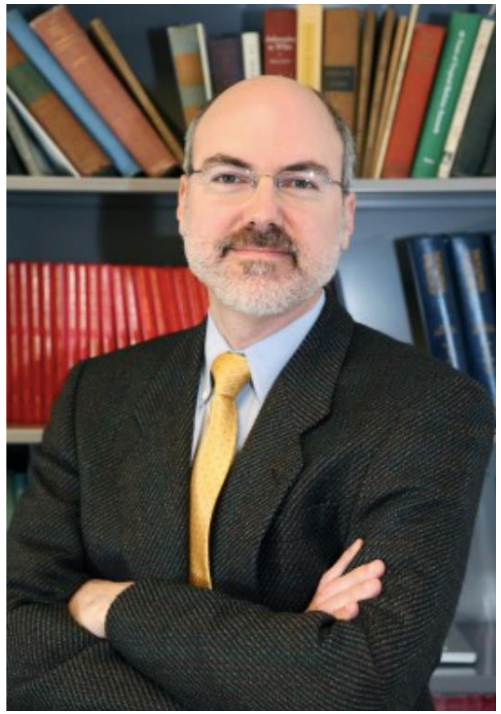
An update on COVID-19 for the National Housing Conference (NHC)

University of Illinois at Chicago
School of Public Health
Division of Epidemiology and Biostatistics

Outline

- **Background on COVID-19**
- **Spread**
- **Transmission**
- **Symptoms**
- **What we learned from China**
- **Update on global data**
- **Update on US data**
- **Personal protective measures**
- **Cleaning and disinfection**
- **Selected guidance for homeless shelters**
- **Fear**
- **Resources**



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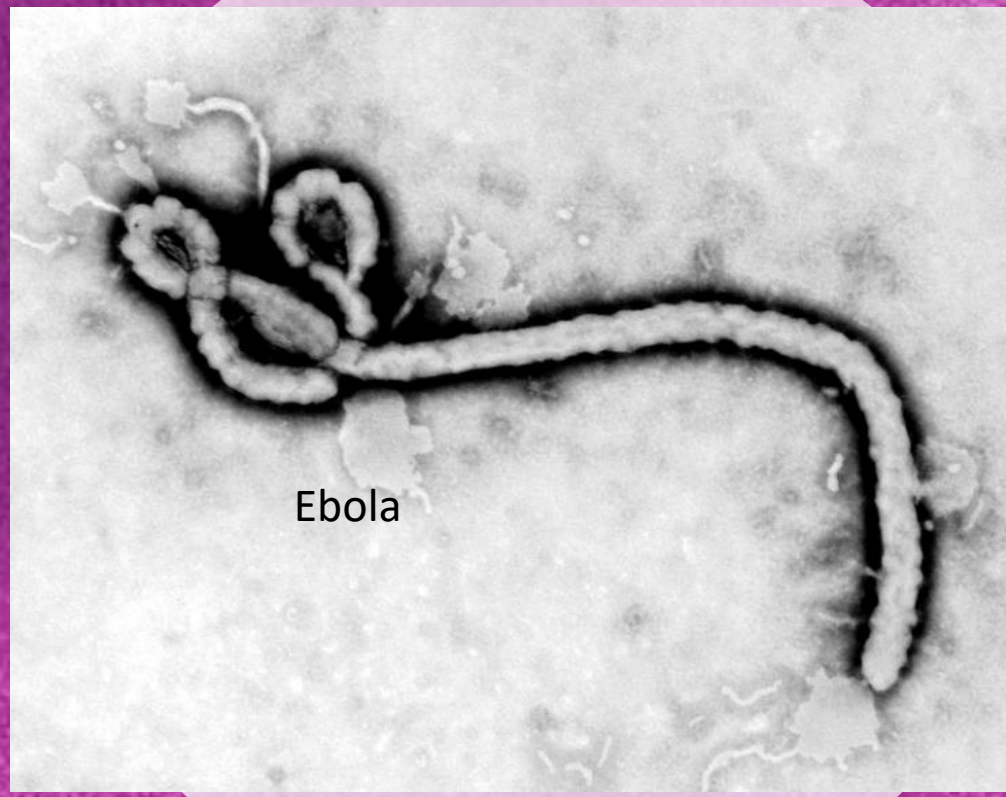
Background:

- **The name "coronavirus" is derived from the Latin word “corona,” meaning crown or halo. The name refers to the characteristic appearance of the virus seen by electron microscopy.**

- **COVID-19: ‘CO’ stands for ‘corona,’ ‘VI’ for ‘virus,’ and ‘D’ for disease.**

- **Why we call it novel ?**
  - **Novel virus refers to a virus not seen before and therefore we expect anyone can become infected.**



Ebola

Background:

- **There are other Coronaviruses.**
  - **Coronaviruses have infected humans and animals for a long time**
  - **Illnesses as mild as a common cold.**

- **COVID-19**
  - **Wuhan City, Hubei Province, China**
  - **Live animal market**
  - **Bat origin?**

- **Coronaviruses infect other animals including cattle, camels and bats.**

SARS 2003
When the Genie first escaped the bottle

- **SARS-CoV - is the strain of virus that causes severe acute respiratory syndrome (SARS)**
- **2003, 8422 cases, beginning in China and spreading to 28 countries**
- **The case fatality rate (CFR) ranged from 0% to 50%**
  - **less than 1% case fatality rate in patients under 24 years old; over 55% among those 65 and older**
- **Successful control measures**
  - **Isolation, quarantine, and supportive treatment**

MERS-CoV

- **MERS-CoV - is the strain of virus that causes Middle East respiratory syndrome (MERS).**
  - **A species of coronavirus that infects humans, bats, and camels**
- **2012, 2000 cases, began in Saudi Arabia and spread to 21 countries**
- **The case fatality rate (CFR) <30%**
- **Direct contact with camels is a risk factor for human infection with MERS-CoV**
- **Successful control measures - isolation, quarantine, and supportive treatment**

How COVID-19 spreads ?

- **Person-to-person spread**
  - **Close contact with one another (within about 6 feet)**
  - **Through respiratory droplets produced when an infected person coughs**
    - **Droplets can land in the mouths or noses of people who are nearby**
    - **Surfaces**
    - **Aerosol ?**

Can Someone Spread The Virus Without Being Sick?

- Most contagious when most symptomatic (the sickest)

- 2 recent cases (China and Germany)
  - Asymptomatic persons are potential sources
  - Those infected from these asymptomatic cases had mild illness and were hospitalized primarily for public health purposes.

- More research is needed

Concerns Some People Have About Transmission

Can Packages Mailed From China Give Me The COVID-19 Virus?

Coronaviruses are generally thought to be spread most often by respiratory droplets. Currently there is no evidence to support transmission of COVID-19 associated with imported goods and there have not been any cases of COVID-19 in the United States associated with imported goods.

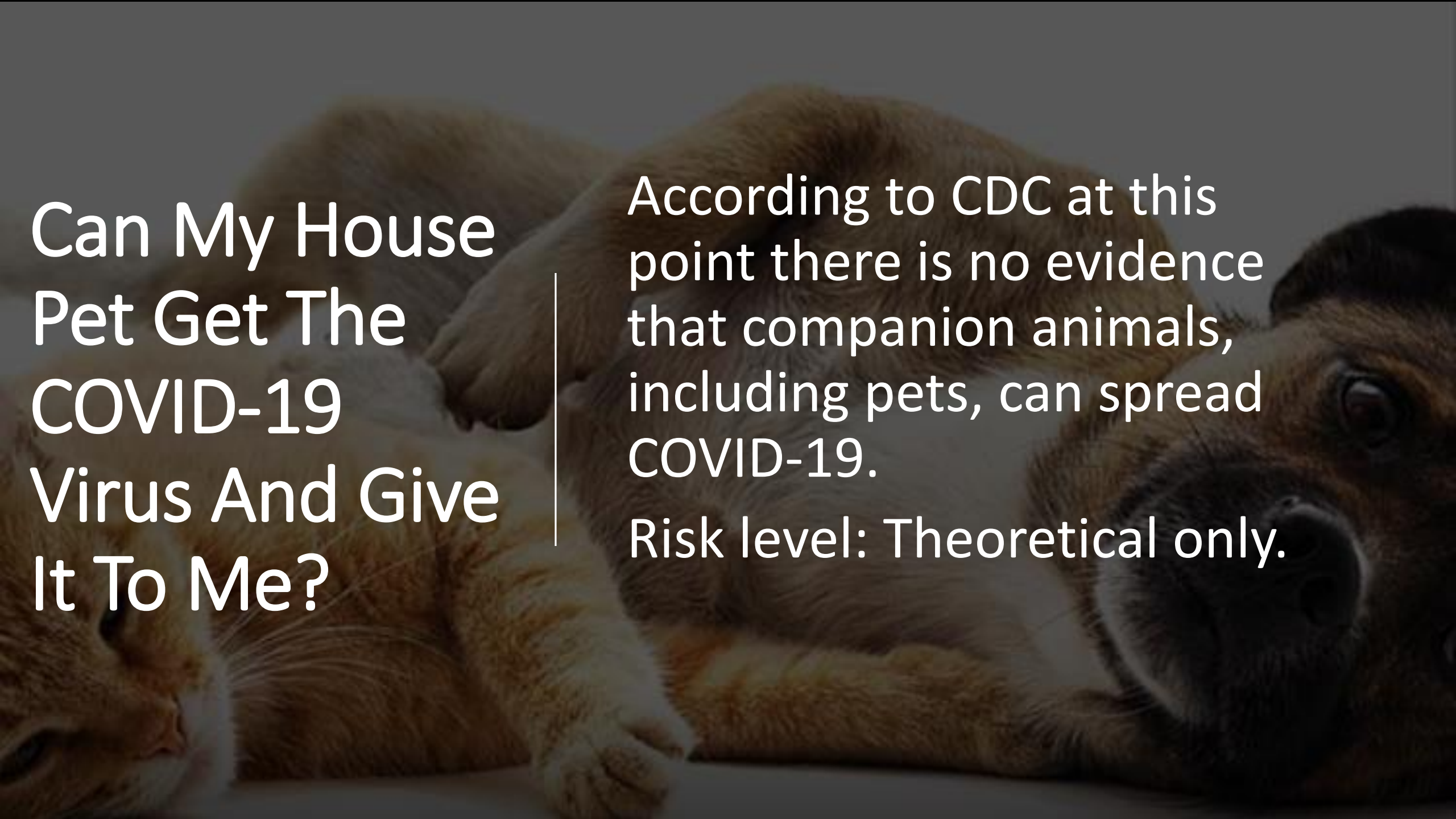
Risk level: Theoretical only.

Experimental data suggests it does not survive 24 hours on cardboard.

Will Warm Weather Stop This Outbreak?

- **Unknown**

- **Some other viruses, like the common cold and flu, spread more during cold weather months.**



Can My House Pet Get The COVID-19 Virus And Give It To Me?

According to CDC at this point there is no evidence that companion animals, including pets, can spread COVID-19.

Risk level: Theoretical only.

What is Recommended About Linens, Clothing, And Other Items That Go In The Laundry?

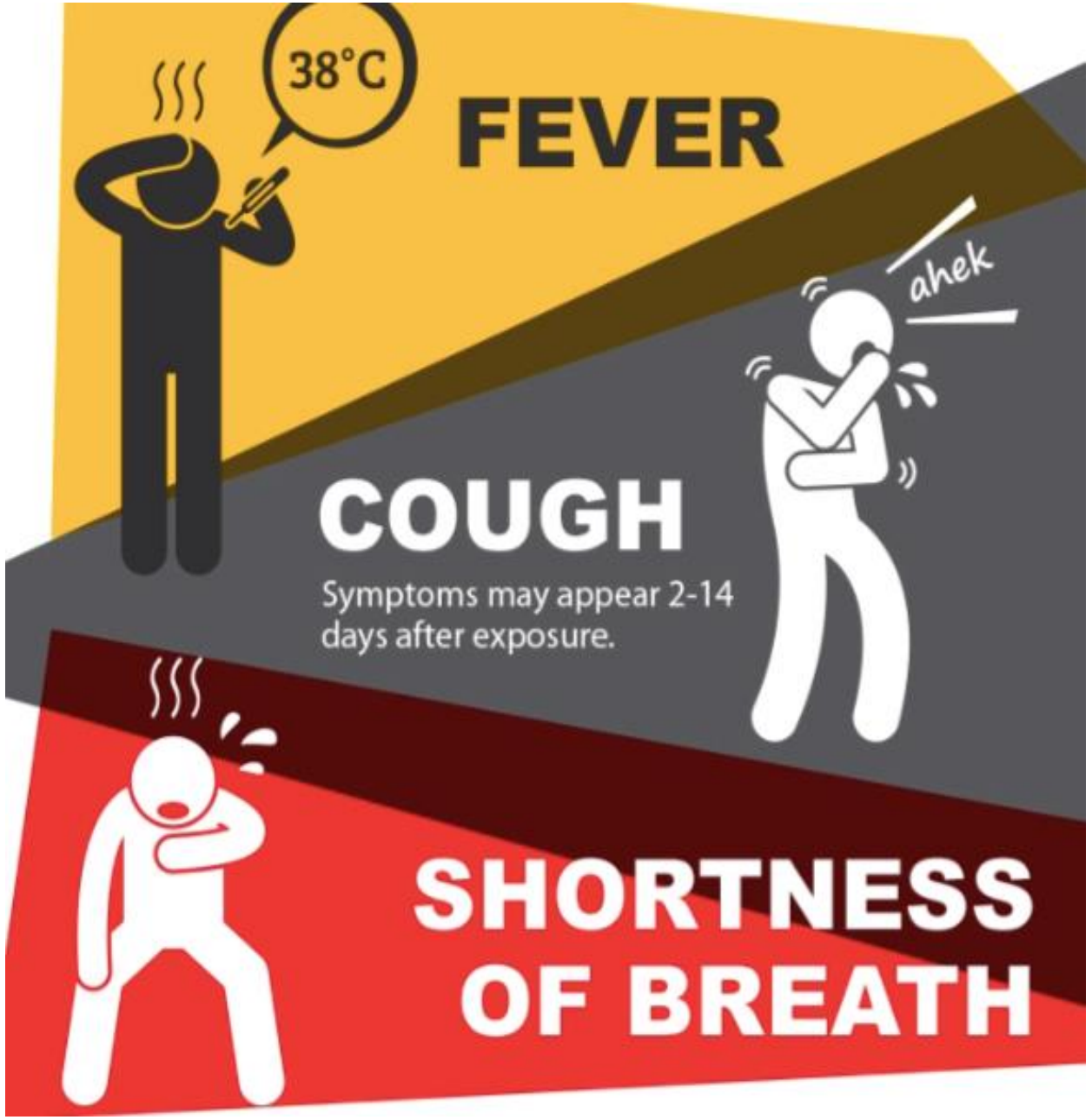
- **Do not shake dirty laundry; this minimize the possibility of dispersing virus through the air.**
- **If possible, use the warmest appropriate water setting for the items and dry items completely.**
- **Clean and disinfect hampers or other carts for transporting laundry.**

Who Should Wear a Mask?

- **If you have respiratory symptoms**
- **If you are providing care to individuals with respiratory symptoms**
- **If you are health worker and attending to individuals with respiratory symptoms**
- **Not needed for general public who do not have respiratory symptoms**

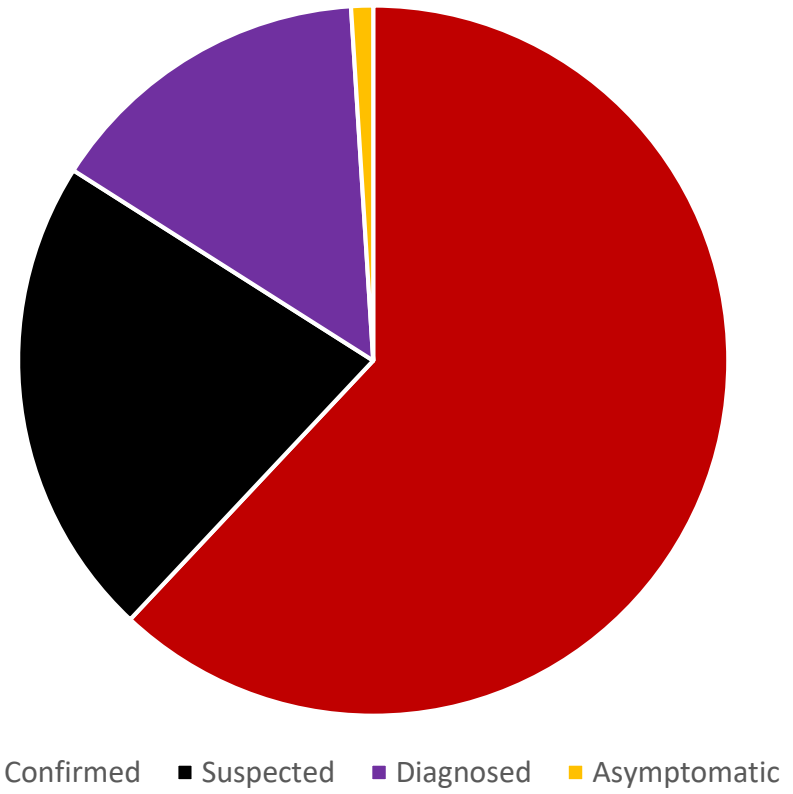
What Are The Symptoms?

- Symptoms may appear 2-14 days after exposure:
  - Fever
  - Cough
  - Shortness of breath
- Some patients may have:
  - aches and pains
  - nasal congestion
  - runny nose
  - sore throat
  - nausea
  - diarrhea



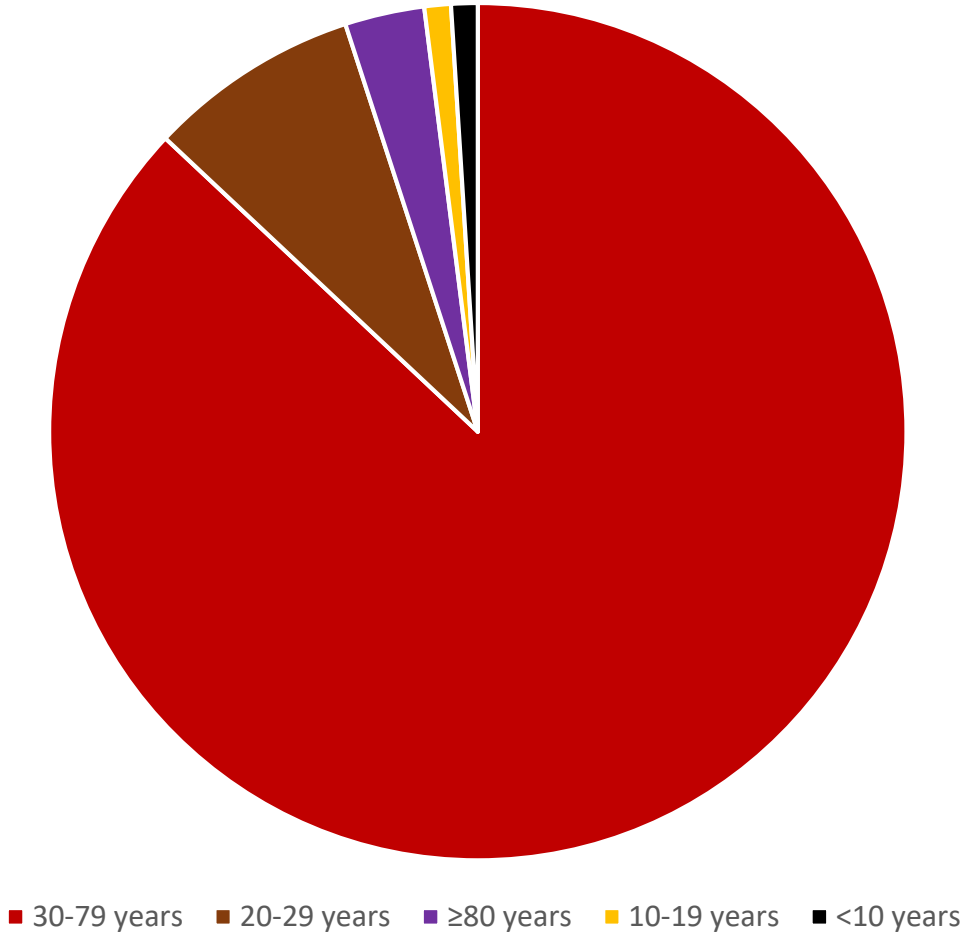
Based On The Largest COVID-19 Study in China (72 314 Cases) Published February 24, 2020

- **Confirmed cases: 44 672 (62%)**
  - **(diagnosis based on positive viral nucleic acid test result on throat swab samples)**
- **Suspected cases: 16 186 (22%)**
  - **(diagnosis based on symptoms and exposures only, no test was performed because testing capacity is insufficient to meet current needs)**
- **Diagnosed cases: 10 567 (15%)**
  - **(diagnosis based on symptoms, History of Hubei Province, and presence of lung imaging features consistent with coronavirus pneumonia)**
- **Asymptomatic cases: 889 (1%)**
  - **(diagnosis by positive viral nucleic acid test result but lacking symptoms)**



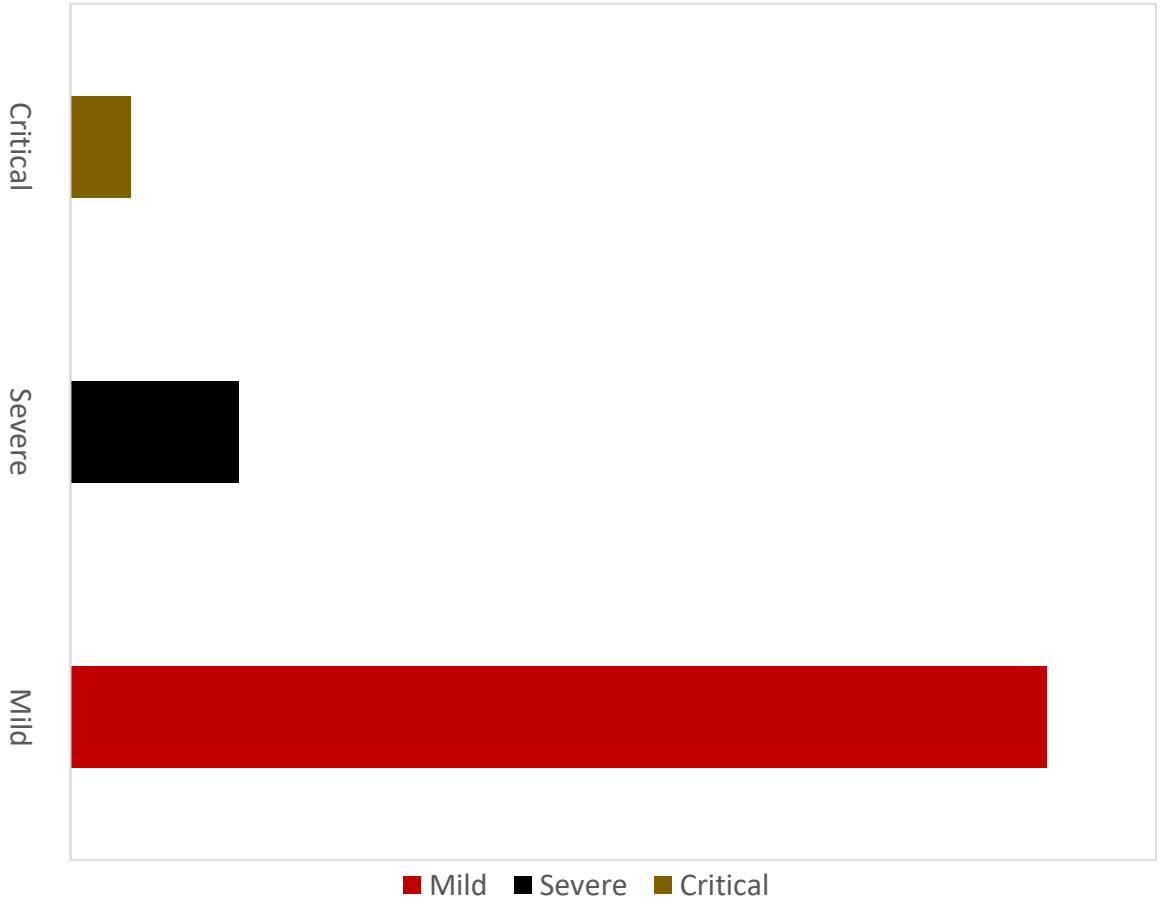
Age Distribution Of Confirmed Cases In China Study (N=44 672)

- **≥80 years: 3% (1408 cases)**
- **30-79 years: 87% (38 680 cases)**
- **20-29 years: 8% (3619 cases)**
- **10-19 years: 1% (549 cases)**
- **<10 years: 1% (416 cases)**

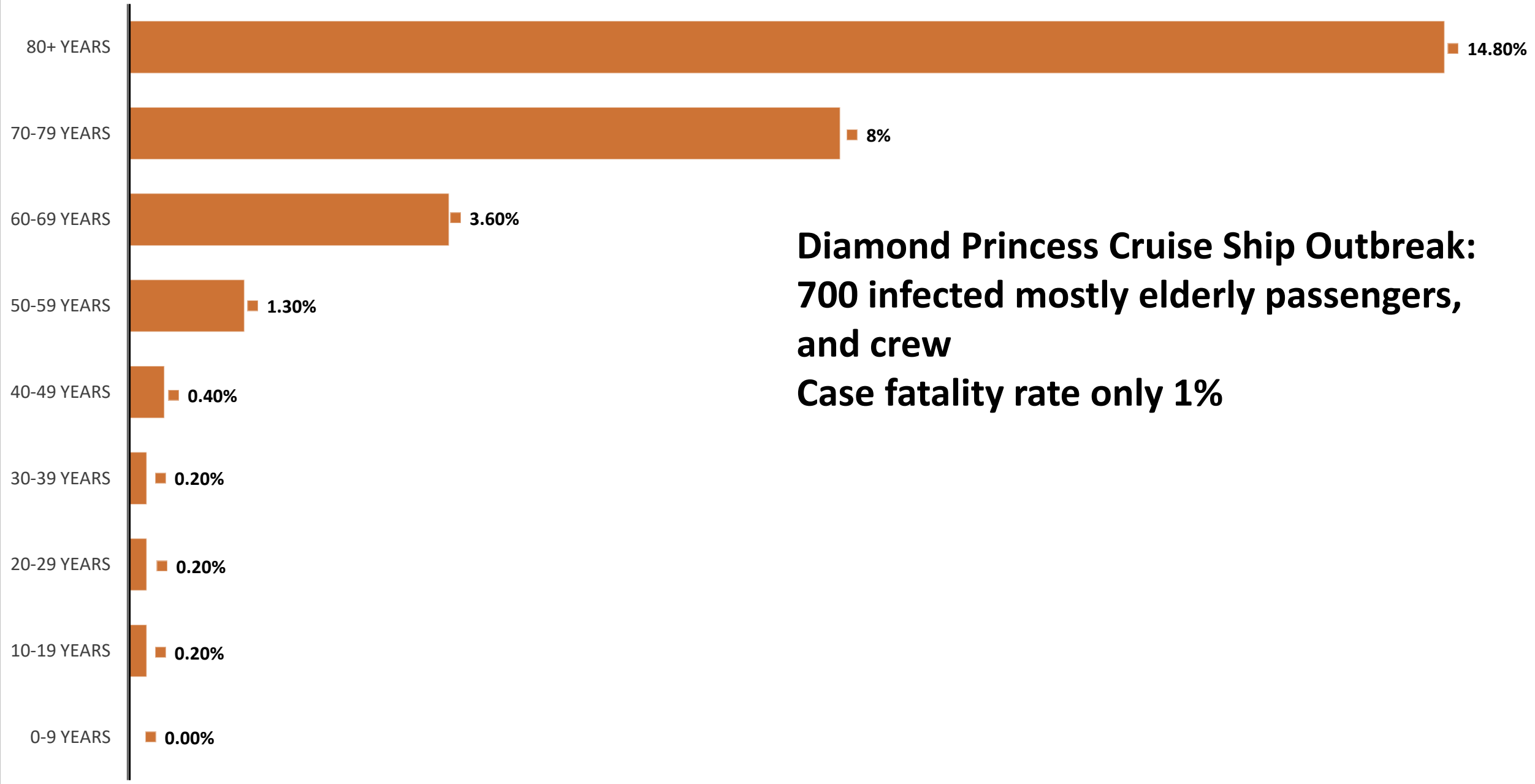


Spectrum Of Disease In China Study (N = 44 415)

- **Critical: 5% (2087 cases)**
  - **(ie, respiratory failure, septic shock, and/or multiple organ dysfunction or failure)**
- **Severe: 14% (6168 cases)**
  - **(ie, shortness of breath, low blood oxygen)**
- **Mild: 81% (36 160 cases)**
  - **(ie, non pneumonia and mild pneumonia)**



Case Fatality Rates By Age-Group In China Study (Feb 11th 2020)



Diamond Princess Cruise Ship Outbreak:
700 infected mostly elderly passengers, and crew
Case fatality rate only 1%

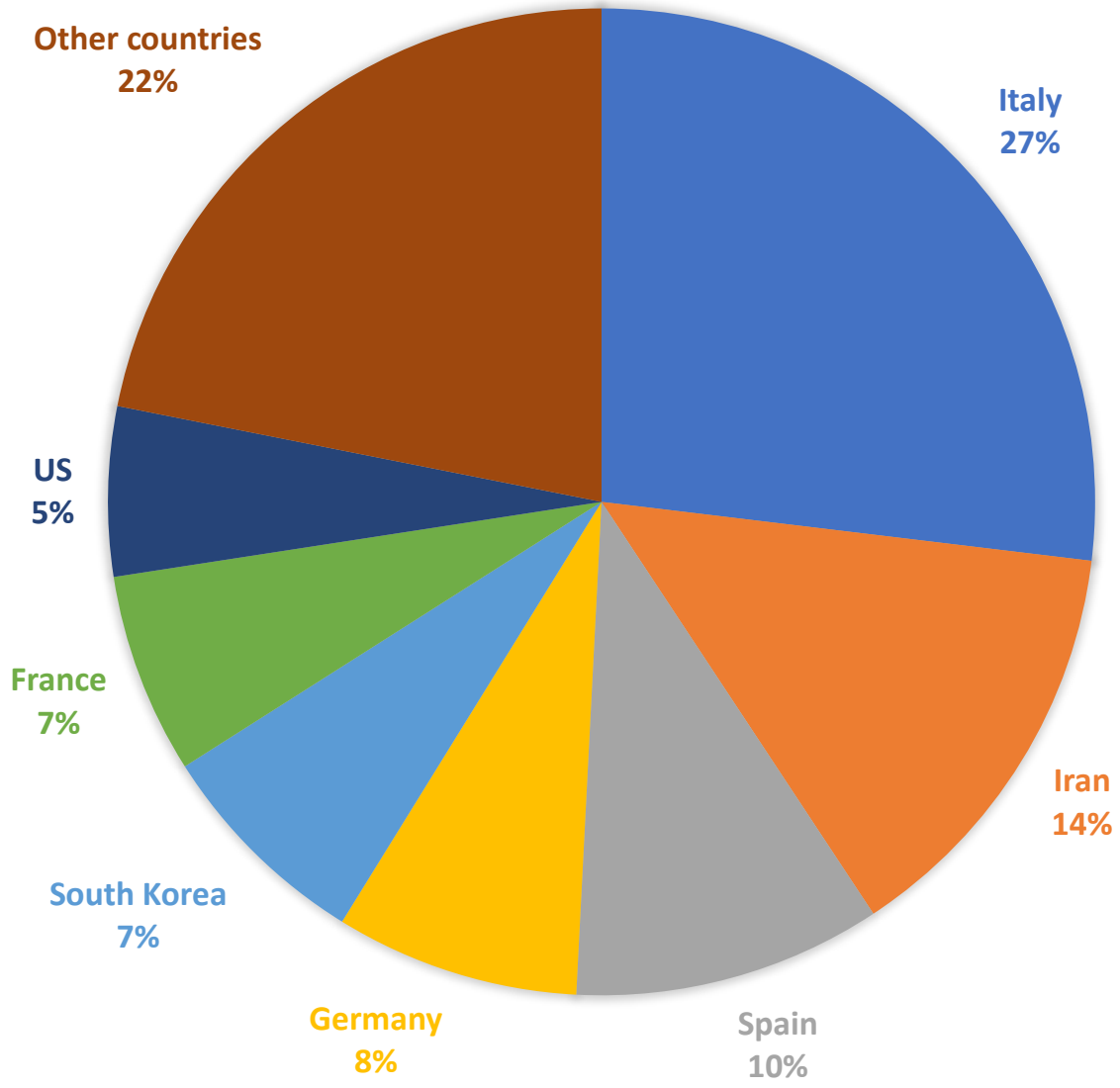
Case Fatality Rate Among Critically Ill Cases In China Study

- 49.0% CFR

- Higher among those with preexisting comorbid conditions
  - 10.5% for cardiovascular disease
  - 7.3% for diabetes
  - 6.3% for chronic respiratory disease
  - 6.0% for hypertension, and 5.6% for cancer

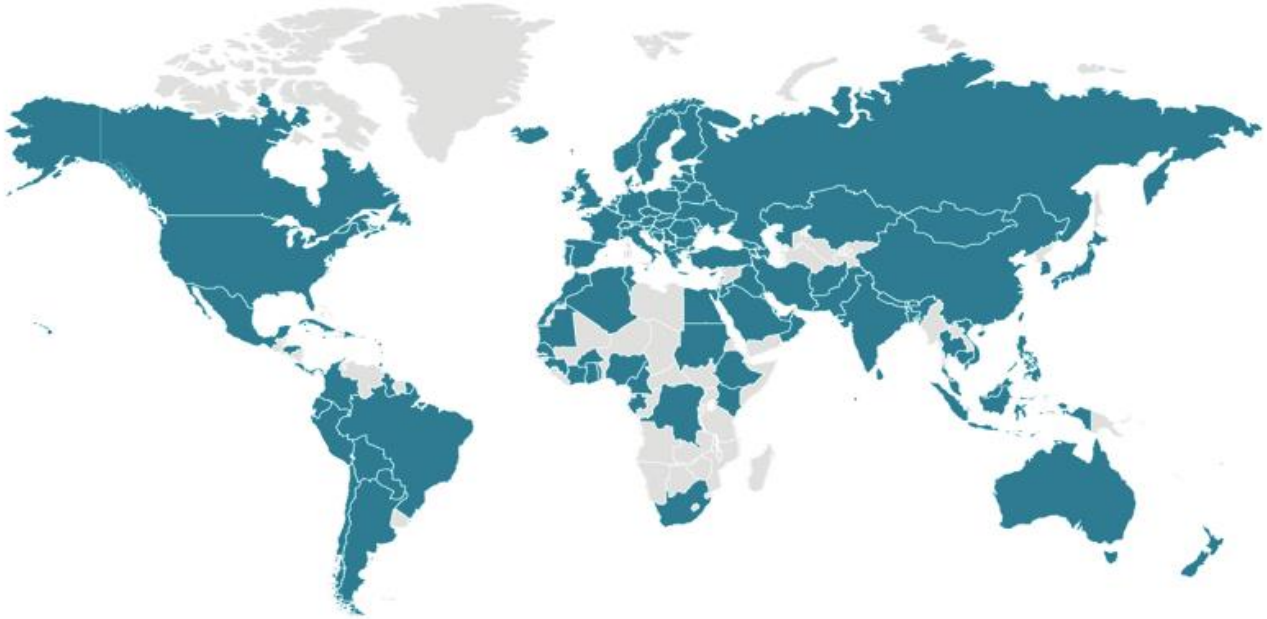
Distribution Of Cases Outside Of China (March 18th, 2020)

Italy	31,506
Iran	16,169
Spain	11,826
Germany	9,360
South Korea	8,413
France	7,695
US	6,496
Other countries	25627

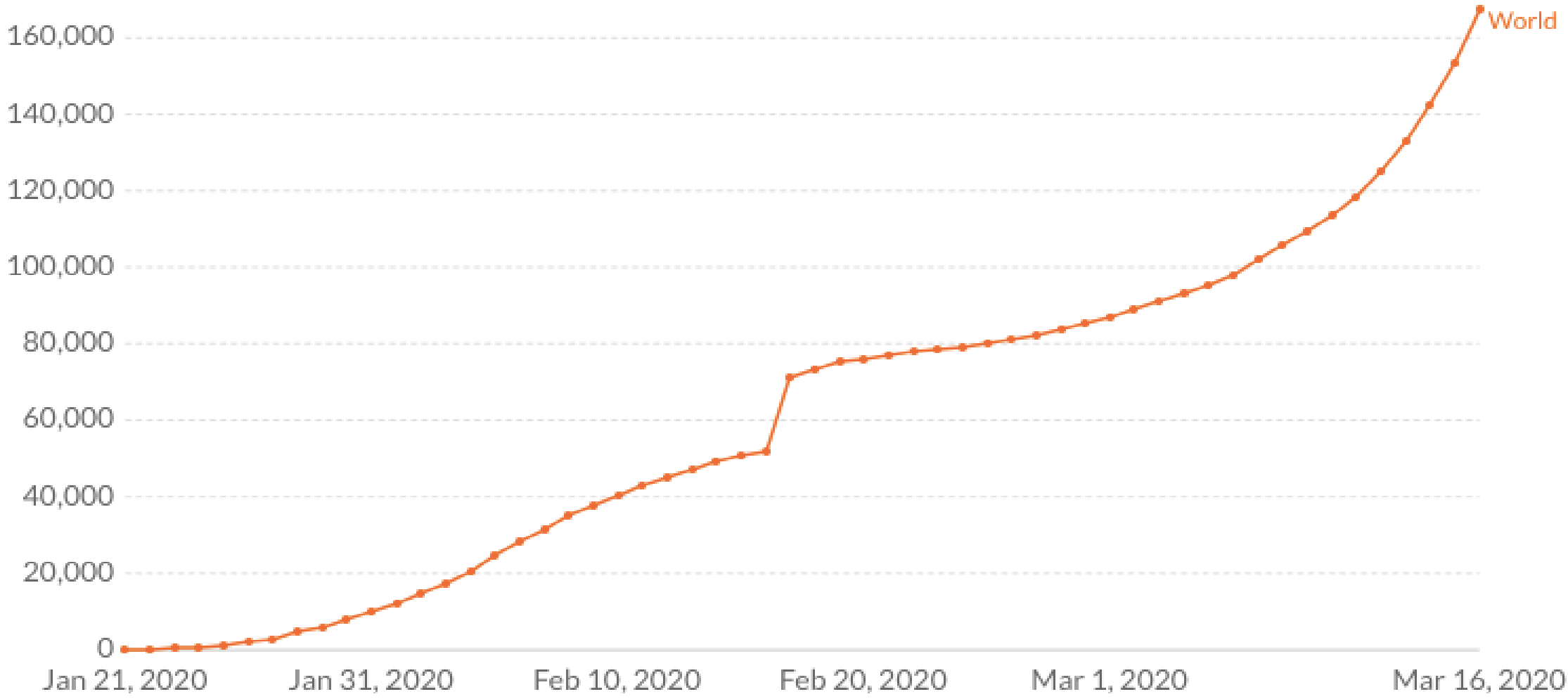


Worldwide COVID-19 Coronavirus Outbreak
March 18th, 2020

- **Cases: 198,178**
- **156 countries**
- **Deaths: 7,954**
- **Case fatality rate = 4.01%**
- **Recovered: 81,960**

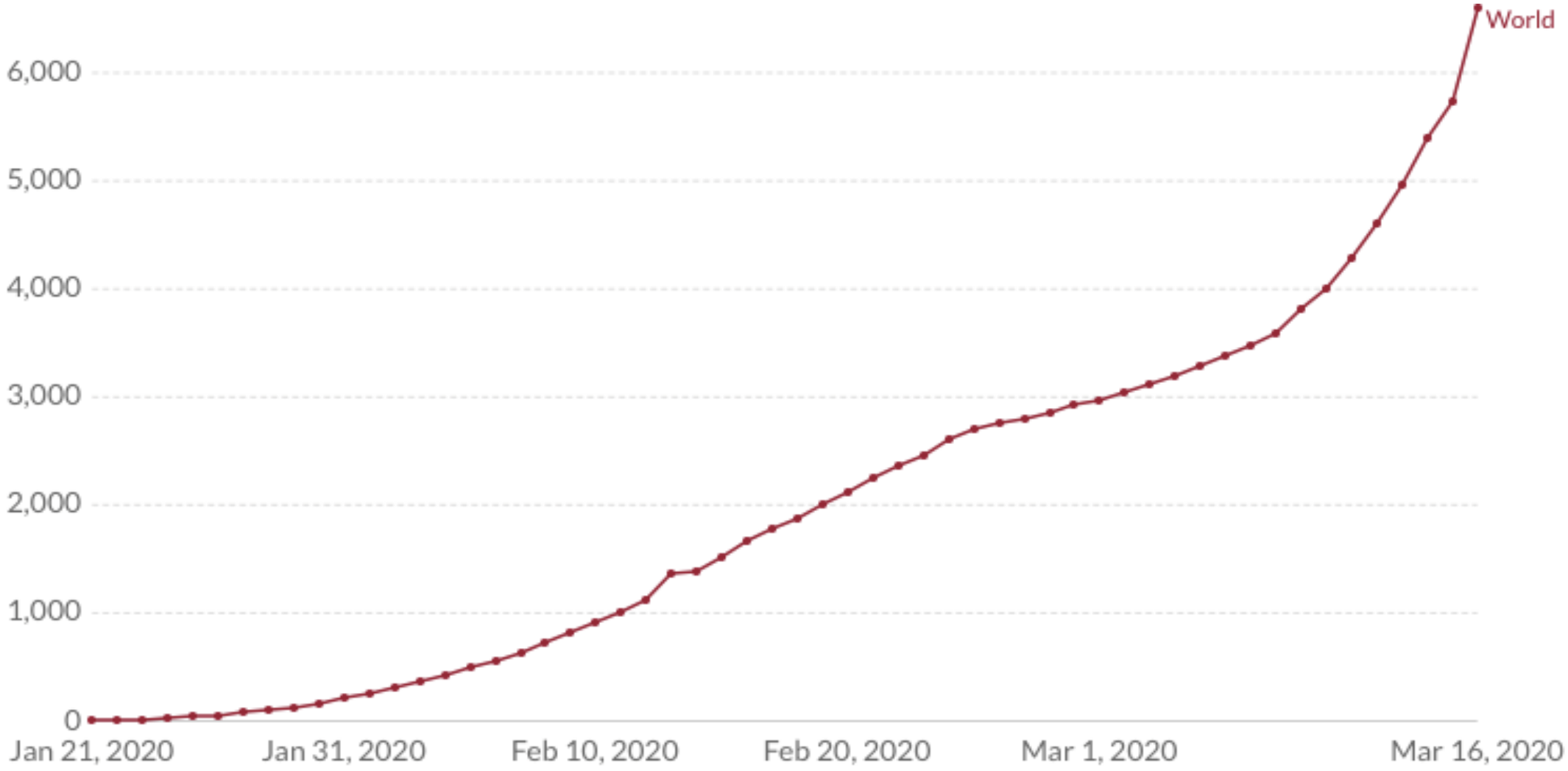


Total Global Confirmed COVID-19 Cases



Source: World Health Organization daily situation reports[COVID-19}

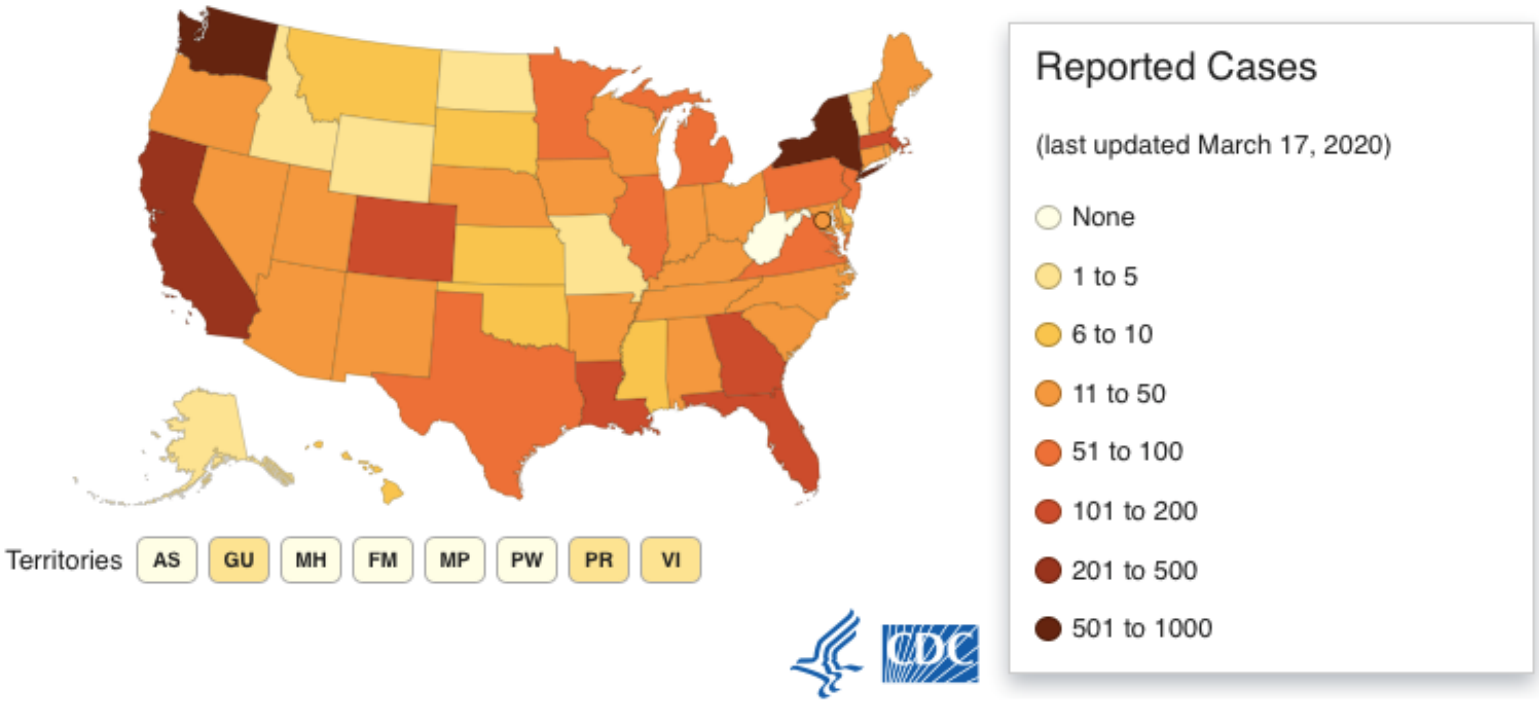
Total Global Confirmed COVID-19 Deaths



Source: World Health Organization daily situation reports[COVID-19}

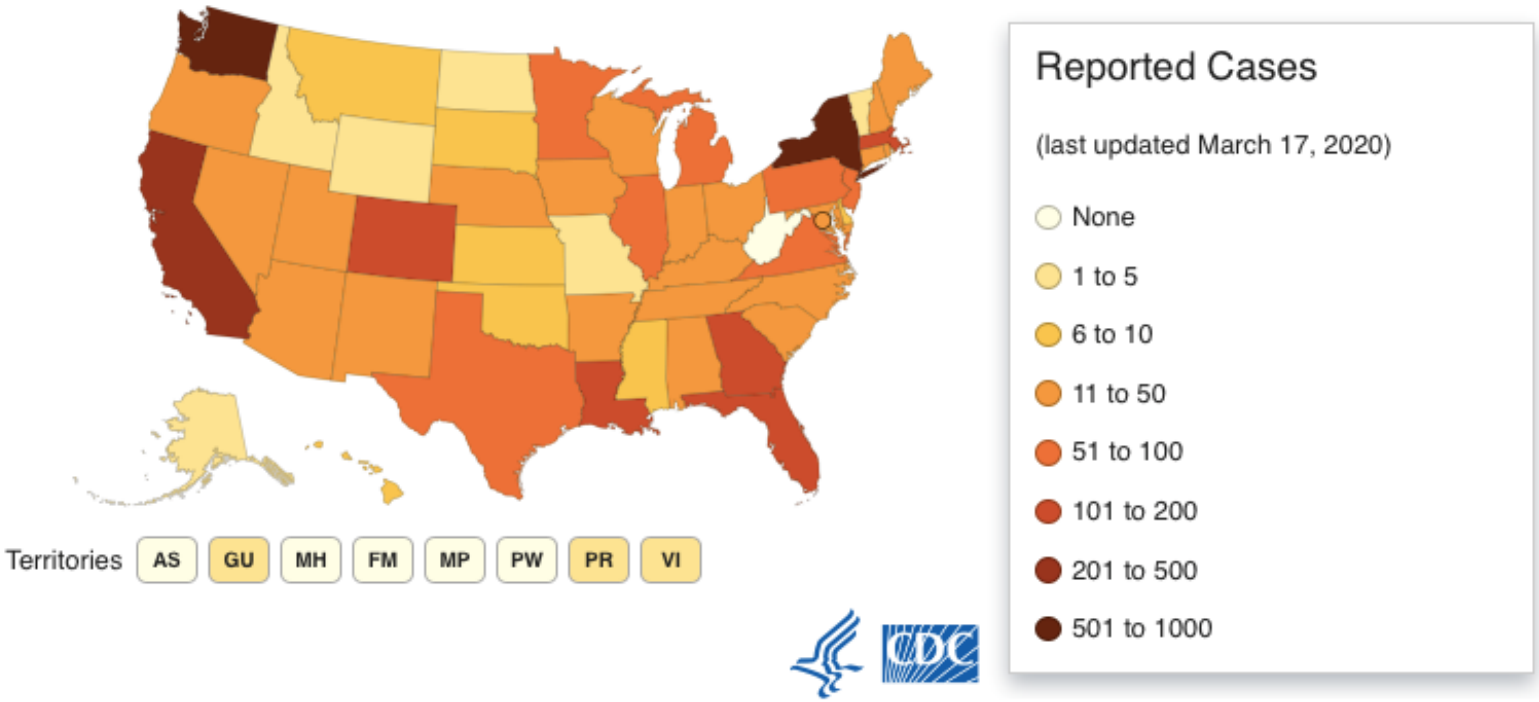
US Data COVID-19
March 18th, 2020

- **Cases: 4,226**
- **49 States**
- **Deaths: 75**
- **Case fatality rate = 1.77%**

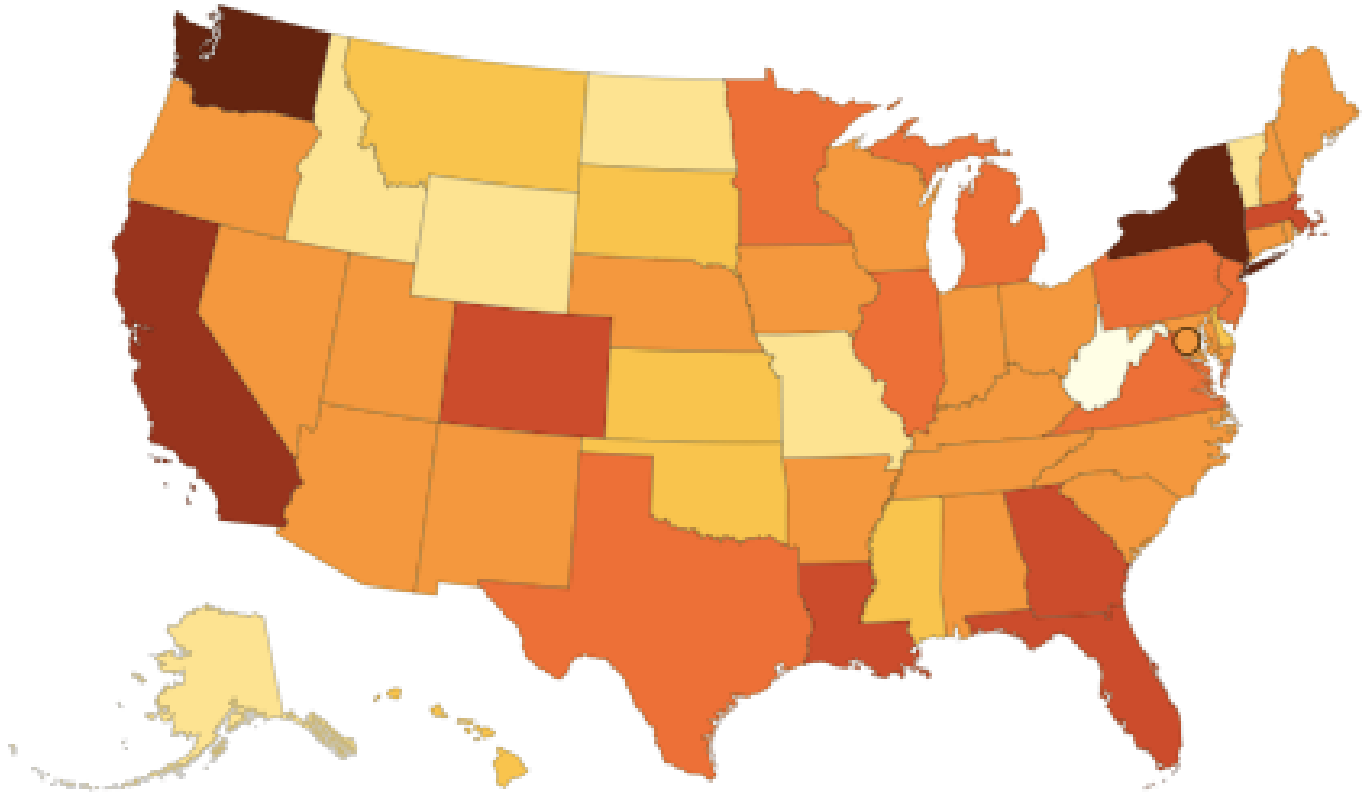


US Data COVID-19
March 19th, 2020

- **Cases: 9,415**
- **50 States**
- **Deaths: 150**
- **Case fatality rate = 1.59**



States Reporting Cases Of COVID-19 To CDC



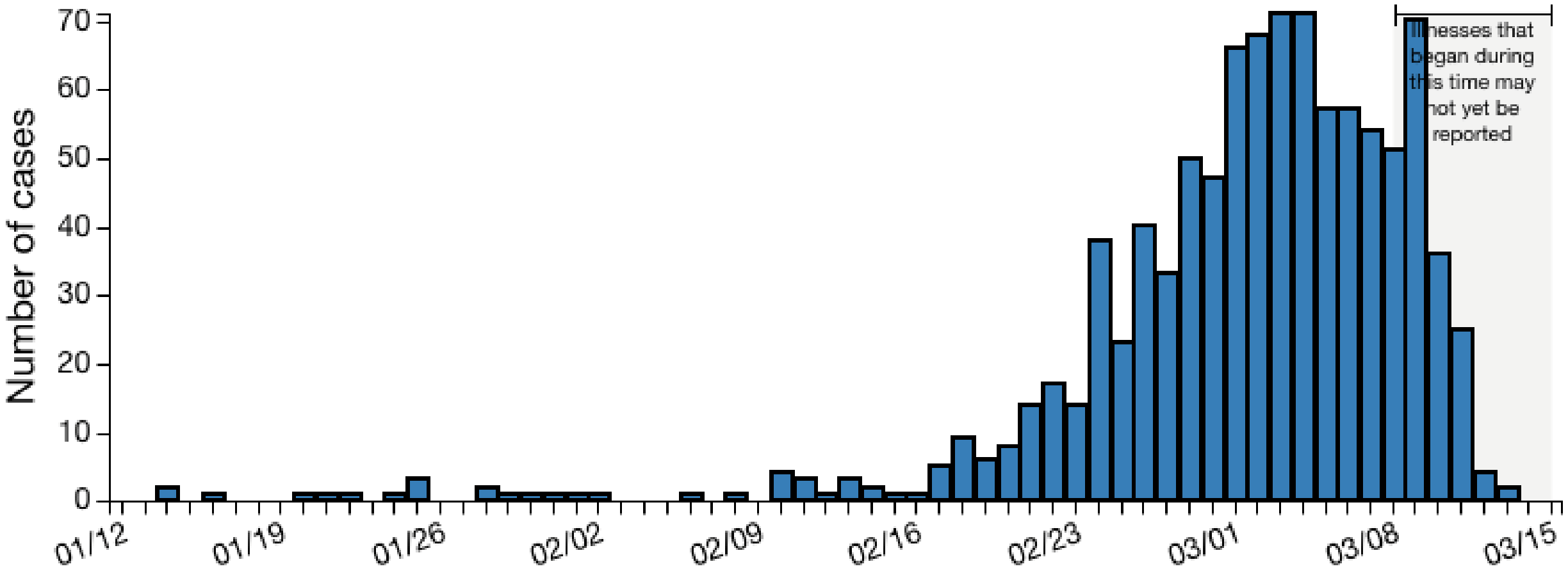
Territories AS GU MH FM MP PW PR VI

Reported Cases

(last updated March 17, 2020)

- None
- 1 to 5
- 6 to 10
- 11 to 50
- 51 to 100
- 101 to 200
- 201 to 500
- 501 to 1000

COVID-19 Cases In The United States By Date Of Illness Onset, January 12, 2020, to March 15, 2020, (n=920)*



* Does not include cases among persons repatriated to the US from China and Japan; does not include U.S. identified cases where the date of illness onset has not yet been reported.

Basic Protective Measures Against The COVID-19

- **Wash your hands frequently**
  - Regularly and thoroughly
  - Use alcohol-based hand rub or wash them with soap and water
- **Maintain social distancing**
  - 3 feet (WHO)
  - 6 feet (CDC)
- **Avoid touching eyes, nose and mouth**
  - 2015 observational study, described college students touch their face with their own hands on average 23 times per hour.
- **Respiratory hygiene**
  - Covering your mouth and nose with your bent elbow or tissue when you cough or sneeze

Wash Your Hands!
Hands that look clean can still have icky germs!
1 Wet
2 Get Soap
3 Scrub
4 Rinse
5 Dry
CDC
CS 341542C

Persistence Of Coronavirus On Inanimate Surfaces

- **Remains infectious from 2 hours up to 9 days, depending on the surface material**
- **At 4°C (39.2°F) persistence of TGEV and MHV can increase to ≥ 28 days.**
- **At 40°C (104°F) MERS-CoV persistence reduces**
- **Data obtained from SARS-CoV studies indicate that persistence was longer with higher inocula**
- **Relative Humidity (RH) plays a role in HCoV-229E survival**
  - **Under conditions of high humidity, the fluidity of the lipid-containing envelope is stabilized at low temperature, protecting the virion - under cold temperature, we might lower the virus' survival with lowering humidity.**

Persistence Of Coronaviruses On Different Types Of Inanimate Surfaces

Type of surface	Virus	Strain isolate	Inoculum (viral titer)	Temperature	Persistence
Steel	HCoV	Strain 229E	10^3	21°C	5 days
Aluminum	HCoV	Strains 229E and OC43	5 x 10^3	21°C	2–8 hours
Glass	HCoV	Strain 229E	10^3	21°C	5 days
Plastic	HCoV	Strain 229E	10^7	Room temp	2-6 days
PVC	HCoV	Strain 229E	10^3	21°C	5 days
Surgical glove (latex)	HCoV	Strain 229E	5 x 10^3	21°C	≤ 8 hours
Ceramic	HCoV	Strain 229E	10^3	21°C	5 days

Inactivation Of Coronaviruses By Different Types Of Biocidal Agents In Carrier Tests

Biocidal agent	Concentration	Virus	Strain / isolate	Volume / material	Organic load	Exposure time	Reduction of viral infectivity (log_{10})
Ethanol (rubbing alcohol)	70%	HCoV	Strain 229E	20 µl / stainless steel	5% serum	1 min	> 3.0
Benzalkonium chloride	0.04%	HCoV	Strain 229E	20 µl / stainless steel	5% serum	1 min	< 3.0
Sodium hypochlorite (commonly known as liquid bleach)	0.5%	HCoV	Strain 229E	20 µl / stainless steel	5% serum	1 min	> 3.0
	0.1%	HCoV	Strain 229E	20 µl / stainless steel	5% serum	1 min	> 3.0
Glutardialdehyde (sold under the brandname Cidex)	2%	HCoV	Strain 229E	20 µl / stainless steel	5% serum	1 min	> 3.0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13人 PERSONS
1000 kg
电梯按
专用牙
请安全使用牙签
用完请投掷垃圾桶


温馨提示：
此为按电梯按钮一次性
专用纸！
（禁止随意抽作他用，共抗疫情，人人有责！）
屈原管理区市场监督管理局
特种设备股

Environmental Decontamination

- **Workers who conduct cleaning tasks must be protected from exposure to blood, certain body fluids, and other potentially infectious materials according to Occupational Safety and Health Administration (OSHA) .**

- **Do not use compressed air or water sprays to clean potentially contaminated surfaces, as these techniques may aerosolize infectious material.**

- **Employers should work with their local and state health departments to ensure appropriate local protocols and guidelines, such as updated/additional guidance for cleaning and disinfection, are followed, including for identification of new potential cases of COVID-19.**

CDC Preventative Measures To Preserve Healthy Environments And Help Slow The Spread Of Viruses

- Daily sanitation of all conference rooms, classrooms, computer labs and lecture halls.
- Installation of more hand sanitizer dispensers in needed areas.
- Frequent sanitation and wiping down of surfaces based on different touchpoints (depends on how much its used).
    - Offices/ labs/conference rooms/tables/door handles/knobs/elevator buttons/ light switches/ washrooms bathroom handles/toilet flushes/toilet seats & splash walls

How to disinfect areas after suspected cases

- It is recommended to close off areas used by the ill persons
- Wait as long as practical before beginning cleaning and disinfection to minimize potential for exposure to respiratory droplets.
- Open outside doors and windows to increase air circulation in the area.
- If possible, wait up to 24 hours before beginning cleaning and disinfection.

Homeless Shelters

- **In January 2018, 552,830 people were counted as homeless in the United States. Of those, 194,467 (35 percent) were unsheltered according to The State of Homelessness in America.**

- **A lot of people experiencing homelessness have multiple pre-existing health conditions, which make them more vulnerable.**

- **They also lack the ability to self-quarantine, which means they could more rapidly spread the virus.**

Which Cities In The US Have The Most Homeless?

- New York City, New York.
- Los Angeles and Los Angeles County, California.
- Seattle and King County, Washington.
- San Diego and San Diego County, California.
- San Jose, Santa Clara and Santa Clara County, California.

Selected Guidance For Homeless Shelters

- Provide supplies for staff, volunteers, and those you serve, such as soap, alcohol-based hand sanitizers that contain at least 60% alcohol, tissues, trash baskets, and disposable facemask.

- Identify space at a minimum, a room with a bathroom, that can be used to accommodate clients with mild respiratory symptoms and separate them from others.

- Plan for higher shelter usage during the outbreak.

Immediately Report to Your Local Health Department…

- Cases or clusters you learn about in any congregate living facility including long-term care, jail/prisons, group homes, and homeless shelters

Finally, A Word About Fear

- We know a lot about coronaviruses …but we have a lot to learn. We need to be patient with those who are trying to provide guidance in the setting of something historically new.

- Beware letting fear, discomfort, and exhaustion with this situation allow you to justify dismissing good advice or exercising reasoned judgement.
  - Be cautious about criticism that refers to educated people as “so-called experts.” Experts are not going to get everything right but their advice should not be just dismissed out of frustration.
  - Beware emerging crowd movers who feed on distrust and thrive on situations like we are currently in.

It’s one thing to dismiss an elephant being afraid of a mouse

It’s another thing to dismiss an elephant being afraid of a mouse with a virus that also infects elephants

Hopeful Preliminary News

- A Japanese drug may be effective at treating COVID-19
- **Favipirivir**
- Preliminary data suggests most useful to treat disease early
- X-rays improved in about 91% of the patients who were treated versus in 62% in those not treated
- It might not be effective if the treatment is begun after someone is already critically ill

Resources

For more information, please visit the links below or Google search the references:

- **Centers for Disease Control and Prevention (CDC)**
  https://www.cdc.gov/coronavirus/2019-ncov/index.html

- **Frequently asked questions and answers about COVID-19**

https://www.cdc.gov/coronavirus/2019-ncov/faq.html

- **Morbidity and Mortality Weekly Report (MMWR)**

https://www.cdc.gov/mmwr/Novel_Coronavirus_Reports.html

- **World Health Organization (WHO)**

https://www.who.int/docs/default-source/coronaviruse/20200302-sitrep-42-covid-19.pdf?sfvrsn=d863e045_2

- **Emergency Responders: Tips for taking care of yourself**

https://emergency.cdc.gov/coping/responders.asp

- **Coronavirus (COVID-19) across the world**

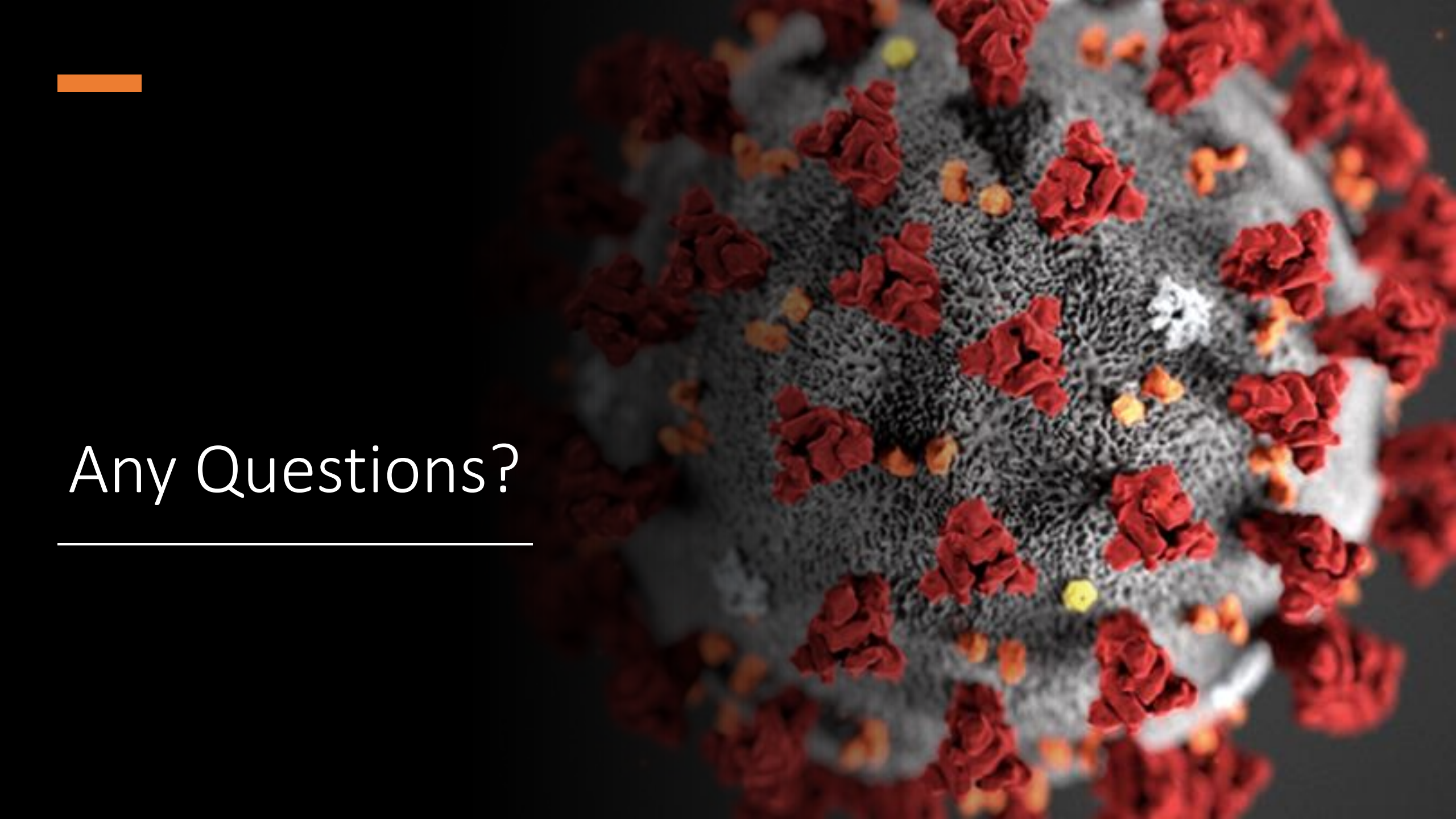
https://github.com/CSSEGISandData/COVID-19

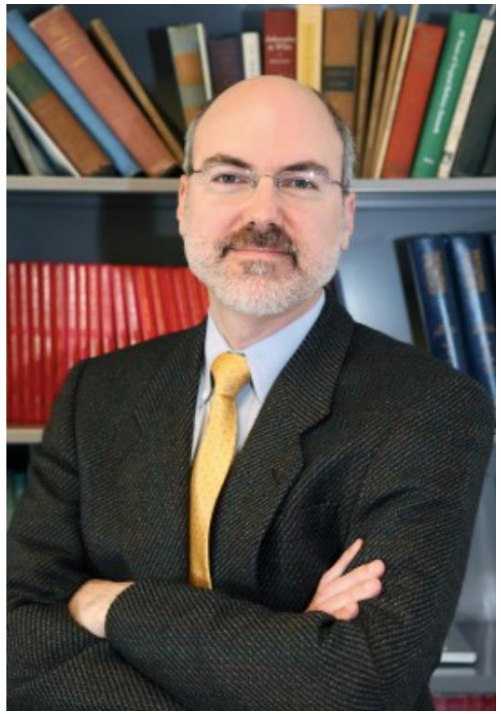
- **Johns Hopkins COVID19 resource center**

https://coronavirus.jhu.edu/map.html

•New England Journal of Medicine March 17, 2020 Correspondence DOI: 10.1056/NEJMc2004973

Any Questions?





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