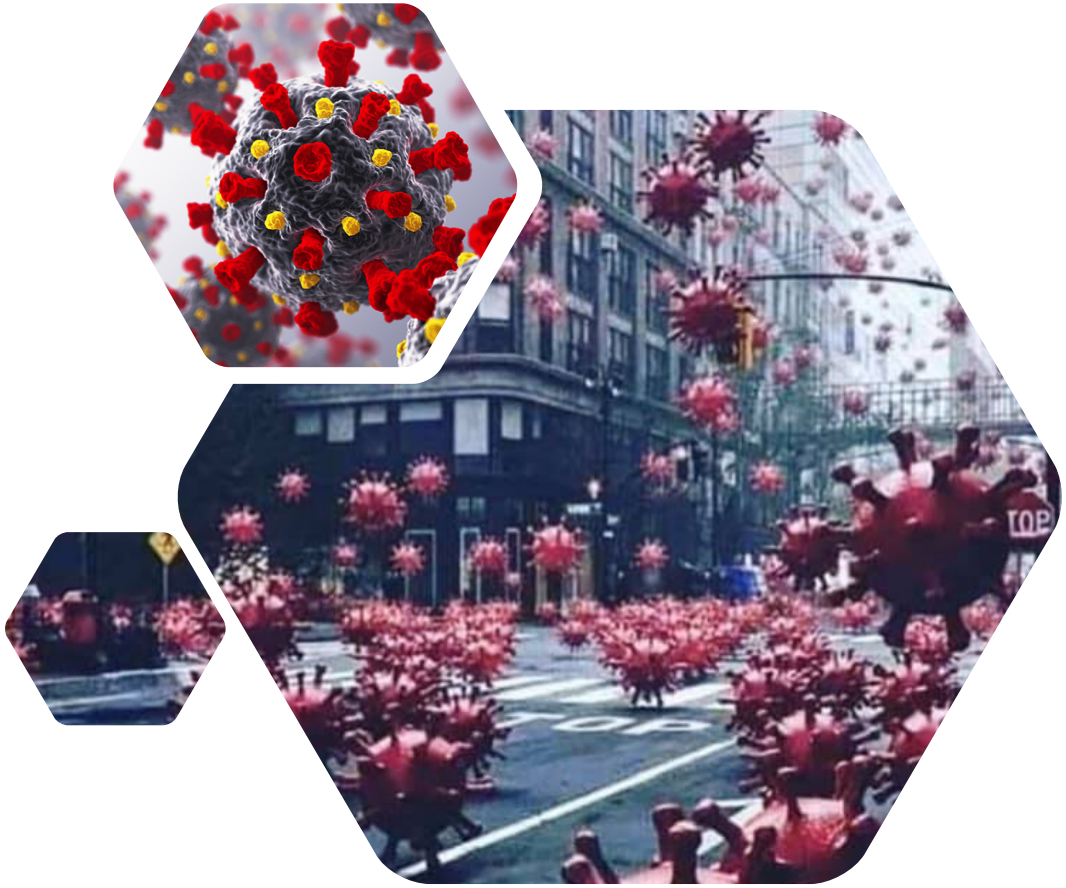
COVID19 Update

Dr. Oscar Alleyne

National Association of

County and City Health Officials



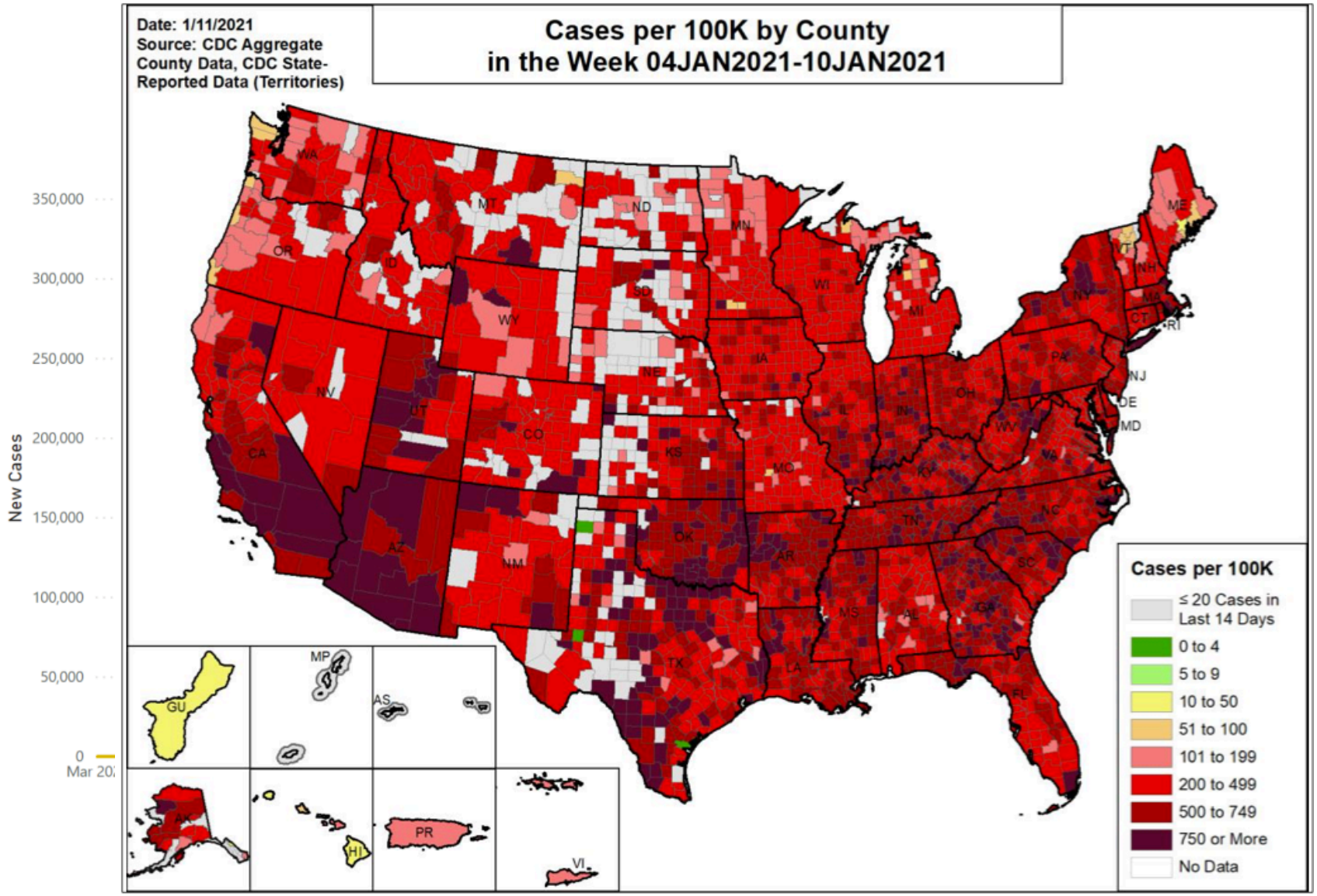
22,522,749
Total Cases Reported

199,793
New Cases Reported

248,367
Current 7-Day Average
05-Jan-21 to 11-Jan-21

214,660
Prior 7-Day Average
28-Dec-20 to 04-Jan-21

16%
Change in 7-Day Average



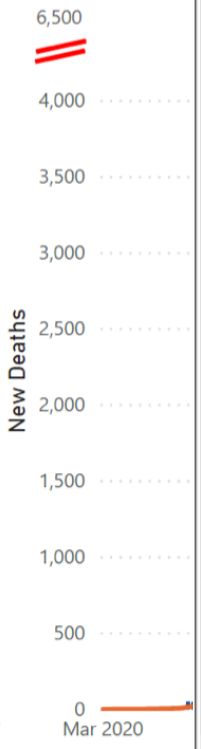
375,124
Total Deaths Reported

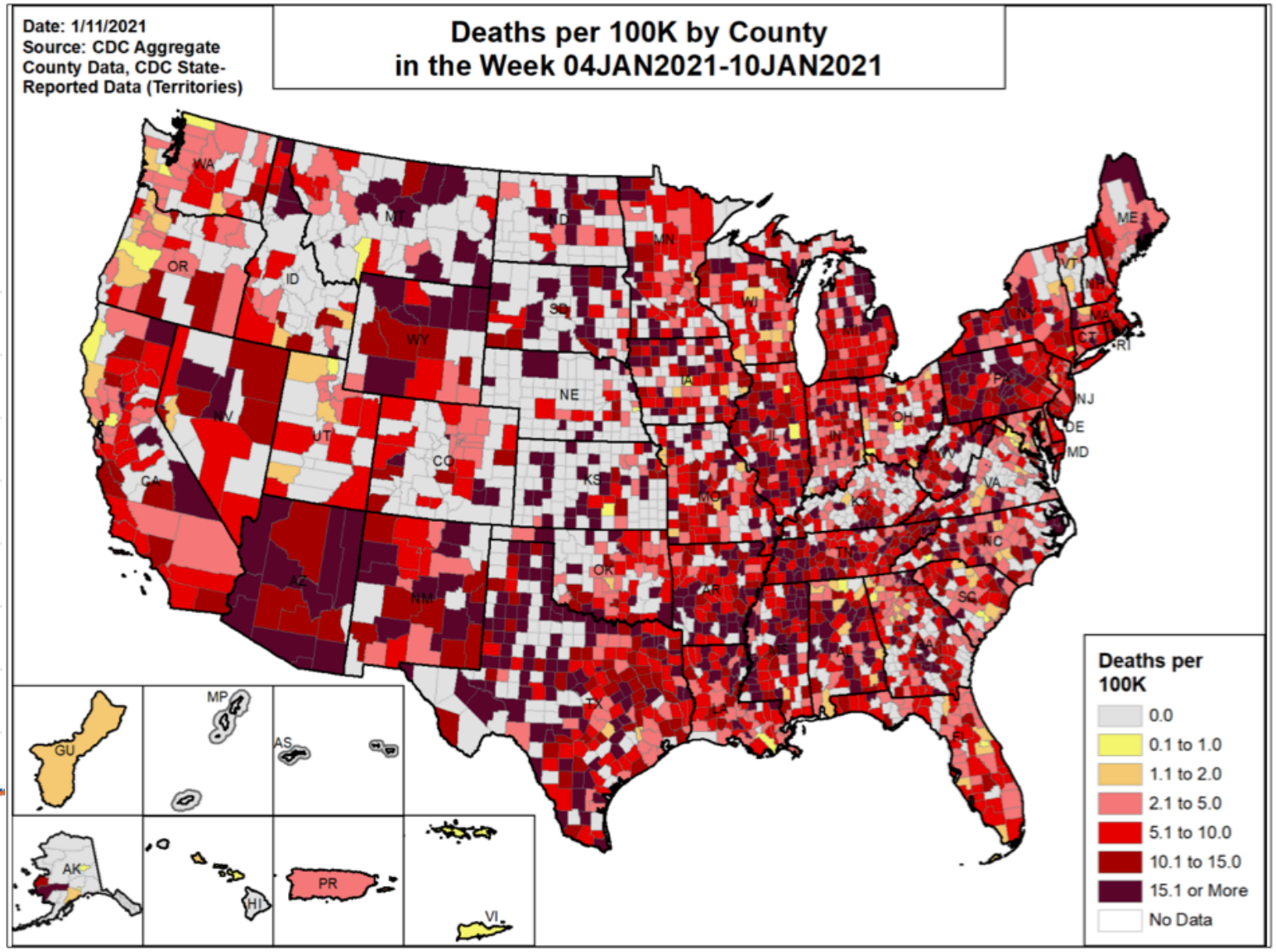
1,957
New Deaths Reported

3,237
Current 7-Day Average
05-Jan-21 to 11-Jan-21

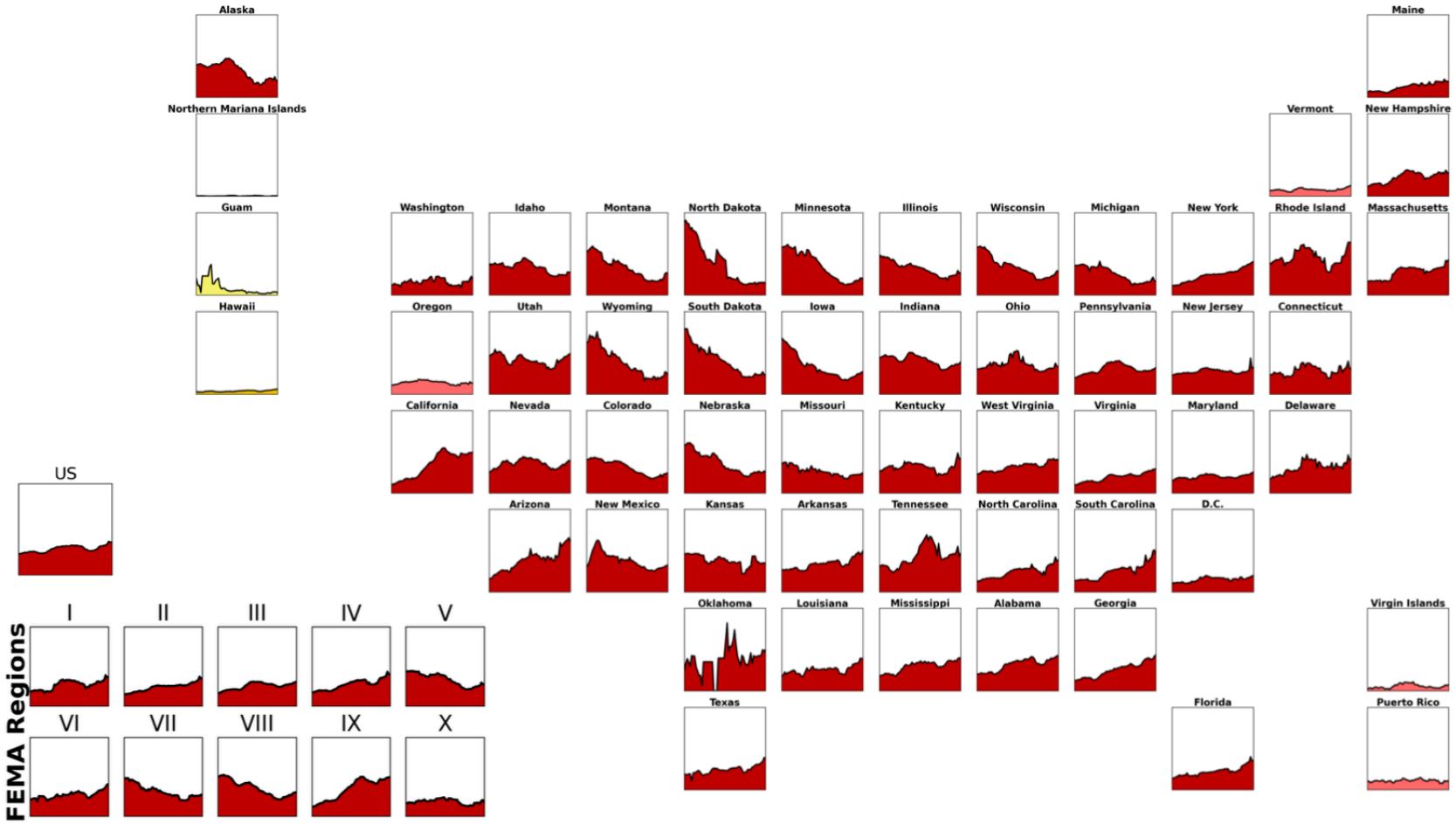
2,634
Prior 7-Day Average
28-Dec-20 to 04-Jan-21

23%
Change in 7-Day Average





TRENDS IN CASE INCIDENCE DURING THE LAST 8 WEEKS



Case incidence categories

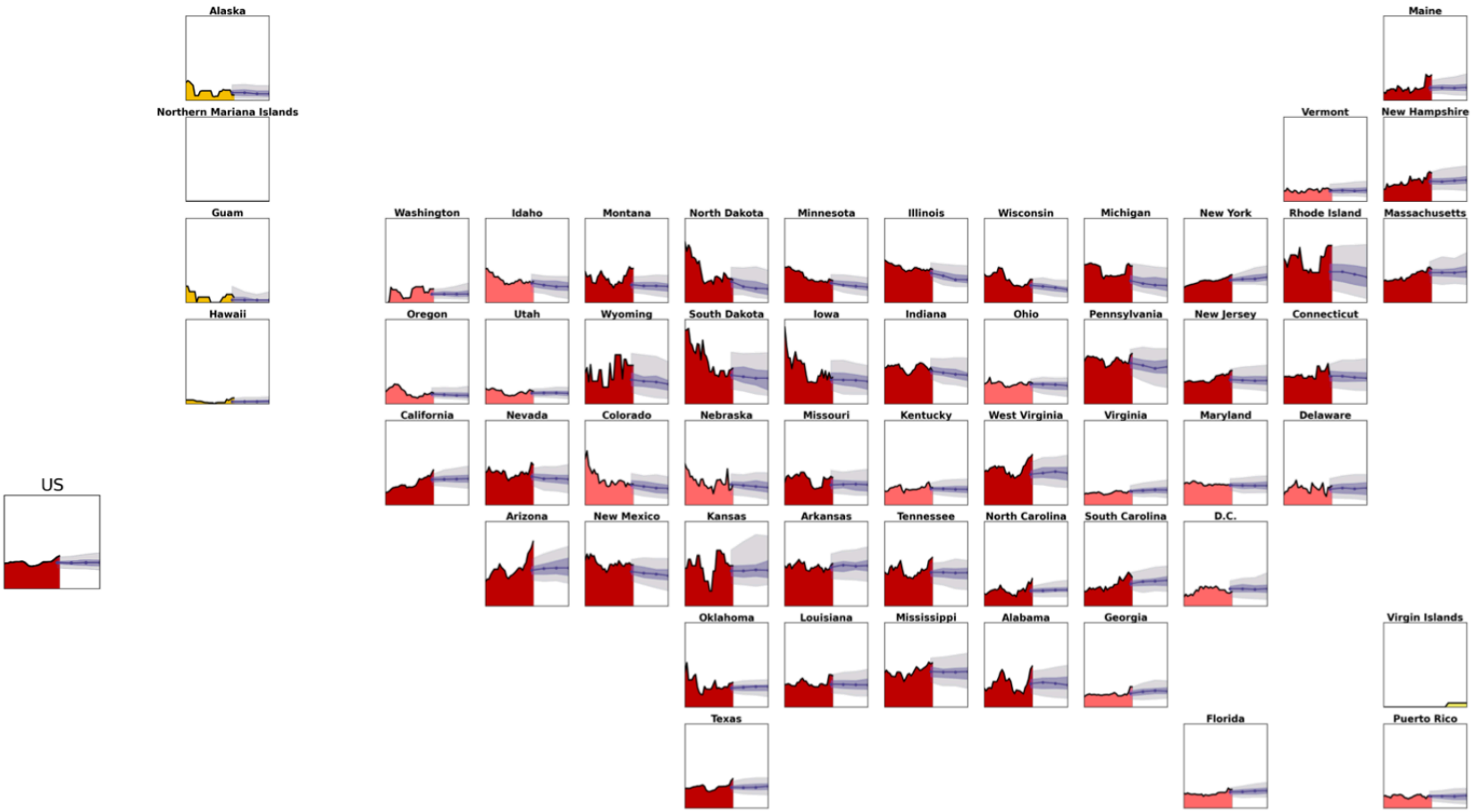
(based on cases per 100,000 population in the last 7 days)

- 2 or less
- 3 – 9
- 10 – 50
- 51 – 100
- 101 – 199
- 200 or more

Figure depicts average case incidence for each state and region over the 8-week period of 11/16-1/10. Vertical axis ranges from 0 to 1,423 cases per 100,000 population (7 day total).

Source: CDC state-reported data. See Data Sources/Methods slides for additional details.

TRENDS IN MORTALITY RATE DURING THE LAST 4 WEEKS AND 4 WEEK FORECAST



Mortality rate categories

(based on deaths per 100,000 population in the last 7 days)

- 0.0
- 0.1 – 1.0
- 1.1 – 2.0
- 2.1 – 5.0
- 5.1 or more

Projected Deaths

50% Prediction Interval

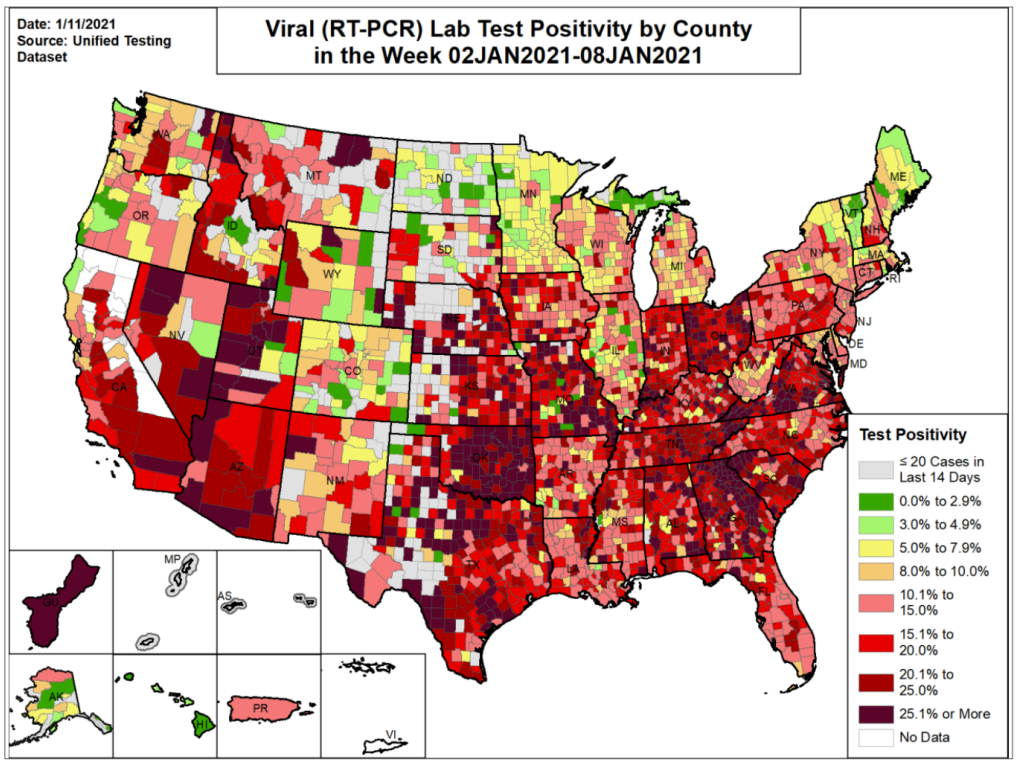
95% Prediction Interval

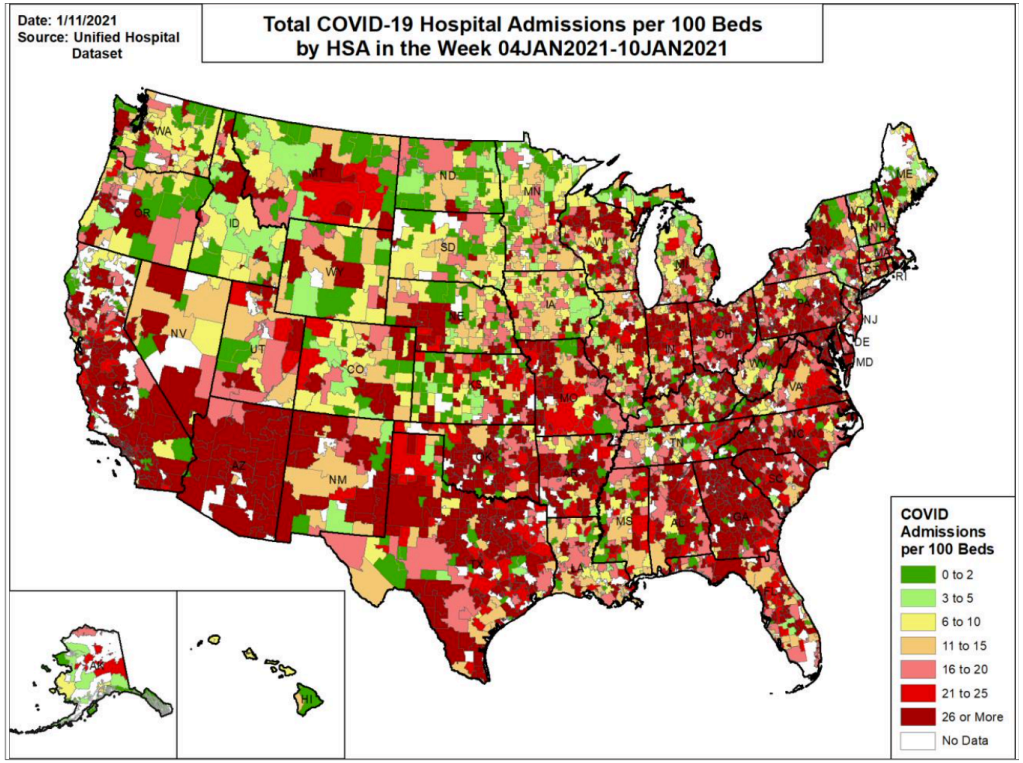
Figure depicts average mortality rate for each state over the 4-week period of 12/14-1/10 and a 4-week forecast from 1/9-1/30. Vertical axis ranges from 0 to 19 deaths per 100,000 population (7 day total).

Source: CDC state-reported data. See Data Sources/Methods slides for additional details.

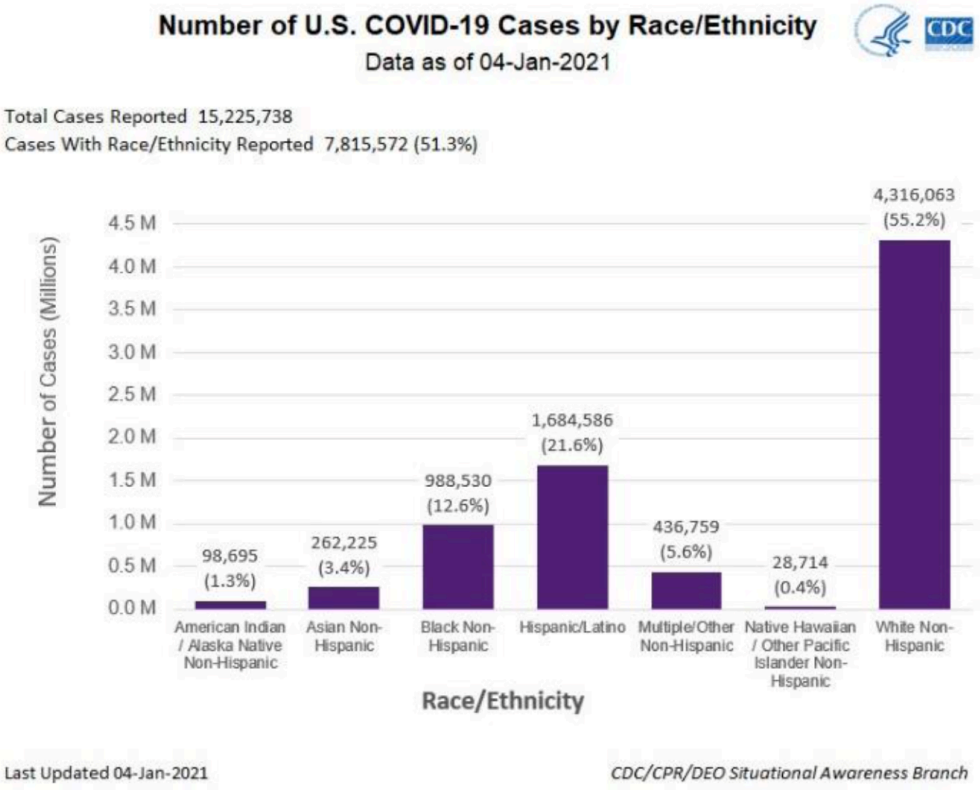
Forecast: The forecast displays projected weekly death totals using an ensemble of predictive models generated by academic, private industry, and governmental groups. Models make various assumptions about the levels of social distancing and other interventions, which may not reflect recent changes in behavior. More information is available at the COVID-19 Forecast Hub. The forecast date is as of 01/04.

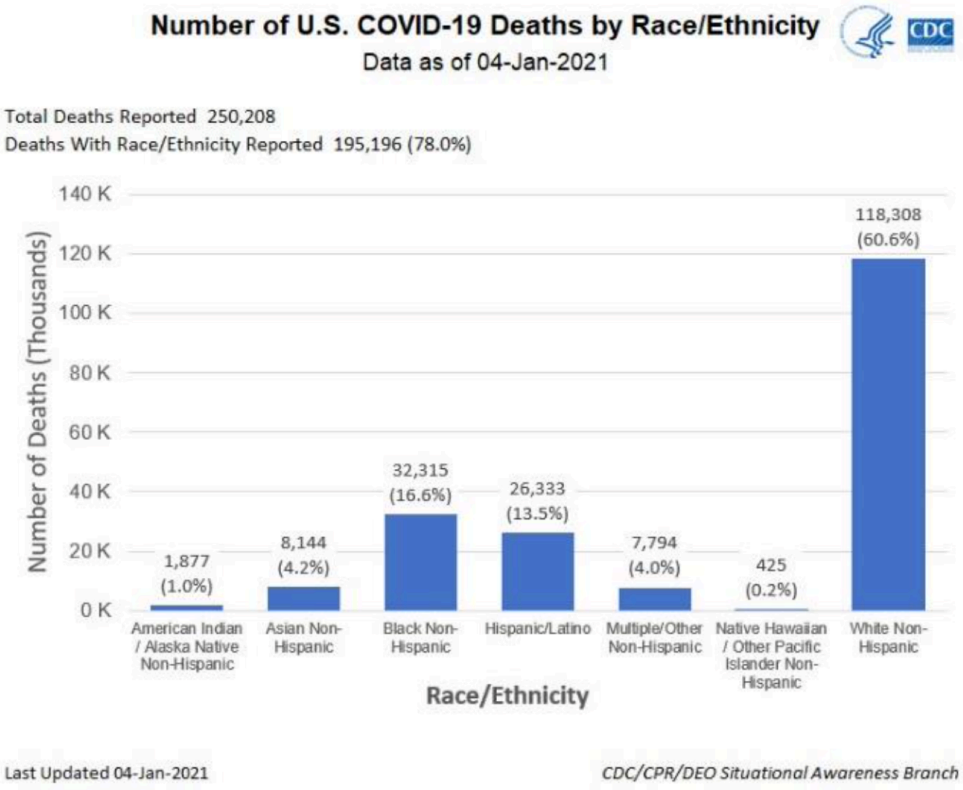
Lab Positivity and Hospitalization Rates -last 7 days





Race and Ethnicity Data





COVID-19 Cases, Hospitalizations, and Deaths, by Race/Ethnicity

Rate ratios compared to White, Non-Hispanic persons	American Indian or Alaska Native, Non-Hispanic persons	Asian, Non-Hispanic persons	Black or African American, Non-Hispanic persons	Hispanic or Latino persons
Cases[1]	1.8x	0.6x	1.4x	1.7x
Hospitalization[2]	4.0x	1.2x	3.7x	4.1x
Death[3]	2.6x	1.1x	2.8x	2.8x

Race and ethnicity are risk markers for other underlying conditions that affect health, including socioeconomic status, access to health care, and exposure to the virus related to occupation, e.g., among frontline, essential, and critical infrastructure workers.

Emerging Variants

- In the United Kingdom (UK), a new variant strain known as **20B/501Y.V1, VOC 202012/01, or B.1.1.7 lineage** emerged with an unusually large number of mutations.
- This variant has since been detected in numerous countries around the world, including the United States (US) and Canada.

- In South Africa, another variant known as **20C/501Y.V2 or B.1.351 lineage**, emerged independently of the B.1.1.7 lineage. This variant shares some mutations with the B.1.1.7 lineage.
- Cases attributed to this variant have been detected outside of South Africa. At this time, it has shown no characteristics of greater concern to public health experts.

B.1.1.7 Present in the USA

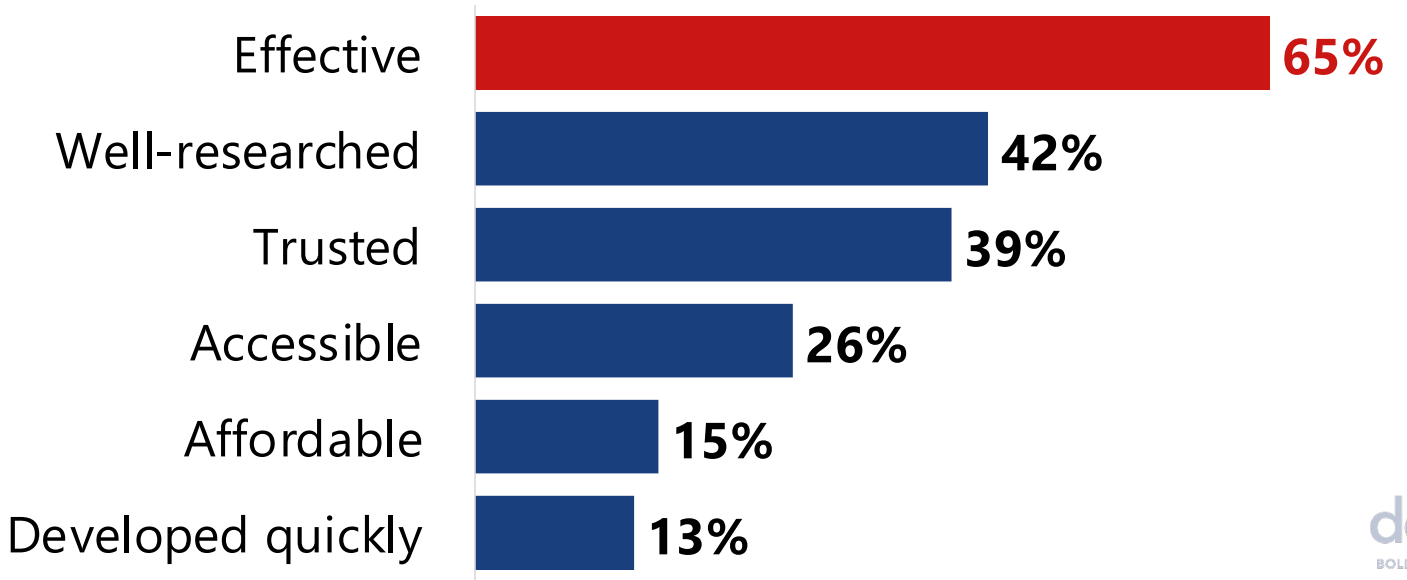
- This variant is estimated to have first emerged in the UK during September 2020.
- Since December 20, 2020, several countries have reported cases of the B.1.1.7 lineage, including the United States and Canada.
- Based on genetic analysis and the tracking of cases, it may spread more easily and quickly than previous strains & could increase the overall spread of COVID19.
- A person infected with this variant could (on average) infect 1.4 to 1.7 times more people than someone with other strains of COVID19.
- It does not appear to cause more severe disease or death. However, a higher rate of transmission could lead to more cases, which would increase the number of people overall who need clinical care.
- Currently there is no evidence to suggest that the variant has any impact on vaccine efficacy so far.

What it all Means

- Viruses constantly change through mutation, and new variants of a virus are expected to occur over time.
- Multiple variants of the COVID-19 virus have been documented in the United States and globally during this pandemic.
- Most variants do not change how the virus behaves and many disappear.
- Follow the recommendations of **wearing masks, staying at least 6 feet apart from others, avoiding crowds, ventilating indoor spaces, and washing hands often**— to prevent the spread of this variant.
- CDC has been sequencing over 50,000 viruses under the SARS-CoV-2 Strain Surveillance network to monitor for variants and other mutations.

Americans Want A Vaccine That Works Above All Else, Not One That's Rushed

Other than safety, when thinking about a vaccine for COVID-19, is it MOST important to you that it is…?



https://www.debeaumont.org/news/2020/poll-reveals-covid19-language-to-overcome-political-divide-and-save-lives/

How a new vaccine is developed, approved and manufactured

The Food and Drug Administration (FDA) sets rules for the three phases of clinical trials to ensure the safety of the volunteers. Researchers test vaccines with adults first.

PHASE 1

20-100 healthy volunteers

- Is this vaccine safe?
- Does this vaccine seem to work?
- Are there any serious side effects?
- How is the size of the dose related to side effects?

PHASE 2

several hundred volunteers

- What are the most common short-term side effects?
- How are the volunteers' immune systems responding to the vaccine?

PHASE 3

hundreds or thousands of volunteers

- How do people who get the vaccine and people who do not get the vaccine compare?
- Is the vaccine safe?
- Is the vaccine effective?
- What are the most common side effects?

FDA licenses the vaccine only if:

- **It's safe and effective**
- **Benefits outweigh risks**

Vaccines are made in batches called lots.

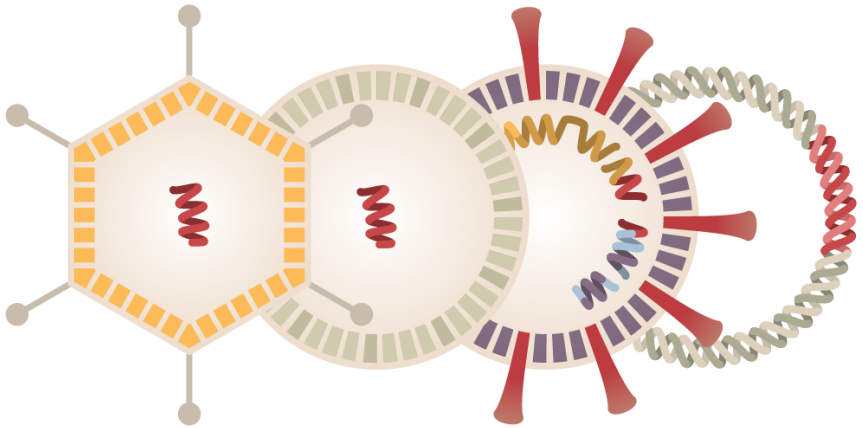
Manufacturers must test all lots to make sure they are safe, pure and potent. The lots can only be released once FDA reviews their safety and quality.

The FDA inspects manufacturing facilities regularly to ensure quality and safety.

World Vaccine Update

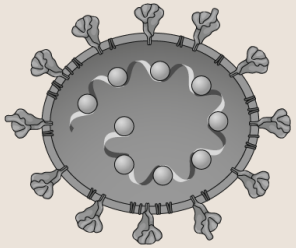
PHASE 1	PHASE 2	PHASE 3	LIMITED	APPROVED	ABANDONED
43	20	20	7	3	1
Vaccines testing safety and dosage	Vaccines in expanded safety trials	Vaccines in large-scale efficacy tests	Vaccines in early or limited use	Vaccines approved for full use	Vaccines abandoned after trials

Developer	Type	Phase	Status
Pfizer-BioNTech	mRNA	2 3	Approved in Canada, other countries. Emergency use in U.S., other countries.
Moderna	mRNA	3	Approved in Canada. Emergency use in U.S., Israel.
Gamaleya	Adenovirus	3	Early use in Russia. Emergency use in Belarus, Argentina.
Oxford-AstraZeneca	Adenovirus	2 3	Emergency use in Britain, India, Argentina.
CanSino	Adenovirus	3	Limited use in China.
Johnson & Johnson	Adenovirus	3	
Vector Institute	Protein	3	Early use in Russia.
Novavax	Protein	3	
Sinopharm	Inactivated	3	Approved in China, U.A.E., Bahrain. Emergency use in Egypt.
Sinovac	Inactivated	3	Limited use in China.
Sinopharm-Wuhan	Inactivated	3	Limited use in China, U.A.E.
Bharat Biotech	Inactivated	3	Emergency use in India.

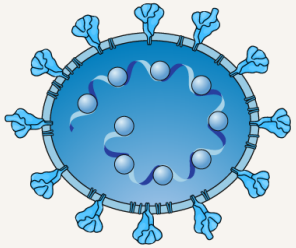


Classical platforms

Whole-inactivated virus
Example: Polio vaccine
COVID-19:
PiCoVacc in phase 1
clinical trials

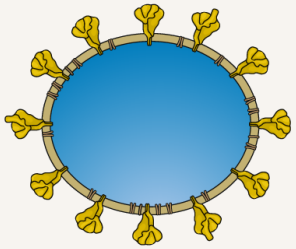


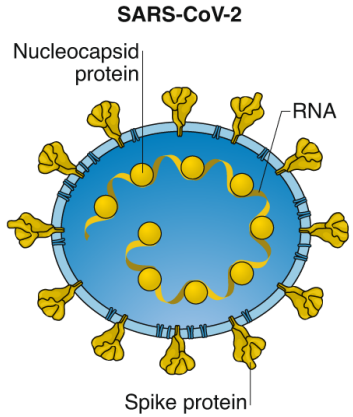
Live-attenuated virus
Example: MMR vaccine
COVID-19:
in preclinical stage



Protein subunit
Example: Seasonal
influenza vaccine
COVID-19:
NVX-CoV2373 in
phase 1/2 clinical trials

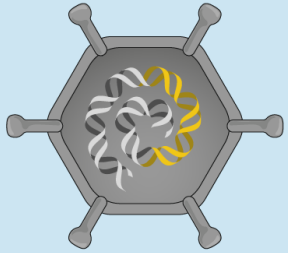
Virus-like particle
Example: Human
papillomavirus vaccine
COVID-19:
in preclinical stage





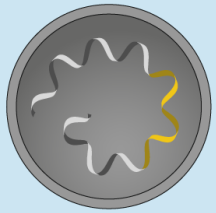
Next-generation platforms

Viral vector
Example:
VSV-Ebola vaccine
COVID-19:
AZD1222, Ad5-nCoV
in phase 1/2/3 clinical trials

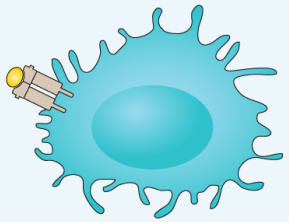


DNA
Example:
Not currently licensed
COVID-19:
INO-4800 in phase 1
clinical trials

RNA
Example:
Not currently licensed
COVID-19:
mRNA-1273, BNT162
in phase 1/2/3 clinical trials

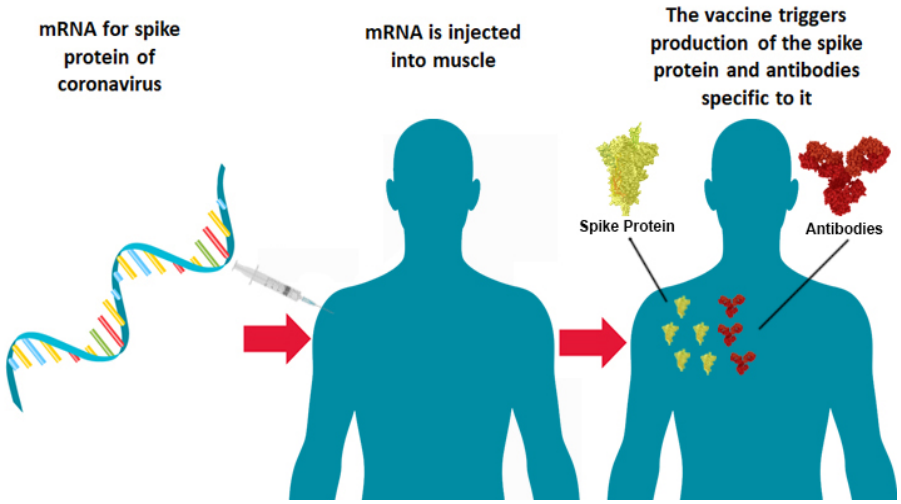


Antigen-presenting cells
Example:
Not currently licensed
COVID-19:
LV-SMENP-DC,
COVID-19/aAPC
in phase 1/2 clinical trials



mRNA Vaccine explained

- DNA is the gene and RNA gives instructions that tell cells to build certain proteins. So an mRNA vaccine is the instructions for the SARS-CoV2 protein.
- Once inside the cell, the protein is made and that triggers the immune response, preparing it to fight the real thing
- RNA vaccines are potentially faster and cheaper to produce than traditional vaccines, and a RNA based vaccine is also safer for the patient, as they are not produced using infectious elements



How new is mRNA vaccine?

- mRNA technology was discovered over 30 years ago and has been studied for vaccine purposes for nearly two decades.
- Scientists have been working on a coronavirus vaccine since the SARS and MERS outbreaks but funding dried up. (No funding, no scientific advancements)
- Early stage clinical trials using mRNA vaccines have been carried out for influenza, Zika, rabies and cytomegalovirus (CMV)
- Recent technological advancements in RNA biology and chemistry, as well as delivery systems have made improvement to vaccine stability, safety and effectiveness

Ingredients* included in mRNA COVID-19 vaccines

Description	Pfizer-BioNTech	Moderna
mRNA	Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2	Nucleoside-modified mRNA encoding the viral spike (S) glycoprotein of SARS-CoV-2
Lipids	2[(polyethylene glycol)-2000]-N,N-ditetradecylacetamide	Polyethylene glycol (PEG) 2000 dimyristoyl glycerol (DMG)
	1,2-distearoyl-sn-glycero-3-phosphocholine	1,2-distearoyl-sn-glycero-3-phosphocholine
	Cholesterol	Cholesterol
	(4-hydroxybutyl)azanediyl)bis(hexane-6,1-diyl)bis(2-hexyldecanoate)	SM-102
Salts, sugars, buffers	Potassium chloride	Tromethamine
	Monobasic potassium phosphate	Tromethamine hydrochloride
	Sodium chloride	Acetic acid
	Dibasic sodium phosphate dihydrate	Sodium acetate
	Sucrose	sucrose

*As reported in the prescribing information

Precautions to vaccination: Pfizer-BioNTech and Moderna COVID-19 vaccines

- Severe allergic reaction (e.g., anaphylaxis) after a previous dose of an mRNA COVID-19 vaccine or any of its components
- Immediate allergic reaction of any severity to a previous dose of an mRNA COVID-19 vaccine or any of its components (including polyethylene glycol [PEG])*
- Immediate allergic reaction of any severity to polysorbate (due to potential cross-reactive hypersensitivity with the vaccine ingredient PEG)*

* These persons should not receive mRNA COVID-19 vaccination at this time unless they have been evaluated by an allergist-immunologist and it is determined that the person can safely receive the vaccine (e.g., under observation, in a setting with advanced medical care available).

Allergies that do not constitute a contraindication or precaution to vaccination

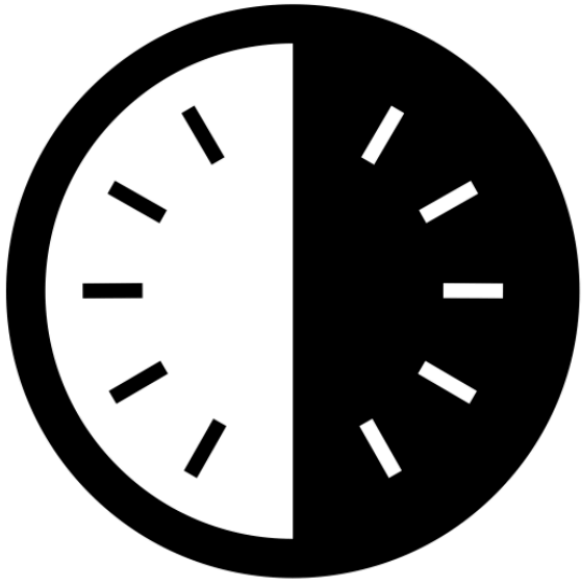
Persons with the following allergies do not have a contraindication or precaution to vaccination:

- History of food, pet, insect, venom, environmental, latex, or other allergies not related to vaccines or injectable therapies
- History of allergy to oral medications (including the oral equivalent of an injectable medication)
- Non-serious allergy to vaccines or other injectables (e.g., no anaphylaxis)
- Family history of anaphylaxis
- Any other history of anaphylaxis that is not related to a vaccine or injectable therapy

Observation period following vaccination

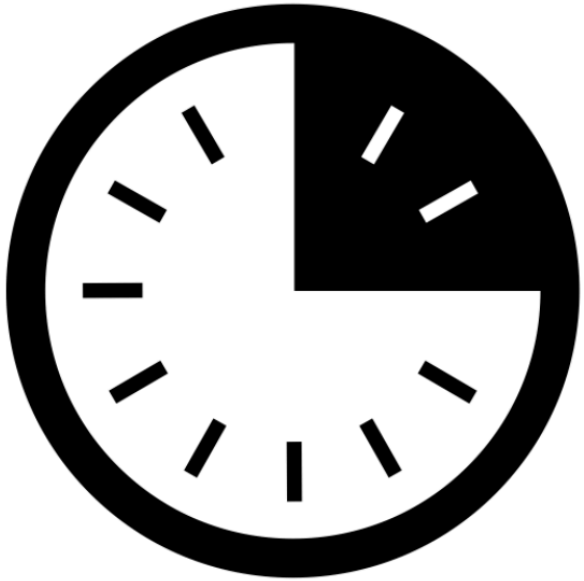
- Vaccine providers should observe patients after vaccination to monitor for the occurrence of immediate adverse reactions:

Persons with a history of anaphylaxis (due to any cause)



30 minutes

All other persons



15 minutes

Pregnancy or Lactating people

Pregnancy

- Side effects can occur with COVID-19 vaccine use in pregnant people, similar to those expected among non-pregnant people. Pregnant people who experience fever following vaccination may be counseled to take acetaminophen as fever has been associated with adverse pregnancy outcomes. Acetaminophen may be offered as an option for pregnant people experiencing other post-vaccination symptoms as well.
- There is no recommendation for routine pregnancy testing before receipt of a COVID-19 vaccine. Those who are trying to become pregnant do not need to avoid pregnancy after mRNA COVID-19 vaccination.

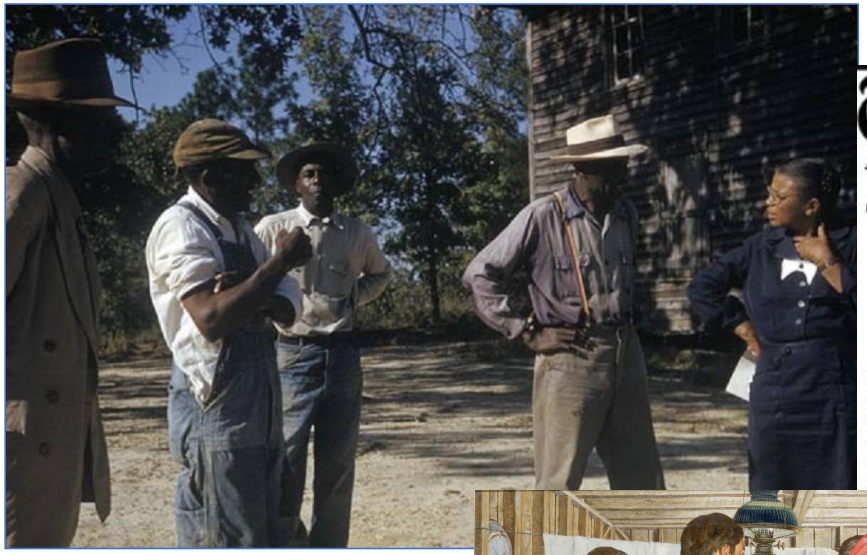
Lactating people

- There are no data on the safety of COVID-19 vaccines in lactating people or the effects of mRNA COVID-19 vaccines on the breastfed infant or milk production/excretion. mRNA vaccines are not thought to be a risk to the breastfeeding infant. A lactating person who is part of a group recommended to receive a COVID-19 vaccine (e.g., healthcare personnel) may choose to be vaccinated.

Triage Guidance

	MAY PROCEED WITH VACCINATION	PRECAUTION TO VACCINATION	CONTRAINDICATION TO VACCINATION
CONDITIONS	**CONDITIONS** • Immunocompromising conditions • Pregnancy • Lactation **ACTIONS** • Additional information provided* • 15 minute observation period	**CONDITIONS** • Moderate/severe acute illness **ACTIONS** • Risk assessment • Potential deferral of vaccination • 15-minute observation period if vaccinated	**CONDITIONS** • None **ACTIONS** • N/A
ALLERGIES	**ALLERGIES** History of allergies that are unrelated to components of an mRNA COVID-19 vaccine†, other vaccines, injectable therapies, or polysorbate, such as: • Allergy to oral medications (including the oral equivalent of an injectable medication) • History of food, pet, insect, venom, environmental, latex, etc., allergies • Family history of allergies **ACTIONS** • 30-minute observation period: Persons with a history of anaphylaxis (due to any cause) • 15-minute observation period: All other persons	**ALLERGIES** • History of any immediate allergic reaction‡ to vaccines or injectable therapies (except those related to component of mRNA COVID-19 vaccines† or polysorbate, as these are contraindicated) **ACTIONS:** • Risk assessment • Consider deferral of vaccination and/or referral to allergist-immunologist • 30-minute observation period if vaccinated	**ALLERGIES** History of the following are contraindications to receiving either of the mRNA COVID-19 vaccines†: • Severe allergic reaction (e.g., anaphylaxis) after a previous dose of an mRNA COVID-19 vaccine or any of its components • Immediate allergic reaction‡ of any severity to a previous dose of an mRNA COVID-19 vaccine or any of its components^ (including polyethylene glycol)# • Immediate allergic reaction of any severity to polysorbate^# **ACTIONS** • Do not vaccinate# • Consider referral to allergist-immunologist

Acknowledging the Historical Abuses, Disenfranchisement & Medical Apartheid



The New York Times

Syphilis Victims in U.S. Study Went Untreated for 40 Years

By JEAN HELLER
The Associated Press

WASHINGTON, July 25—For 40 years the United States Public Health Service has conducted a study in which human beings with syphilis, who were induced to serve as guinea pigs, have gone without medi-

have serious doubts about the morality of the study, also say that it is too late to treat the syphilis in any surviving participants.

Doctors in the service say they are now rendering whatever other medical services they can give to the survivors while the study of the disease's effects continues.

THE BALTIMORE SUN

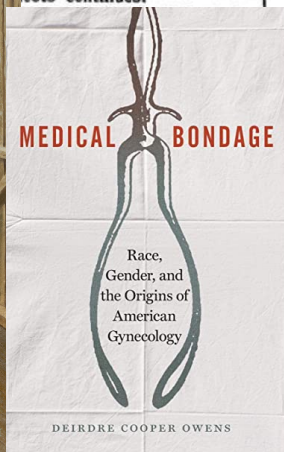
'Immortal' cells, moral issues

Case of Henrietta Lacks shows need for ethical compe health care reform

February 12, 2010 | By Ruth R. Faden

Much has been written and discussed recently about Henrietta Lack cancer cells, collected for research 60 years ago -- as she was bein inexplicably but astoundingly grew in the laboratory without end. Th therapies, the polio vaccine and a myriad of other biomedical adv

Sadly, in 1951, tissue from patients destined exclusively for biomed treat disease -- was commonly taken without their consent, store



The New York Times

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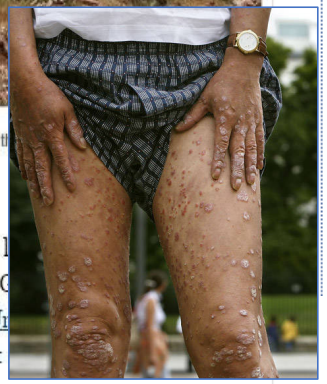
POLITICS | EDUCATION | BAY AREA | CHICAGO

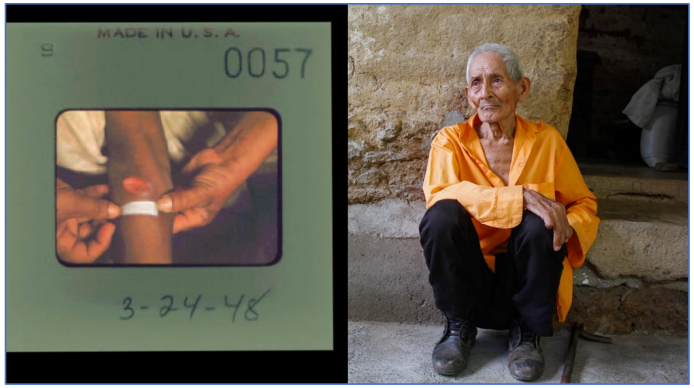
Indian Tribe Wins Fight to Limit Research of Its DNA

Edmond Tilousi, 56, who can climb the eight miles to the rim of the Grand Canyon in t

By AMY HARMON
Published: April 21, 2010

SUPAI, Ariz. — Seven years ago, the Havasupai Indians, who l
amid the turquoise waterfalls and red cliffs miles deep in the C
Canyon, issued a "banishment order" to keep Arizona State Ur
employees from setting foot on their reservation — an ancient
punishment for what they regarded as a genetic-era betrayal.





HOME / NEWS / LOCAL / MASS.

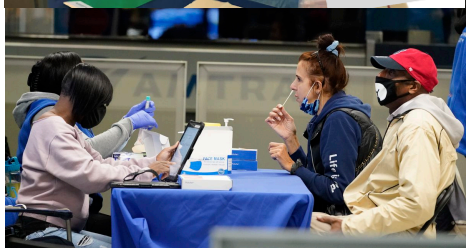
The Boston Globe

Wellesley professor unearths a horror: Syphilis experiments in Guatemala

US apologizes for performing unethical study in 1940s

By Stephen Smith
Globe Staff / October 2, 2010

Picking through musty files in a Pennsylvania archive, a Wellesley College professor made a heart-stopping discovery: US government scientists in the 1940s deliberately infected hundreds of Guatemalans with syphilis and gonorrhea in experiments conducted without the subjects' permission.



Community Feedback

Vaccine hesitancy and mis- and disinformation

- We continue to see info related to COVID vaccine hesitancy. The perception of expediting a vaccine to use on communities of color that already distrust healthcare is also going to be a challenge.
- Finally the misinformation and disinformation has already started to spread. Stopping the spread or combatting it with messages is needed now.

Clear and consistent communication

- Requesting clear and consistent messaging related to safety, effectiveness, side effects and access to equal distribution

$19.11 Billion

- CDC has notified directly-funded jurisdictions for use of a total of $19.11b to continue to monitor, respond to, and prevent COVID-19 through additional expansion of testing, contract tracing and disease investigation activities, and enhanced surveillance (*ELC Enhancing Detection Expansion).* These are funds that were part of the December COVID package.
- Per CDC, this funding opportunity is intended to build upon work initiated through *ELC Enhancing Detection,* and uses the previous guidance as a base. The section on LHDS has significant updates and is pasted below. Of note, it includes stronger language about working with LHDs and new reporting requirements about how money is shared with LHDs. This is a result of our advocacy both with Congress to get enhanced reporting language in the law and with CDC to educate them about the need for more direction about engaging with LHDs. Thank you for your support of these efforts!

SUPPORT TO LOCAL HEALTH DEPARTMENTS (LHD)

- As with previous support provided for COVID-19 activities, recipients should work with their local health departments (LHDs) to determine how local needs will be addressed with the overall available resources. **Direct ELC recipients are strongly encouraged to provide financial resources to LHDs within their jurisdiction by way of a contract or other mechanism(s) that may be available through their health department. In addition to financial resources, directly funded recipients may also provide support to LHDs through offering non-financial resources (personnel, supplies, etc.) to address COVID-19/SARS-CoV-2 testing, surveillance, case detection, reporting, response, and prevention needs at the local level.**
- When completing the revised budget, in the ELC budget workbook, there is a state/local health department allocation section that must be completed accurately to allow tracking of direct and indirect support to LHDs. During the quarterly workplan milestone progress reporting, recipients must provide reports, in the REDCap monitoring portal, on progress in supporting LHDs (e.g., on-track or barriers and proposed remedies, etc.) along with amount of funding (direct and/or indirect) to LHDs at time of reporting.