
# CORONAVIRUS (COVID-19)

ROCKY MOUNTAIN TRIBAL LEADERS COUNCIL/ EPIDEMIOLOGY CENTER

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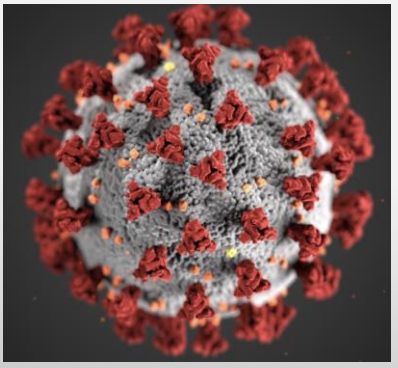
# OVERVIEW

- **Background on COVID-19**
  - General
  - Epidemiology and surveillance principles
  - Update on current emergency response
- **COVID-19 disease-specific information**
  - Signs/symptoms
  - Incubation period and infectious period
  - Testing
  - Diagnosis and current management
  - Prevention and control (including self-isolation for patients and self-quarantine for contacts)
- **Ways to prevent spread of COVID-19**
  - General precautions
  - Role of public health, case investigation, and contact tracing
- References

# BACKGROUND ON COVID-19

# HISTORY OF CORONAVIRUS

- *The term Corona means crown and is named for the crown-like spikes on their surface when viewed under a microscope.*
- *Coronaviruses are a large group of viruses that cause diseases in mammals and birds.*
  - *Can sometimes evolve to infect people by causing mild respiratory illnesses.*
- *Human coronaviruses were first identified in the mid-1960s.*
- *So far, there have been three known coronaviruses that have evolved to infect humans:*
  - *Severe Acute Respiratory Syndrome (SARS) in 2002 that originated in China.*
  - *Middle Eastern Respiratory Syndrome (MERS) in 2012 that originated in the Middle East.*
  - *SARS-CoV-2 in 2019*



https://www.nfid.org/infectious-diseases/coronaviruses/

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*SARS was first reported in Southern China in 2002 and the illness spread to more than two dozen countries in North America, South America, Europe, and Asia*

*Infection with the SARS virus causes acute respiratory distress (severe breathing difficulty), with a mortality rate of about 10 percent.*

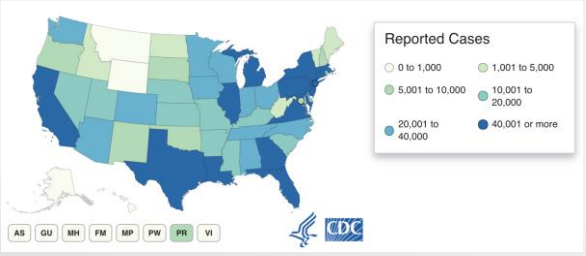
*No human cases of SARS have been reported anywhere in the world since 2004.*

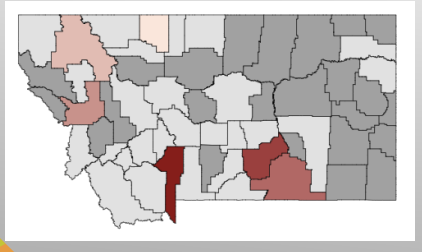
*SARS-CoV-2 virus causes Coronavirus Disease 2019 (COVID-19) emerged in a seafood and poultry market in the Chinese city of Wuhan in 2019*

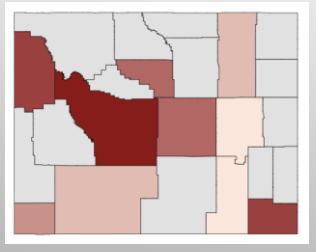
*World Health Organization declared COVID-19 as global pandemic ( Public Health Emergency) on March 11.*

# EPIDEMIOLOGY AND SURVEILLANCE

- A total of **2,016,027 cases of COVID-19** have been confirmed in the United States.
- Approximately **113,914 deaths** have been reported.





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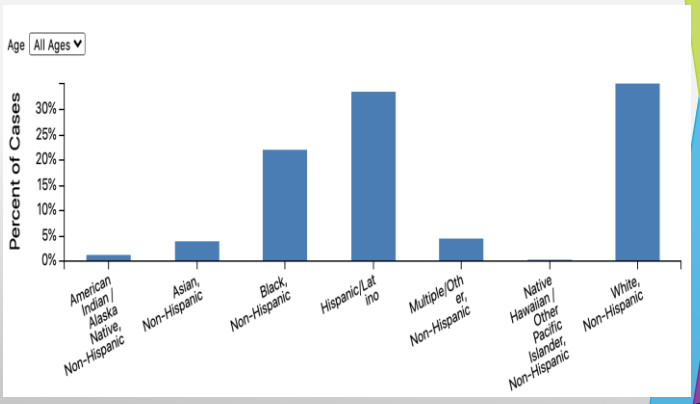
Numbers since June 13, 2020

# EPIDEMIOLOGY AND SURVEILLANCE

- The **overall cumulative COVID-19 associated hospitalization rate is 82.0 per 100,000.**
- When compared to Non-Hispanic Whites,
  - **AIANs have 5 times the rate**
  - NH-Blacks are 4.5 times
  - Hispanics or Latino is 3.5 times.



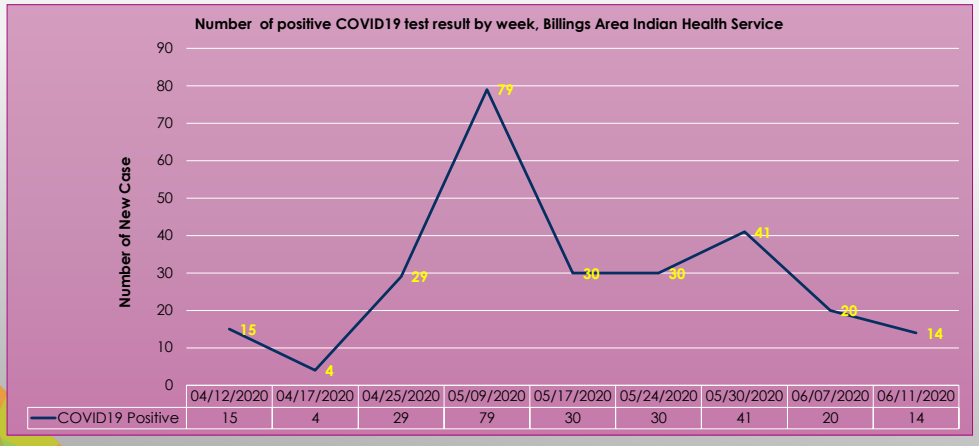

https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fcases-updates%2Fsummary.html

https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/index.html

American Indian/Alaska Native represent approximately 1.3% of the total impacted by COVID-19.

# EPIDEMIOLOGY AND SURVEILLANCE

**A confirmed case** is defined as a person who has tested positive for 2019 novel coronavirus.
(Source: https://www.ihs.gov/coronavirus/)




| | 04/12/2020 | 04/17/2020 | 04/25/2020 | 05/09/2020 | 05/17/2020 | 05/24/2020 | 05/30/2020 | 06/07/2020 | 06/11/2020 |
|---|---|---|---|---|---|---|---|---|---|
| COVID19 Positive | 15 | 4 | 29 | 79 | 30 | 30 | 41 | 20 | 14 |

Numbers since June 11, 2020

# EPIDEMIOLOGY AND SURVEILLANCE

**A confirmed case** is defined as number of lab confirmed cases in the past 24 hours. (Source: MT Governor website and WY Depart Health /)

| State | County | COVID19 Positive test result | Recovered from COVID19 | Active COVID19 cases | Death due to COVID19 |
|---|---|---|---|---|---|
| Montana | Glacier | 6 | 6 | 0 | 0 |
| Montana | Pondera | 2 | 2 | 0 | 0 |
| Montana | Big Horn | 44 | 9 | 34 | 1 |
| Montana | Yellowstone | 108 | 99 | 6 | 3 |
| Montana | Flathead | 37 | 35 | 0 | 2 |
| Montana | Lake | 9 | 5 | 4 | 0 |
| Montana | Missoula | 40 | 38 | 1 | 1 |
| Montana | Roosevelt | 7 | 7 | 0 | 0 |
| Montana | Big Horn | 44 | 9 | 34 | 1 |
| Montana | Rosebud | 1 | 1 | 0 | 0 |
| Montana | Cascade | 17 | 15 | 0 | 2 |
| Montana | Hill | 1 | 1 | 0 | 0 |
| Wyoming | Fremont | 272 | 237 | 26 | 9 |

Numbers since June 13, 2020

# EPIDEMIOLOGY AND SURVEILLANCE

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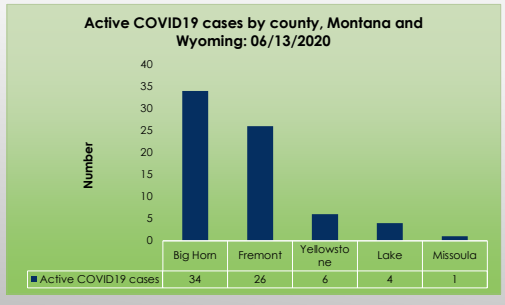
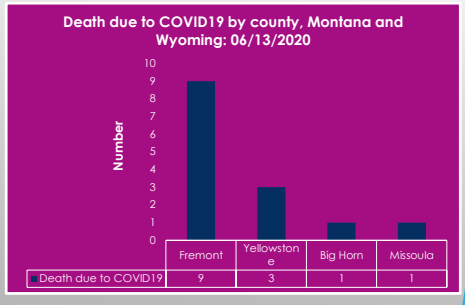



Numbers since June 13, 2020

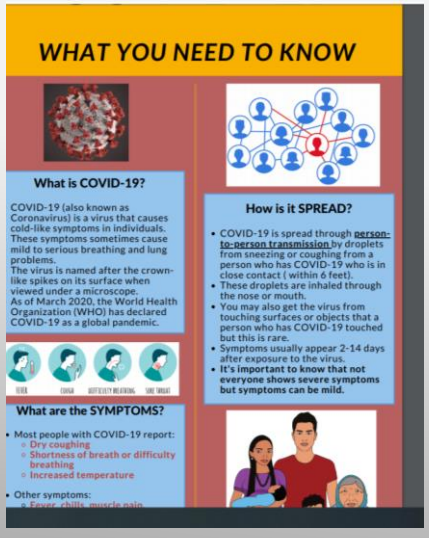
# MORE INFORMATION ON DATA AND SURVEILLANCE

| Type of Data | Source | Resource |
|---|---|---|
| **Global** | World Health Organization (WHO) | https://www.who.int/emergencies/diseases/novel-coronavirus-2019 |
| **National (US)** | Centers for Disease Control and Prevention (CDC) | https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/index.html<br><br>https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html |
| **Region** | IHS Billings Area | https://www.ihs.gov/coronavirus/ |
| **State** | MT-DPHHS | https://montana.maps.arcgis.com/apps/MapSeries/index.html?appid=7c34f3412536439491adcc2103421d4b |
| **State** | WY-DH | https://health.wyo.gov/publichealth/infectious-disease-epidemiology-unit/disease/novel-coronavirus/ |
| **Tribal** | Tribal Epi Centers (TEC) | https://tribalepicenters.org/tec-covid-19-resources/ |

# UPDATE ON CURRENT EMERGENCY RESPONSE

| Response |
| --- |
| Weekly tracking data of incidence (new) cases |
| Follow-up with Governor's Office on instructions and protocols regarding "shelter in place" |
| Funding for Tribal public health response |
| Weekly meetings with TECs, respective State health departments, and CDC |
| Sharing educational material, information, and resources: https://www.rmtlc.org/wp-content/uploads/2020/06/COVID19_2pager_06.08.2020.pdf |

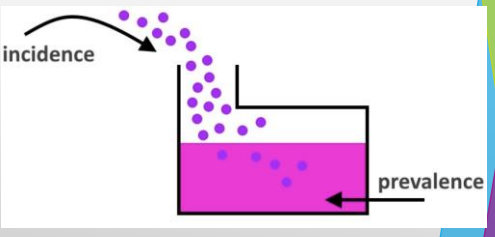
# UPDATE ON CURRENT EMERGENCY RESPONSE



# EPIDEMIOLOGY

## QUANTIFYING EXTENT OF DISEASE: INCIDENCE AND PREVALENCE

| Incidence | Prevalence |
|---|---|
| Describes the input flow of new cases into the pool | Viewed as a pool of disease in a population. |
| New counts of cases | Counts both new cases and old cases |
| Measures when studying cause and effect. | Measures the population burden of disease |




With prevalence: its important to pay attention to “who” you are examining the prevalence for…

# SENSITIVITY AND SPECIFICITY

- **Sensitivity:** measures the *True Positive Fraction*
  - The probability that a diseased persons screens positive.
  - We want this to be as high as possible. Preferably above 90%
- **Specificity:** measures the *True Negative Fraction*
  - The probability that a disease-free person screens negative.
  - High as possible to rule out that people truly don't have disease.


These are important since on screening tests they provide information on how effective they are at detecting disease.

# COVID-19 DISEASE-SPECIFIC INFORMATION

# SIGNS/SYMPTOMS OF COVID-19

- The Coronavirus is spread through person-to-person transmission by droplets from sneezing or coughing.
- Symptoms usually appear 2 – 14 days after exposure to the virus
- Majority of people with COVID-19 infection report the following symptoms:
  - A dry coughing
  - Shortness of breath or difficulty breathing
  - Increased temperature
- *Other symptoms:*
  - *Fever*
  - *Chills*
  - *Repeated shaking with chills*
  - *Muscle pain*
  - *Headache*
  - *Sore throat*
  - *New loss of taste or smell*

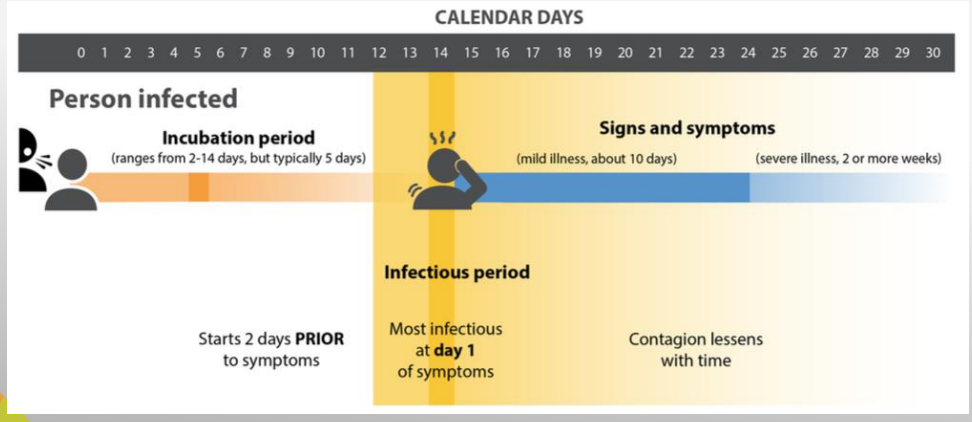
Severe Signs and Symptoms:

- Chest pain
- Blue lips or face since body is not getting enough oxygen.
- Dizziness or confusion

**If you experience any of these, please contact emergency services.

https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html

# INCUBATION PERIOD AND INFECTIOUS PERIOD




Source: Center for Teaching and Learning. Johns Hopkins Bloomberg School of Public Health

Incubation period: the period of time between exposure to an infection agent and the appearance of first symptoms of disease in question.

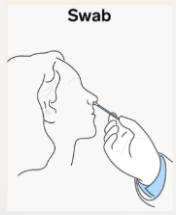
Infectious period: also known as communicability. The period of time during which an infectious agent may be transferred directly or indirectly from an infected person to another person.

Latent period: the period between exposure and the onset of the period of communicability (may be longer or shorter).

Susceptibility: the state of being susceptible (easily infected/affected).

# TESTING AND DIAGNOSIS

- ***Diagnostic tests*** identify virus in the body
  - These are polymerase chain reaction (PCR) tests (also called molecular tests)
  - These tests give a sign that the virus is reproducing in your cells
  - Examples: Nose, throat, or mouth swabs conducted to look at ***ACTIVE infections!***




- ***Antibody tests (serologic)*** identify antibodies to the virus, usually in blood
  - Antibodies are made by your immune system to fight off viruses or bacteria
  - Some antibodies (IgG) begin to develop when you are sick and can be identified after you recover.
  - These tests will tell you if you had ***PAST INFECTION.*** Usually take 10-14 days for your body to produce antibodies.

- Remember that no tests are perfect!

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CAUTION: We also don't know anything new information regarding COVID-19 immunity or how long that immunity lasts for.

# CURRENT MANAGEMENT

- **Right now there is no CURE for COVID-19.**
- Majority of the people who contract COVID-19 are able to recover at home with treatments they would use for the flu:
  - Getting rest, staying hydrated, and taking medications to reduce fever, pains, and aches.
  - Medications: acetaminophen but do not exceed 3,000 milligrams per day.

- **Convalescent plasma:** using antibodies from people who recovered from COVID-19 and injecting the plasma into others. This is an experimental treatment and only used serious or immediate life-threatening COVID-19 infections.
  - Seen in other illnesses of measles, polio, chickenpox, and SARS.
- **Antiviral treatments:** no specific treatment for COVID-19 and this is currently being tested to see which would be effective.
  - Usually targeted as a viruses life-cycle but viruses are highly adaptive.

- Only in severe cases (early reports from China and France): Hydroxychloroquine and chloroquine used for treatment of malaria or other inflammatory diseases. Azithromycin usually described for strep throat. Remdesivir has been proven effective in petri dish but has yet to be confirm in human studies.

Source: Harvard Medical School Health Publishing Treatments for COVID-19

# WAYS TO PREVENT SPREAD OF COVID-19

# WHO IS MOST AT RISK FOR COVID-19?

- People who are at a **higher risk** for developing COVID19:
  - *older people (those over age 65 years) and those who have severe underlying medical conditions:*
    - *Heart Diseases*
    - *Lung Diseases*
    - *Diabetes*
    - *Other conditions of immunocompromised individuals, organ transplant recipients, genetic defects, etc..*
  - *Young children are also at risk:*
    - *Changes in behavior such as eating, concentrating, or sleeping.*
    - *Unexplained red rash on body.*

https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html

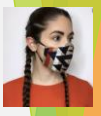
# PREVENT COVID-19 EXPOSURE

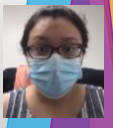
- Wash your hands often
  - Wash your hands often with soap and water for at least 20 seconds.
  - If soap and water are is not available, use hand sanitizer that contains at least 60% alcohol. Rub vigorously on hands until they feel dry.
  - Avoid touching your eyes, nose, and mouth with unwashed hands.

- Avoid close contact
  - Avoid close contact with people who are sick.
  - Stay at home as much as possible.
  - Put distance(at least 6 feet) between yourself and other people.

- Cover your mouth and nose with a cloth face cover when around others
  - You could spread COVID-19 to others even if you do not feel sick.
  - Everyone should wear a cloth face cover when going out in public, such as going to the grocery store or picking up necessities.
    - The cloth face cover are meant to protect other in case you are infected.
  - Do NOT use a facemask meant for a healthcare worker.
  - Continue to keep about 6 feet between yourself and others. The cloth face cover is not a substitute for social distancing.

https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html





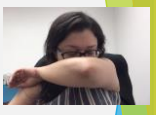
ADD: could add images of face coverings.

Script:

1. Washing hands:
    1. especially after you have been in a public place, or after blowing your nose, coughing, or sneezing.
2. Covering face:
    1. Children under 2 years, those with trouble breathing, or other wise incapacitated are not recommended to have face coverings

# PREVENTION

- Cover your coughs and sneezes



- If you do not have on your cloth face covering, ALWAYS cover your mouth and nose with a tissue OR use the inside of your elbow.
- Throw used tissues in the trash.
- Immediately wash your hands with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains at least 60% alcohol.

- Clean and disinfect

- Clean AND disinfect frequently touched surfaces daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks.
- www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/ disinfecting-your-home.html
- Surfaces should dry naturally.
- Disinfectant should stay on surfaces for more than 4 minutes.
  - Use detergent or soap and water prior to disinfection.
- If you need to reuse cloth, wash in hot water in washing machine.

https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html

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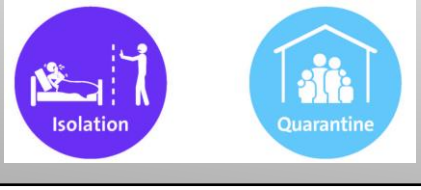
# WHAT IS ISOLATION? WHAT IS QUARANTINE?

- **Isolation:**
  - Keeps sick people **SEPARATE** from healthy people.
  - Physical distancing is promoted by restricting to home or safe place.
  - For the duration of infectiousness (spreading the virus)
    - 2 days before symptoms onset
    - At least 10 days after illness onset
    - Symptoms must improve AND no fever within the past 3 days.

- **Quarantine**:
  - Restricts movement and contact of healthy people who have been exposed.
  - Must be separated from people for 14 days since last contact with a person who is infected.

- ONLY those who are healthy that have been in contact with COVID-19 person should be quarantine.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# WHAT TO DO IF YOU ARE SICK

- *STAY HOME unless you need to get medical care*
- *SEPARATE YOURSELF FROM OTHERS*
  - *ISOLATE from others for at least 14 days*
- *Monitor your symptoms*
  - *Get plenty of rest and fluids.*
- *Call before visiting your doctor or hospital*

- *If you are sick, wear a cloth covering over your nose and mouth*
- *Cover your coughs and sneezes*
- *Wash your hands often*
- *Avoid sharing personal household items*
- *Clean all "high-touch" surfaces everyday*

https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html

# WHEN ITS SAFE TO BE AROUND OTHERS

People who **tested positive for COVID19** with **symptoms**:

- You should have isolated from others for 14 days.
- When you are NO LONGER CONTAGIOUS:
  - You can leave "sick room" in your house when:
    - ***You no longer have a fever for at least 72 hours (that is three full days of no fever) without the use of medication***
      ***AND***
    - ***Other symptoms have improved (for example, when their cough or shortness of breath have improved)***
      ***AND***
    - ***At least 7 days have passed since your symptoms first appeared.***
    - ***AND if you have received TWO negative tests in a row, at least 24 hours apart.***

People who **DID NOT** have **COVID-19 symptoms, but tested positive** who:

- You are self-isolating at home (or other non-hospital setting) for 14 days
  - You can leave the "sick room" in your home when:
    - ***At least 7 days have passed since the date of the first positive test***
    - ***AND***
    - ***You continue to have NO symptoms (no cough or shortness of breath) since the test***

- You should continue to limit physical contact by staying at least 6 feet from others and wear face coverings.

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# REFERENCES


- centers for disease control and prevention (2020). covid-19 cases. retrieved: June 1, 2020 https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html?cdc_aa_refval=https%3a%2f%2fwww.cdc.gov%2fcoronavirus%2f2019-ncov%2fcases-updates%2fsummary.html
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- https://www.health.harvard.edu/diseases-and-conditions/treatments-for-covid-19
- https://www.nfid.org/infectious-diseases/coronaviruses/
- https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/index.html

# Questions?

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