

COMMUNITY HEALTH SERIES: COVID-19 VACCINES

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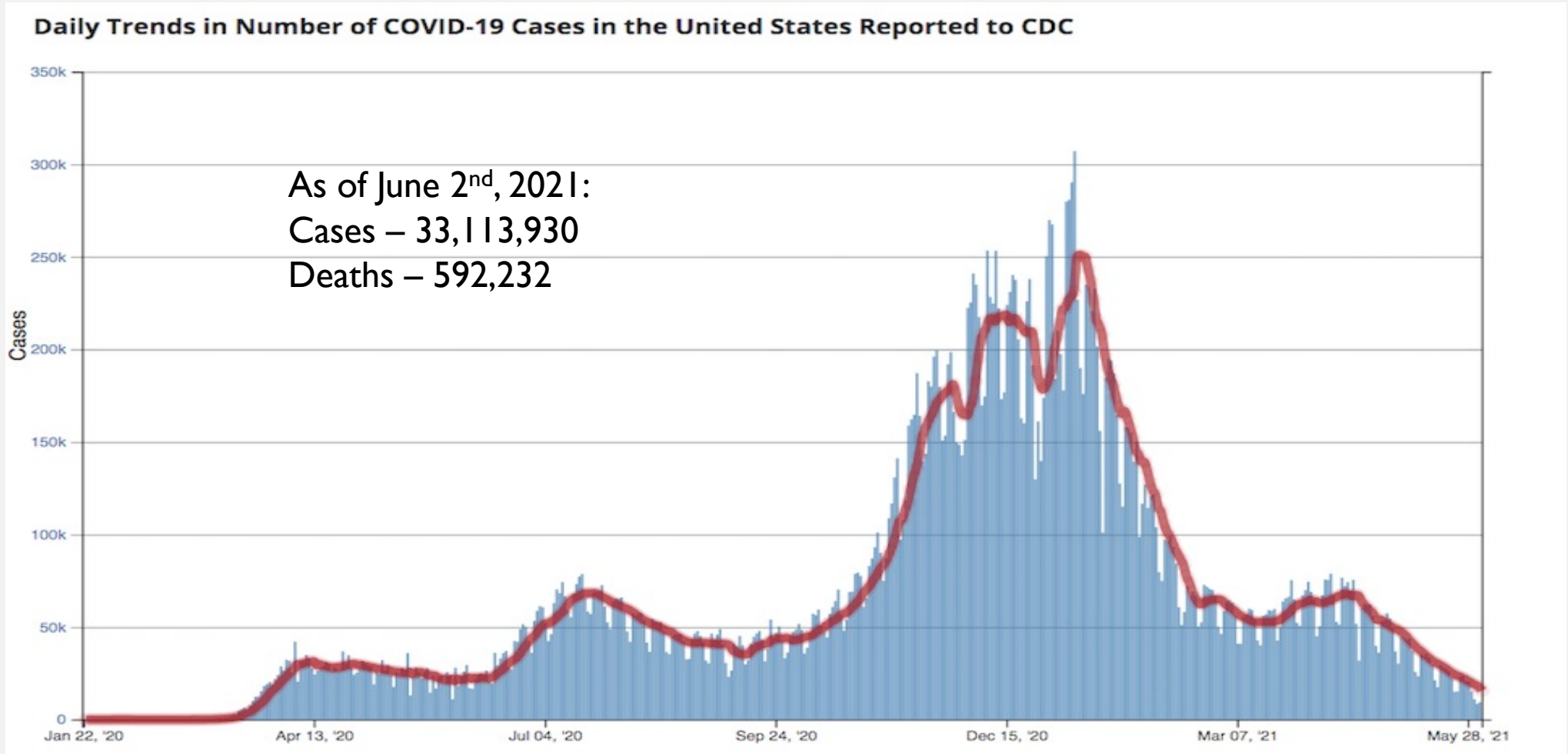
DISCLOSURES

- I have no actual or potential conflict of interest in relation to this program/presentation.
- The views and opinions expressed in this presentation are of my own and do not necessarily reflect the official policy or position of the Tuba City Regional Health Care Corporation, the Indian Health Service or the U.S. government.

LEARNING OBJECTIVES

- Briefly review the COVID-19 pandemic in the U.S. and in Indian Country
- Understand the complications of COVID-19 illness and its long-lasting effects
- Understand the history of vaccinations
- Understand the COVID-19 vaccinations available in the U.S.
- Understand the benefits of vaccination against COVID-19
- Understand the adverse events that have been reported from these vaccines
- Dispel myths of vaccination
- Gain a better understanding of vaccine hesitancy and how to address these fears

TRAJECTORY OF COVID-19 IN THE U.S.

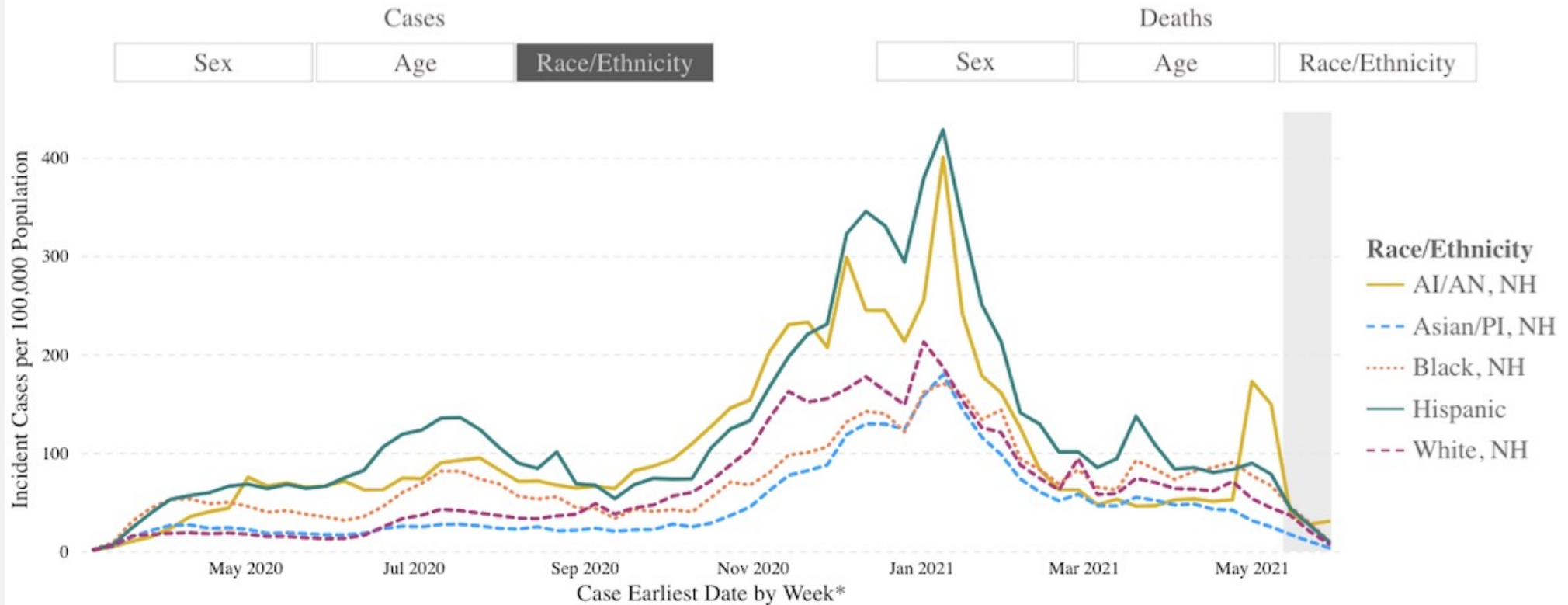


COVID-19 CASES IN THE U.S. BY RACE/ETHNICITY

COVID-19 Weekly Cases per 100,000 Population by Race/Ethnicity, United States



March 1, 2020 - May 29, 2021

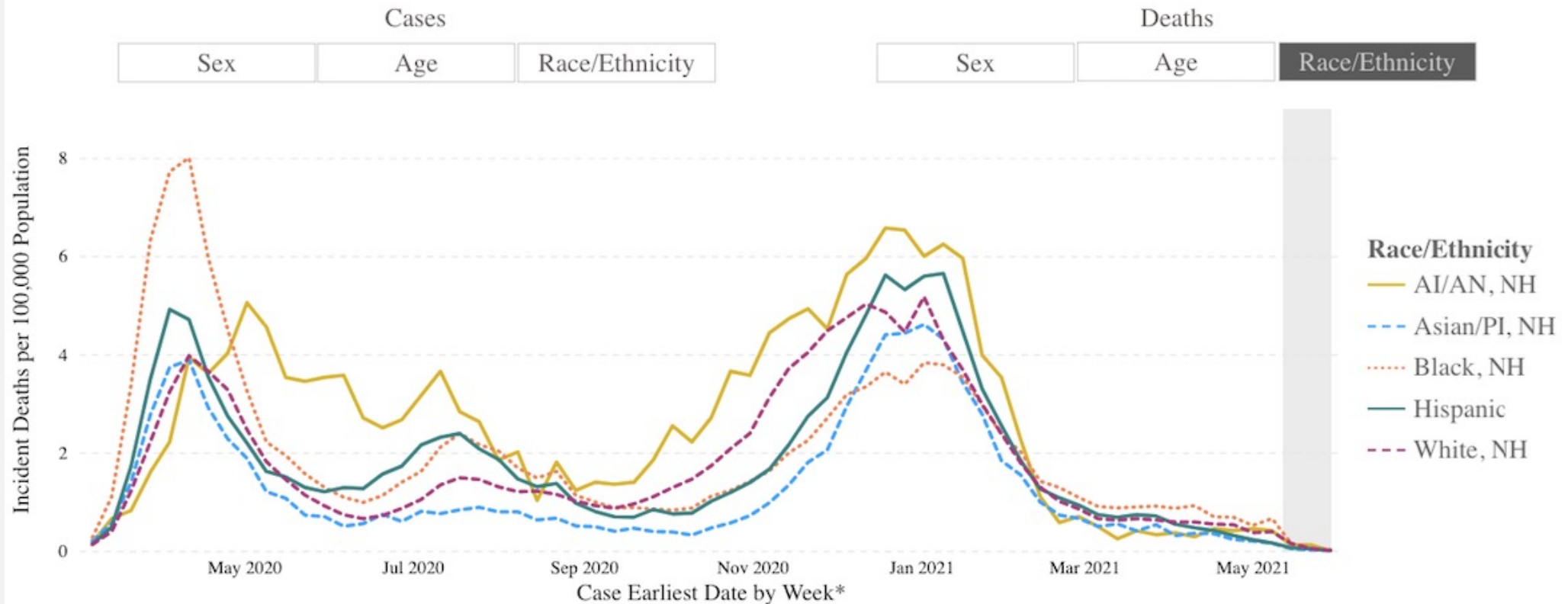


COVID-19 DEATHS IN THE U.S. BY RACE/ETHNICITY

COVID-19 Weekly Deaths per 100,000 Population by Race/Ethnicity, United States



March 1, 2020 - May 29, 2021



RISK FACTORS FOR SEVERE COVID-19

Established and probable	Observational studies
Diabetes (type 1 & 2)	HIV
Overweight/Obesity (BMI>25)	Down syndrome
Cancer	Hx of organ or blood stem cell transplantation
Chronic kidney disease	Substance use disorders
COPD (ILD, Pulm fibrosis, Pulm HTN)	Neurologic conditions (incl dementia)
Smoking (current & former)	Sickle cell disease
Cerebrovascular disease (stroke)	Use of corticosteroids or other immunosuppressive medications)
Heart conditions (CAD, CHF, cardiomyopathies)	
Pregnancy	

ADVANTAGES OF VACCINES

- A vaccine allows a person to develop immunity to a specific disease without having to suffer the actual disease
- In some cases, the immunity produced by vaccine is not as good as it would be with the natural disease, but in many cases it is as good or even better
- Vaccines have eradicated smallpox, and have greatly decreased death, suffering and disability from many other diseases (tetanus, diphtheria, pertussis, measles, polio, mumps, rubella, yellow fever, etc.)

COVID-19 VACCINES

PFIZER

For patients 12 and over

2 doses 21 days apart

Given in the upper arm

mRNA Vaccine

Trial: 43,548 participants,
18,556 received both vaccines

95% efficacy

MODERNA

For patients 18 and over

2 doses 28 days apart

Given in the upper arm

mRNA Vaccine

Trial: 30,420 participants,
14,550 received both vaccines

94% efficacy

J+J

For patients 18 and over

1 dose

Given in the upper arm

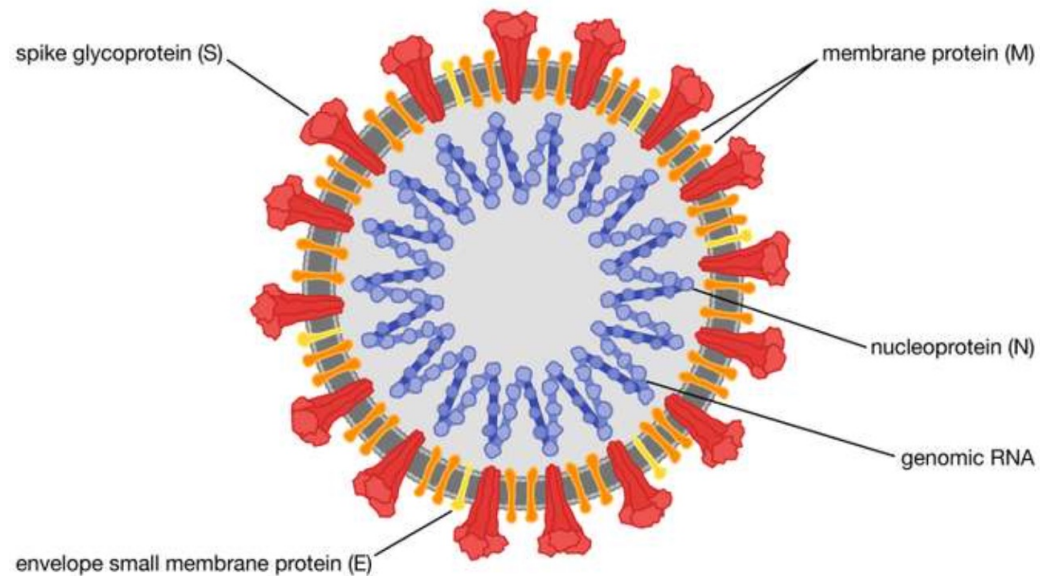
Adenovirus vector Vaccine

Trial: 43,783 participants,
21,895 received the vaccine

66% efficacy

SARS-COV-2

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)



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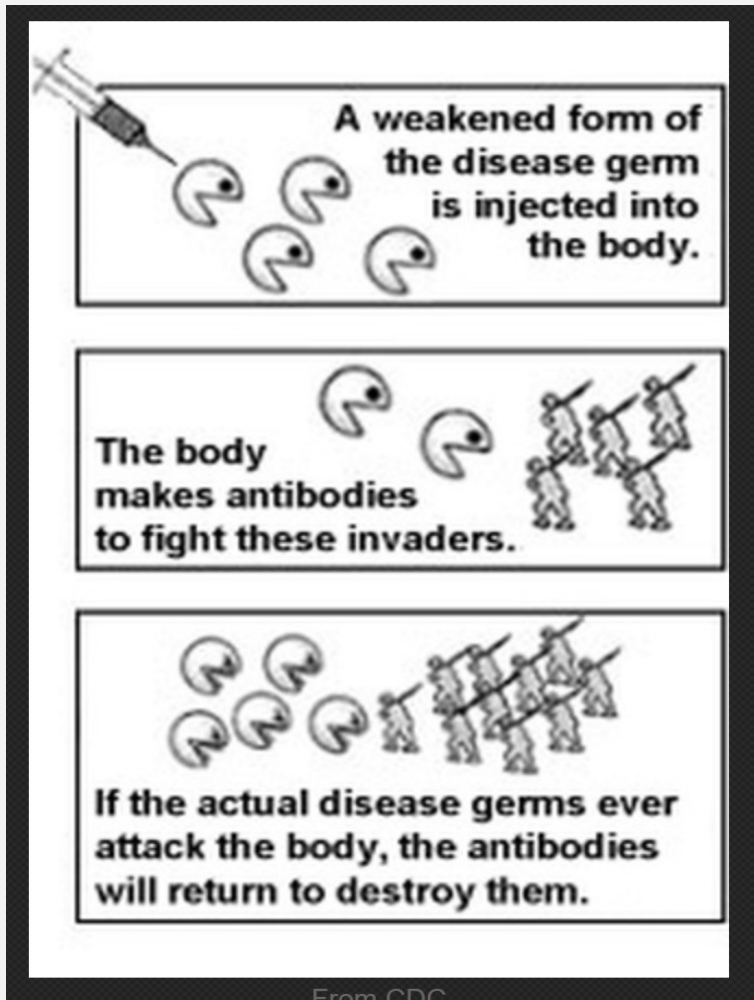
SARS-CoV-2

The coronavirus SARS-CoV-2, the cause of the COVID-19 pandemic.
Encyclopædia Britannica, Inc./Patrick O'Neill Riley

- SARS-CoV-2 is an RNA virus
- Genetic code is contained in RNA inside the viral envelope
- Mutations tend to occur frequently in RNA viruses
- SARS-CoV-2 is less prone to mutation than the average RNA virus

Credit: Dr. Harry Brown
United South and Eastern Tribes, Inc (USET)

HOW DO VIRAL VACCINES WORK (OLD TECHNOLOGY)?

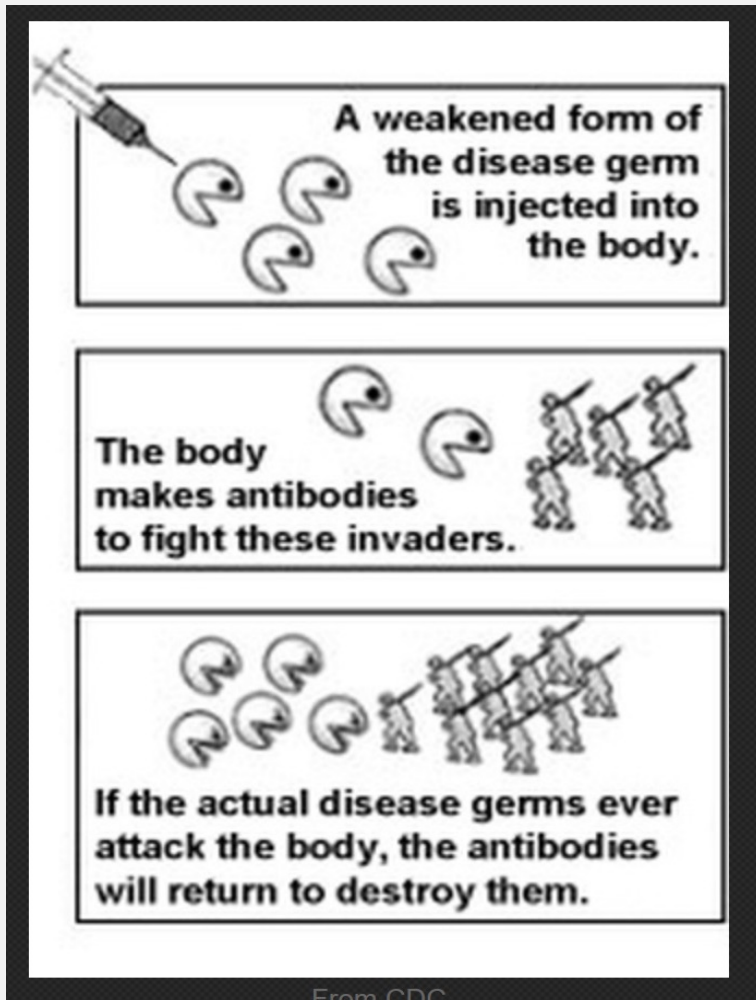


From CDC

- A weakened virus (“live attenuated”), or inactivated virus, or a part of a virus is made into a vaccine
- The vaccine is injected
- The immune system responds to make antibodies (and sometimes a T cell response)
- Immune memory is created

Credit: Dr. Harry Brown
United South and Eastern Tribes, Inc (USET)

HOW DO VIRAL VACCINES WORK (NEW TECHNOLOGY)?



From CDC

- A genetic code, either RNA or DNA, is made into a vaccine
- The vaccine is injected
- The genetic code instructs our own cells to make a part of the virus
- The immune system responds to make antibodies (and sometimes a T cell response)
- Immune memory is created

Credit: Dr. Harry Brown
United South and Eastern Tribes, Inc (USET)

VACCINE DEVELOPMENT AND OVERSIGHT

- Development:
 - Phase I – small number of volunteers mainly looking at safety
 - Phase II – usually several hundred volunteers looking at optimal dose, expands safety profile, immune response assessment
 - Phase III – thousands of volunteers to test for efficacy (effectiveness)
- FDA Emergency Use Authorization (EUA)
 - Designed to make a product available during a public health emergency
 - Granted by FDA if there is substantial evidence for safety and effectiveness
 - Guidance from Vaccines and Related Biologic Products Advisory Committee (VRBPAC)
 - Experienced clinicians, vaccine experts, epidemiologists, other subject matter experts
- Vaccine Adverse Event Reporting System (VAERS)
- V-SAFE

VACCINE ADVERSE REACTIONS

- Adverse reaction
 - Extraneous effect *caused by the vaccine* (“side effect”)
 - Most adverse reactions are mild (sore arm, body aches, headache), but some can be serious
- Adverse event
 - Any event following vaccination
 - May be a true adverse reaction
 - But may only be coincidental
 - All adverse events in trials are carefully monitored

HOW WERE THE COVID-19 VACCINES MADE IN RECORD TIME?

- Worldwide Pandemic – Necessity is the mother of invention
- Internet allows much faster communication and sharing of knowledge
- Advances in genetics
- Previous work on SARS and MERS
- mRNA vaccine technology recently perfected
- Ad26 vaccine platform already proven in Ebola vaccine
- Financial support of governments, removing financial liability from developers and producers
- During a pandemic, a Phase 3 trial can be done in a few months rather than years

COVID-19 VACCINATION IN THE U.S.

Total Vaccine Doses

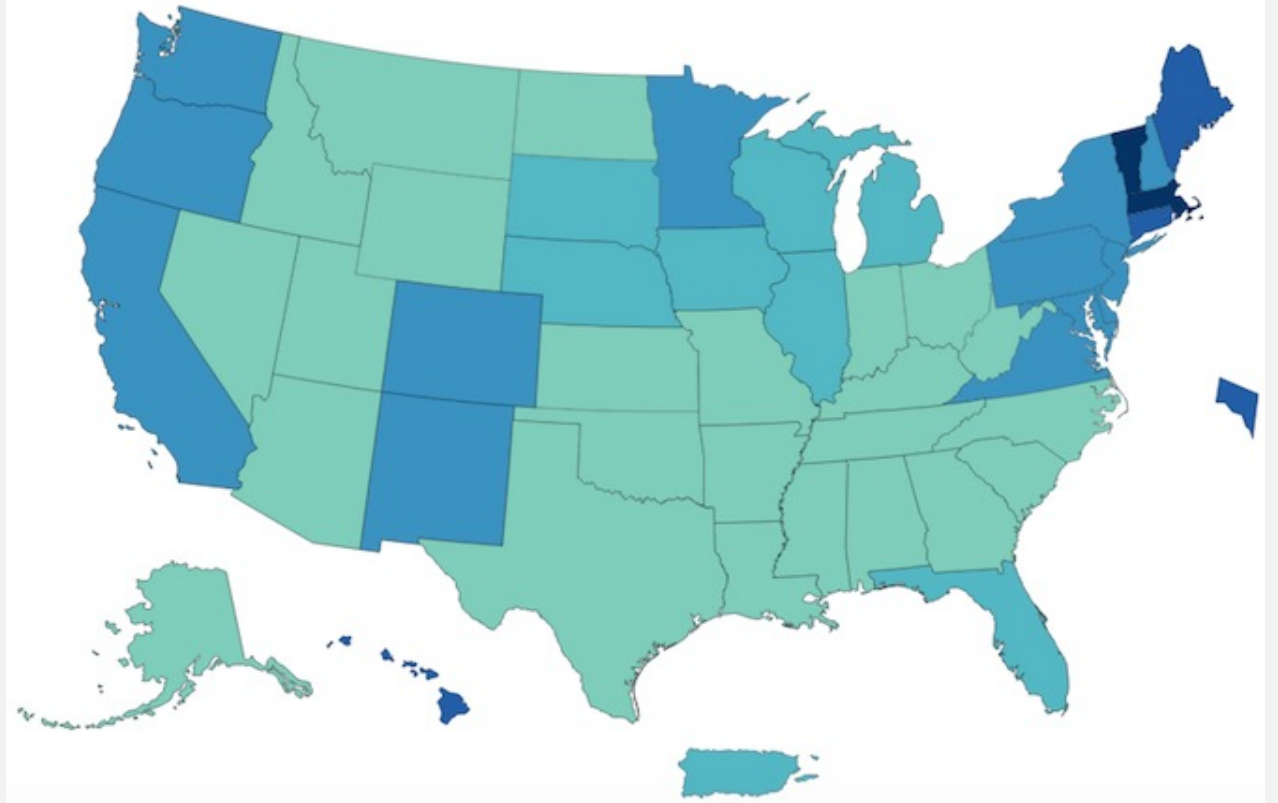
Delivered 366,977,535

Administered 296,912,892

Learn more about the distribution of vaccines.

People Vaccinated	At Least One Dose	Fully Vaccinated
Total	168,734,435	136,155,250
% of Total Population	50.8%	41%
Population ≥ 12 Years of Age	168,600,274	136,146,391
% of Population ≥ 12 Years of Age	60.2%	48.6%
Population ≥ 18 Years of Age	162,272,565	133,852,464
% of Population ≥ 18 Years of Age	62.9%	51.9%
Population ≥ 65 Years of Age	47,013,699	40,978,487
% of Population ≥ 65 Years of Age	86%	74.9%

Total Doses Administered Reported to the CDC by State/Territory and for Select Federal Entities per 100,000 of the Total Population



Percent of People Receiving COVID-19 Vaccine by Race/Ethnicity and Date Administered, United States



December 14, 2020 – June 01, 2021

	AI/AN, NH	Asian, NH	Black, NH	Hispanic/Latino	NHOPI, NH	White, NH
At Least One Dose	41.7%	33.0%	22.8%	26.1%	32.0%	31.6%
Fully Vaccinated	33.7%	28.1%	18.9%	20.5%	25.7%	28.3%

Race/Ethnicity data were available for 62.0% receiving at least one dose and 66.0% of people fully vaccinated.

Race

Sex

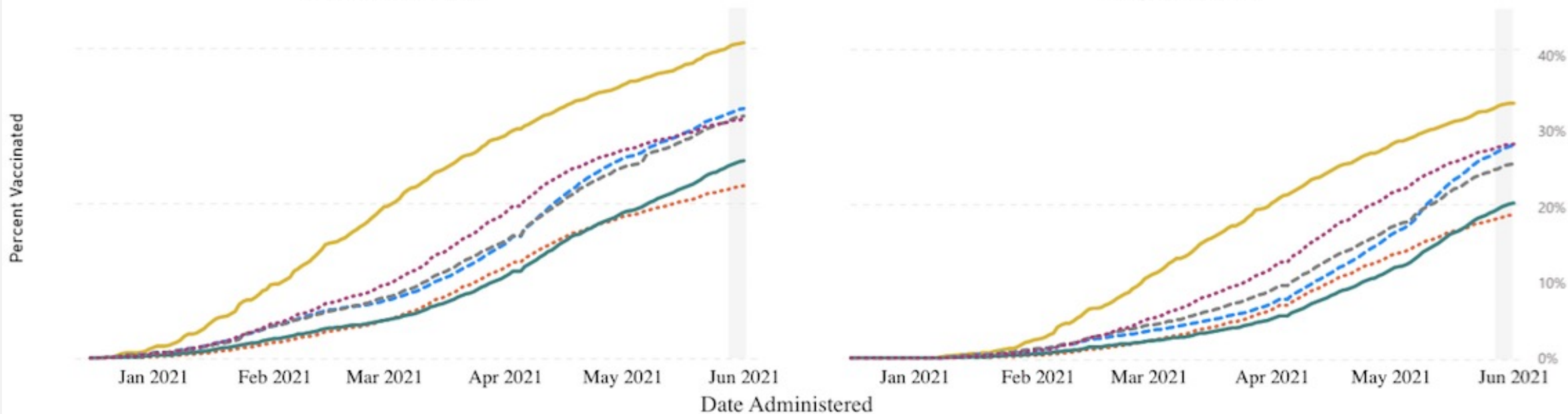
Age

12/13/2020

6/1/2021

At Least One Dose

Fully Vaccinated



BENEFITS OF VACCINATION

- Prevents severe illness and hospitalization
- Prevents death from COVID-19
- Reduction in asymptomatic and symptomatic infections
- Reduction in transmission of infection
- IF a vaccinated person happens to get the infection, case is most likely mild or without symptoms
- Most are still effective against variants, thus far

ADVERSE EFFECTS AND OTHER CONSIDERATIONS WITH VACCINATION

- Side effects: pain at injection site, lymph node enlargement, fever fatigue, and headache
- Anaphylaxis
 - Avoid if hx of anaphylaxis to component of the vaccine or hives within 4hrs of prior dose
- Thrombosis with thrombocytopenia syndrome (TTS) – the “blood clot” event
 - Specific to Janssen/J&J and AstraZenica (in Canada)
 - Autoantibodies against platelet factor 4 (PF4) antigen
- Other precautions
 - No longer any precautions in timing with other vaccinations
 - Postpone breast cancer screening mammography for a month after vaccination

VACCINE HESITANCY WHAT MANY ARE WORRIED ABOUT

- Accelerated nature of development – perceptions of “short cuts” with regard to safety assessments
- Misinformation about the SARS-CoV-2 infection
- Relying solely on natural immunity after recovery from COVID-19
- Fear of vaccine side effects
- Concerns about the unknown future effects of the vaccine
- Mistrust of the process and the overseeing government bodies

MYTHS AND FAQ OF VACCINATION

- The vaccine will change my genetic material
- The vaccine will affect my ability to have a baby in the future
- The CDC is mandating that I get the COVID-19 vaccine
- I will test positive for COVID-19 after getting the COVID-19 vaccine
- The COVID-19 vaccine will make me sick with COVID-19
- I might get COVID-19 by being around someone who has received the COVID-19 vaccine
- I already had COVID-19 and have natural immunity so I don't need to get the COVID-19 vaccine

ADDRESSING VACCINE HESITANCY WITH OTHERS

- Provide emotional support
- Acknowledge uncertain risk
- Talk about known risks
- Provide information for information-seekers
- Partner with communities
- Share your experience
- Tap into people's desire to protect
- DO NOT criticize their judgement
- DO NOT use scare tactics

HOW TO CLARIFY YOUR UNDERSTANDING – PUTTING THINGS INTO PERSPECTIVE

- Consider your unique situation – where do you live, who do you live with, where do you go, where do you work
- Speak directly with your health care provider one-on-one
- Talk out your concerns with people you trust
- Clarify any misconceptions from reputable sources
- For those who are religious, pray about it

Ahe'hee
Thank you

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