 years

### Direct gene transfer into mouse muscle in vivo

JA Wolff, RW Malone, P Williams, W Chong, G Acsadi, A Jani, PL Felgner

[+ See all authors and affiliations](#)



*Science* 23 Mar 1990:  
Vol. 247, Issue 4949, pp. 1465-1468  
DOI: 10.1126/science.1690918







## Conclusions

- Vaccines to prevent COVID-19 offer a potential end to this pandemic in this historic moment
  - The US vaccine candidates at this point appear to be both very safe and highly effective
  - We have an extensive vaccine safety monitoring system in place always working behind-the-scenes to make sure all vaccines, including COVID-19 vaccines, are safe
- 
- 



Thanks!

# The joy of vax: The people giving the shots are seeing hope, and it's contagious


By [Maura Judkis](#)

Feb. 25, 2021 at 4:00 a.m. MST

 Add to list

The happiest place in medicine right now is a basketball arena in New Mexico. Or maybe it's the parking lot of a baseball stadium in Los Angeles, or a Six Flags in Maryland, or a shopping mall in South Dakota.

The happiest place in medicine is anywhere there is vaccine, and the happiest people in medicine are the ones plunging it into the arms of strangers.





**EXTRA SLIDES FOR Q&A**



# VARIANTS AND VACCINES





## Why are new SARS-CoV-2 variants emerging?

- Viruses constantly change through mutation, so new variants are expected
  - SARS-CoV-2 has low mutation rate, compared with influenza and HIV
- Evolutionary selection — still being characterized, may be driven by:
  - Chronic infection (e.g., immunocompromised)
  - Interspecies transmission (e.g., minks)
  - Therapeutic treatment (e.g., monoclonal antibodies, convalescent sera)
  - Prior immunity to strains with limited cross-reactivity
  - Increased transmissibility
  - Founder effect — small number of genotypes seed a new population



# U.S. COVID-19 cases caused by variants of concern

Variant	Reported cases	No. of states
B.1.1.7	2,400	46
B.1.351	53	16
P.1	10	5

Reporting sources vary, so calculating proportions is not possible

B.1.1.7



B.1.351



P.1



## Vaccine efficacy or effectiveness (VE) against variants

Vaccine	Study type	VE
Pfizer	Post-licensure	<ul style="list-style-type: none"><li>• 86% in UK (predominate B.1.1.7 circulation)*</li><li>• 94% in Israel (up to 80% of cases from B.1.1.7)</li></ul>
Janssen	Pre-licensure	<ul style="list-style-type: none"><li>• 74% in U.S.</li><li>• 66% in Brazil (69% of cases from P.2)</li><li>• 52% in S. Africa (95% of cases from B.1.351)</li></ul>
Novavax	Pre-licensure	<ul style="list-style-type: none"><li>• 96% against non-B.1.1.7 in UK</li><li>• 86% against B.1.1.7 in UK</li></ul>
	Pre-licensure	<ul style="list-style-type: none"><li>• 60% in S. Africa (93% of cases from B.1.351)</li></ul>
AstraZeneca	Pre-licensure	<ul style="list-style-type: none"><li>• 84% against non-B.1.1.7 in UK</li><li>• 75% against B.1.1.7 in UK</li></ul>
	Pre-licensure	<ul style="list-style-type: none"><li>• 10% against B.1.351 in South Africa</li></ul>



## Vaccine efficacy or effectiveness (VE) against variants

Vaccine	Study type	VE
Pfizer	Post-licensure	<ul style="list-style-type: none"><li>• 86% in UK (predominate B.1.1.7 circulation)*</li><li>• 94% in Israel (up to 80% of cases from B.1.1.7)</li></ul>
Janssen	Pre-licensure	<ul style="list-style-type: none"><li>• 74% in U.S.</li><li>• 66% in Brazil</li><li>• 52% in S. Africa</li></ul> <div>73-82% for severe/critical disease in each country</div>
Novavax	Pre-licensure	<ul style="list-style-type: none"><li>• 96% against non-B.1.1.7 in UK</li><li>• 86% against B.1.1.7 in UK</li></ul>
	Pre-licensure	<ul style="list-style-type: none"><li>• 60% in S. Africa (93% of cases from B.1.351)</li></ul>
AstraZeneca	Pre-licensure	<ul style="list-style-type: none"><li>• 84% against non-B.1.1.7 in UK</li><li>• 75% against B.1.1.7 in UK</li></ul>
	Pre-licensure	<ul style="list-style-type: none"><li>• 10% against B.1.351 in South Africa</li></ul>

### Neutralization of variants after 1 & 2 vaccine doses

- Postponing 2<sup>nd</sup> mRNA dose may leave some less protected against variants
- Minimal/no neutralization of B.1.351 after one dose
  - History of COVID-19 + 1 dose → moderate protection against B.1.351
- Improved neutralization of B.1.1.7 and B.1.351 after 2<sup>nd</sup> dose
- Delayed antibody response against variants

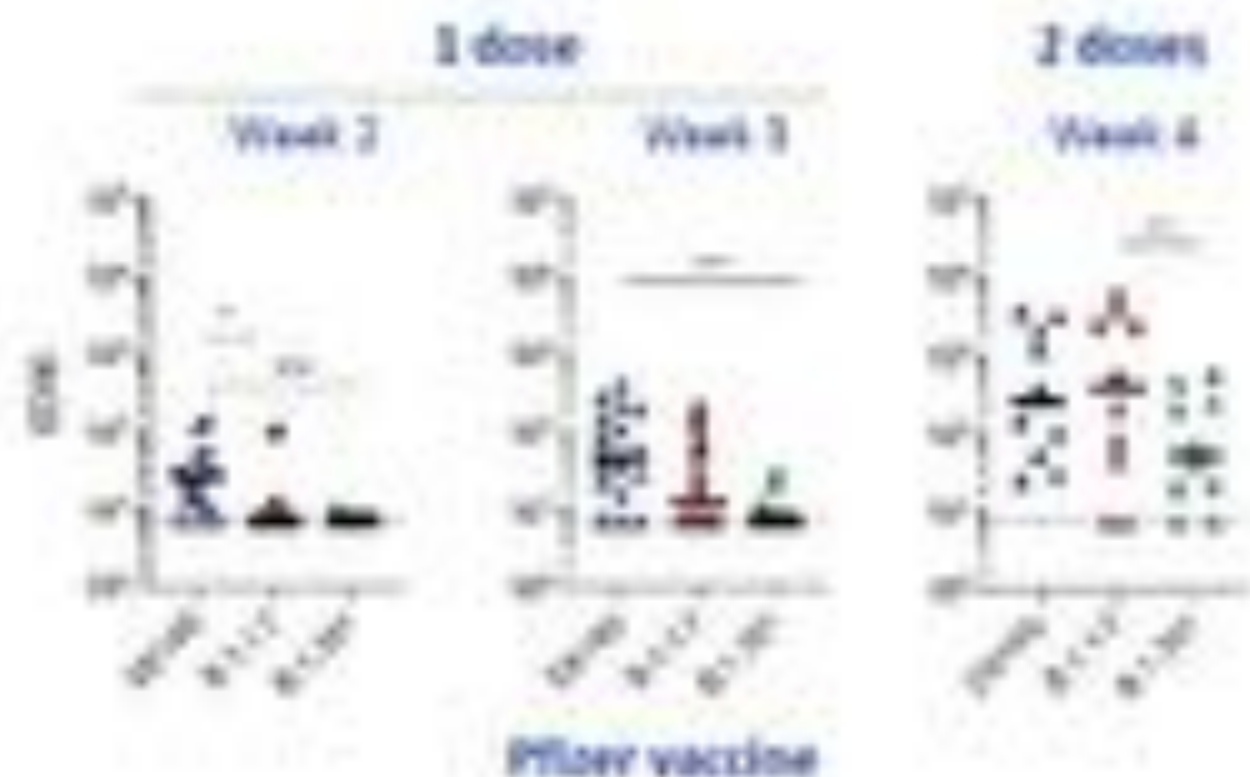


Figure 1 shows the effect of temperature on the rate of the reaction. The rate of the reaction increases with increasing temperature. The rate of the reaction is highest at 40°C and lowest at 10°C. The rate of the reaction is also affected by the concentration of the reactants. The rate of the reaction is highest when the concentration of the reactants is highest and lowest when the concentration of the reactants is lowest.



# FETAL CELL LINES AND COVID-19 VACCINES



Catholic Church says it is not immoral to get COVID-19 vaccine despite link to abortions

NATIONAL

## < Catholic Leaders Voice Moral Concerns About Johnson & Johnson Vaccine

March 11, 2021 · 5:07 AM ET

# FETAL CELL LINES AND COVID-19 VACCINES

Morning Mix

## U.S. bishops splinter on the morality of taking coronavirus vaccines

Health | Local News | Northwest

**Avoid Johnson & Johnson vaccine made with fetal cell lines if possible, 2 Northwest Catholic dioceses say**

March 4, 2021 at 7:02 pm | Updated March 5, 2021 at 3:53 pm



COVID-19 VACCINE | MAR. 1, 2021

## Catholic Archdiocese Bans COVID Vaccine Over Tenuous Link to Abortion

By Ed Kilgore





## Why are fetal cells used to make vaccines?

- Historical fetal cell lines were derived in the 1960s and 1970s from two elective abortions that have been used to create vaccines for diseases such as hepatitis A, rubella, and rabies
- The fetal cell lines being used to produce some of the potential COVID-19 vaccines are from two sources:
  - HEK-293: A kidney cell line that was isolated from a fetus in 1973 (undisclosed origin, from either a spontaneous miscarriage or an elective abortion)
  - PER.C6: A retinal cell line that was isolated from an aborted fetus in 1985
- Any vaccine that relies on these historic cell lines will not require nor solicit new abortions







## Why are fetal cells used to make vaccines?

- To develop and manufacture some vaccines, pharmaceutical companies prefer human cell lines over other cells because
  - 1) viruses need cells to grow and the human viruses tend to grow better in cells from humans than animals,
  - 2) fetal cells can be used longer than other cell types, and
  - 3) fetal cells can be maintained at low temperatures, allowing the continued use of cell lines from decades ago.
- While fetal cell lines may be used to develop or manufacture COVID-19 vaccines, the vaccines themselves do not contain any aborted fetal cells





## Were the Pfizer and Moderna COVID-19 vaccines developed using fetal cell lines?



- The mRNA COVID-19 vaccines produced by Pfizer and Moderna **do not require** the use of any fetal cell cultures in order to manufacture the vaccine
- **Early in the development** of mRNA vaccine technology, fetal cells were used for “proof of concept” (to demonstrate how a cell could take up mRNA and produce the SARS-CoV-2 spike protein) or to characterize the SARS-CoV-2 spike protein.





Was the Johnson & Johnson (Janssen Pharmaceuticals) COVID-19 vaccine developed using fetal cell lines?

The non-replicating viral vector vaccine produced by Johnson & Johnson **did require the use of fetal cell cultures**, specifically PER.C6, in order to produce and manufacture the vaccine.





# Statements from Religious Bodies

- Vatican (Catholic Church) and Southern Baptist Ethics & Religious Liberty Commission have both stated that receiving a COVID-19 vaccine that required fetal cell lines for production or manufacture is morally acceptable
- US Conference on Catholic Bishops: If one has a choice, Pfizer or Moderna; if not, J&J okay
  - “...being vaccinated safely against COVID-19 should be considered an act of love of our neighbor and part of our moral responsibility for the common good...”
  - “...the vaccine with the least connection to abortion-derived cell lines should be chosen...”





# ASTRAZENECA VACCINE AND BLOOD CLOTS: IS THERE A LINK?



# Germany, France Italy suspend AstraZeneca vaccinations; safety agency says blood clot incidence is low

**Latest:** WHO officials continue to recommend AstraZeneca vaccine

## WHO says it's investigating reports of blood clots in people who got AstraZeneca Covid vaccine

PUBLISHED FRI, MAR 12 2021-12:38 PM EST | UPDATED FRI, MAR 12 2021-2:05 PM EST

## World Health Organization reaffirms safety of Oxford-AstraZeneca COVID-19 vaccine COMMENTS

By [Hebe Campbell](#) • Updated: 15/03/2021 - 18:32

# ASTRAZENECA VACCINE AND BLOOD CLOTS: IS THERE A LINK?



Covid-19: Evidence does not suggest AstraZeneca jab linked to clots, MHRA says

 11 hours ago





## The Data

- 17 million vaccinated in EU and UK
  - 15 events of DVT and 22 events of pulmonary emboli reported
  - Lower than the “hundreds that would be expected”
    - 1:1000 have a thrombotic event yearly; of the 17 million who have been vaccinated, 17,000 would have a thrombotic event in the following year (~320/week)
  - In blinded clinical trial, number of thrombotic events was lower in the group who got the vaccine than the control group
- 
- 

# Dr. Chad Morris

Clinical Psychologist  
Professor of  
Psychiatry at the  
University of  
Colorado







Behavioral Health &  
Wellness Program

# COVID-19 Vaccine Hesitancy Project

Chad Morris, PhD



Department of Psychiatry

SCHOOL OF MEDICINE

UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

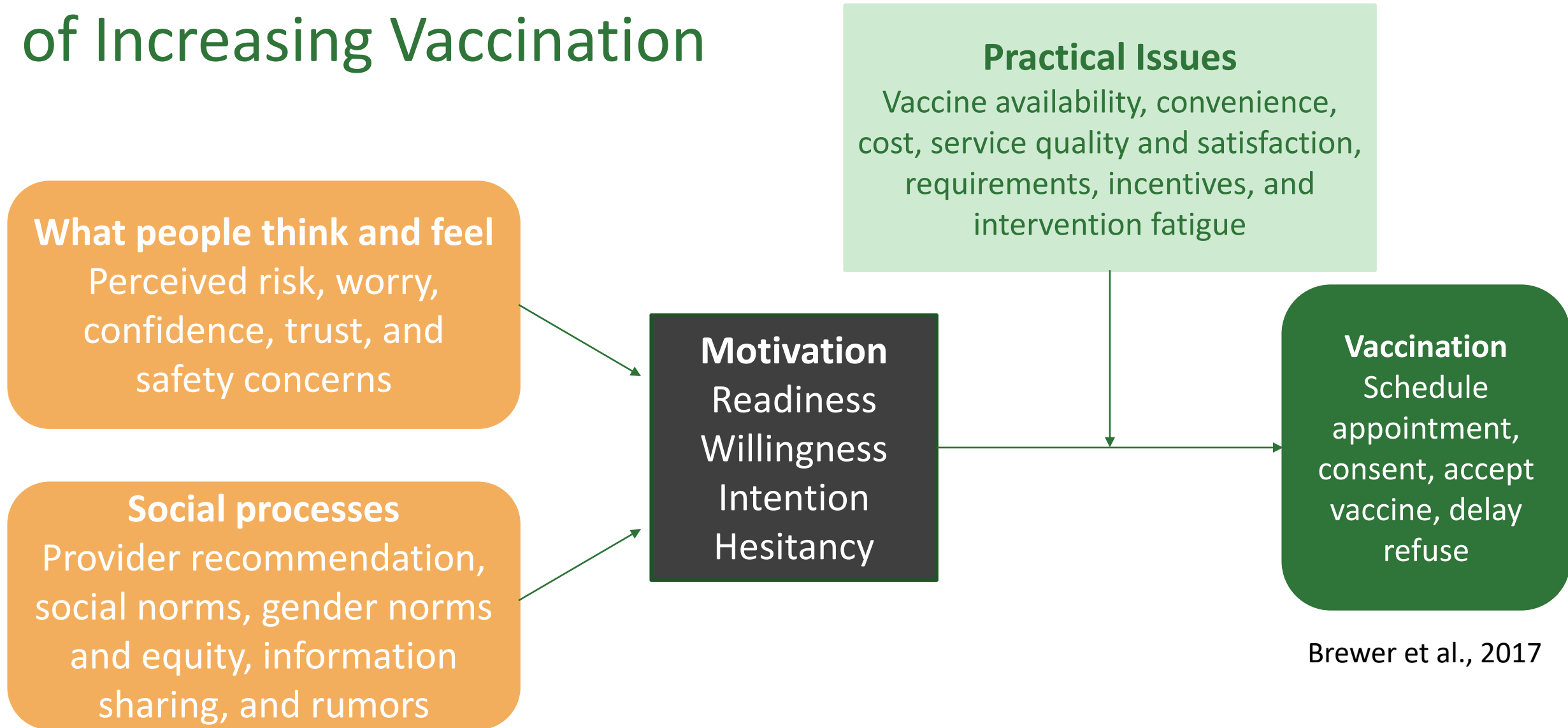




**ME**  
**YOU**  
**US**



# Behavioral and Social Determinants of Increasing Vaccination



Brewer et al., 2017



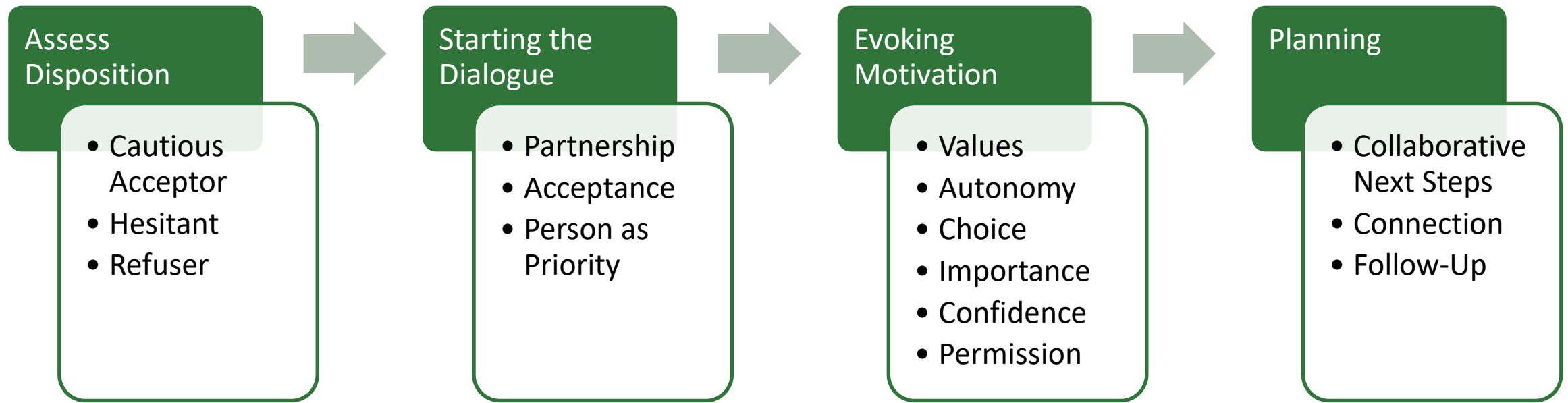
# Motivational Interviewing

Motivational Interviewing is a collaborative conversation style for strengthening a person's own motivation and commitment to change

It's a way of *being* versus a way of *doing*

<https://www.bhwellness.org/trainings/mibc/>

# Active Collaboration





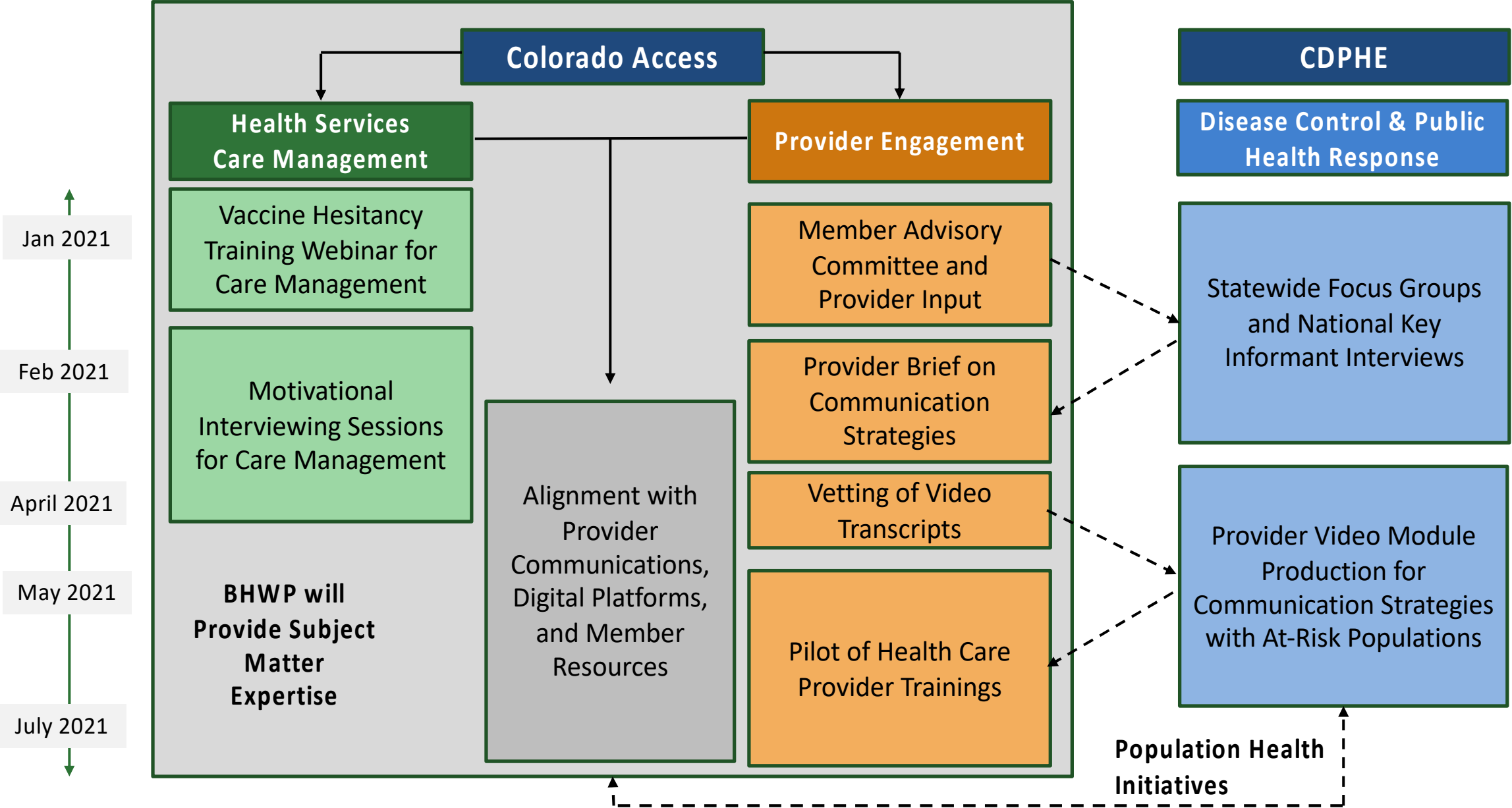
# Disinformation Inoculation



- Fight sticky myths with stickier facts
  - Use humor
  - High level messaging
  - Frame messages positively
  - Personalize
  - Engage emotionally
- Co-create messages with priority populations
- Consistency across the health team
- Use social media



# Colorado COVID-19 Vaccine Hesitancy Provider Communication Initiative





# Health Disparity Modules

- African American
- Latinx
- Rural
- Healthcare professionals





# A Person-Centered Health Neighborhood Approach





# Behavioral Health & Wellness Program

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[www.bhwellness.org](http://www.bhwellness.org)



Behavioral Health and  
Wellness Program



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## Post-Webinar Poll

Please take a few minutes  
to fill out the short poll on  
your screen.

# Q&A Session

Questions?

Please put in the Q&A box!



# Thank You!

**Please take the time to fill out the short webinar poll on your screen**

[www.ImmunizeColorado.org](http://www.ImmunizeColorado.org)