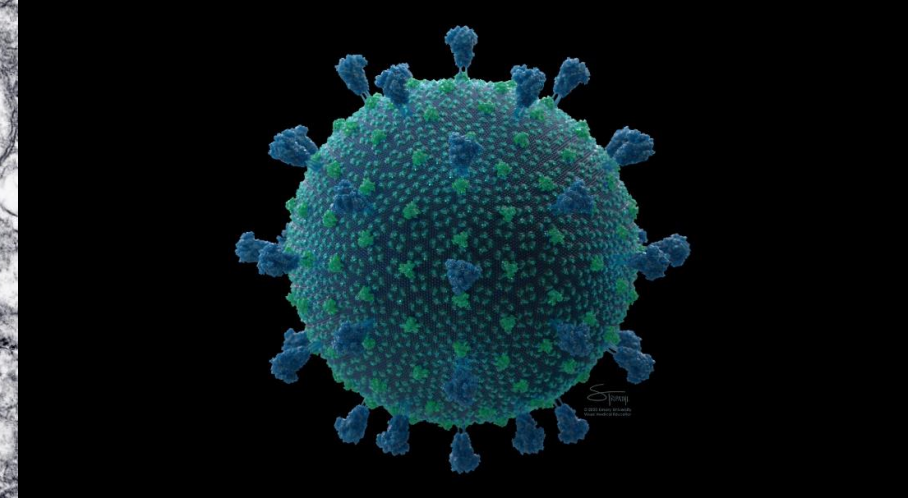
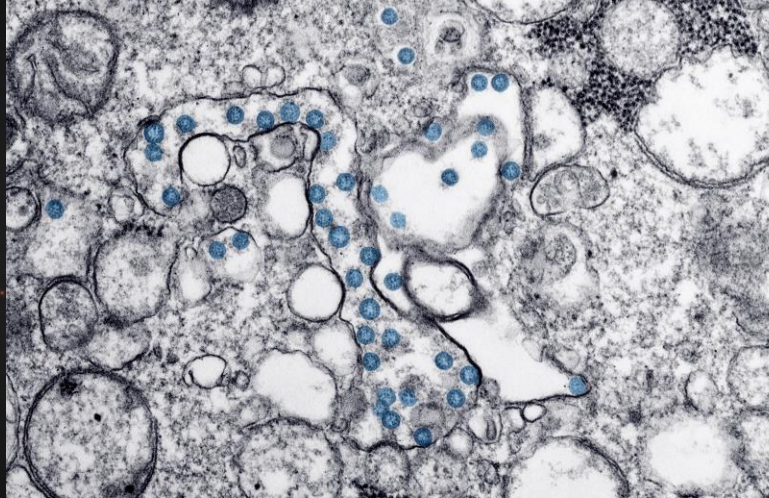
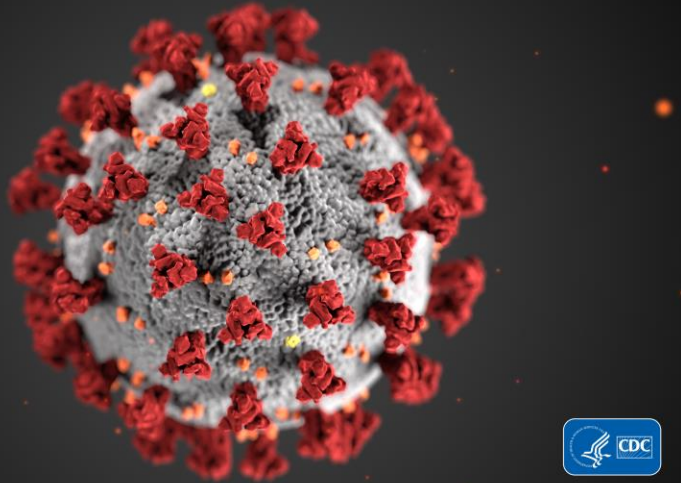


COVID-19:

What We Know & What You Can Do

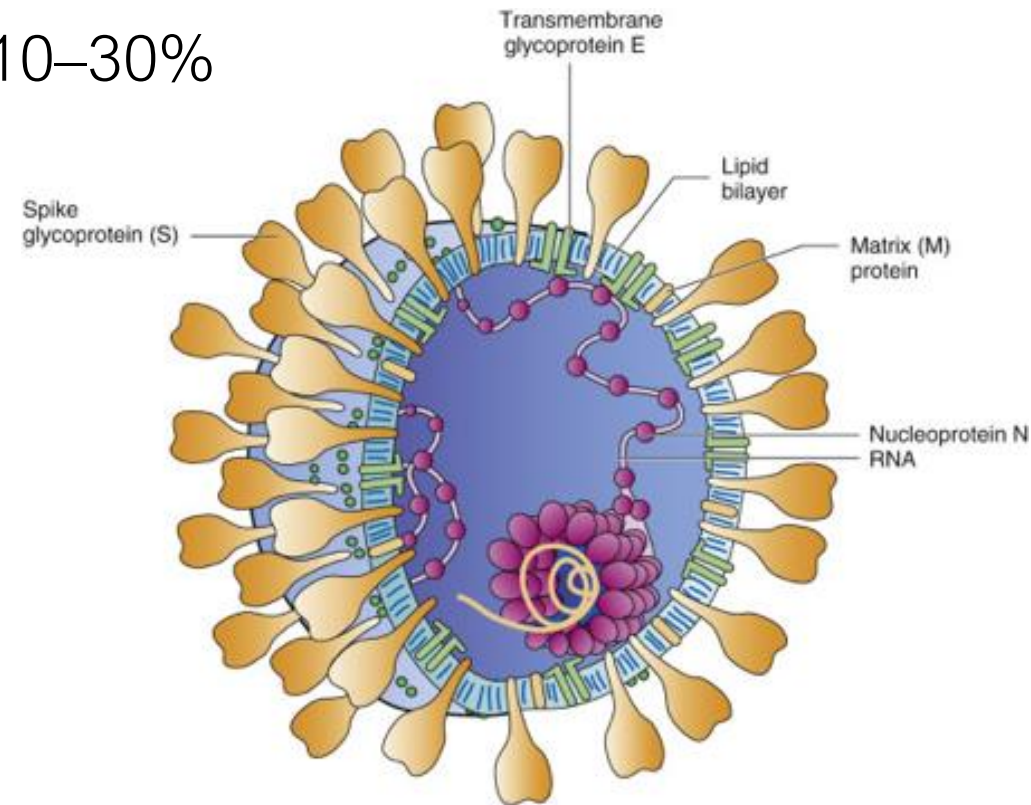


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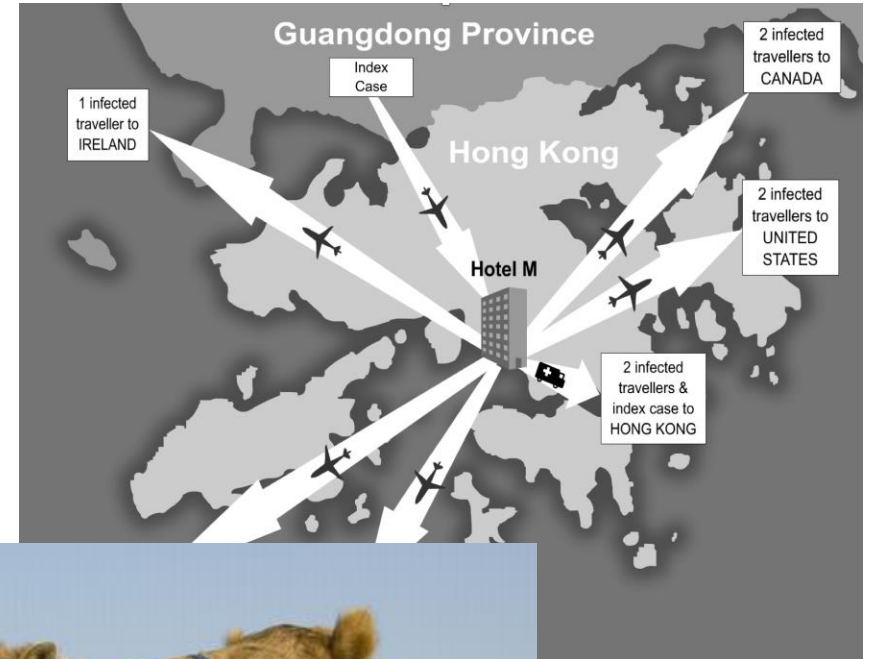
What Is Coronavirus?

- It's a family of viruses named for their solar corona-like appearances.
- You have probably had one! Four species cause 10–30% of cases of the common cold.
- Severe coronaviruses can cause pneumonia.
- They thrive in the upper respiratory tract and are transmitted by respiratory droplets.



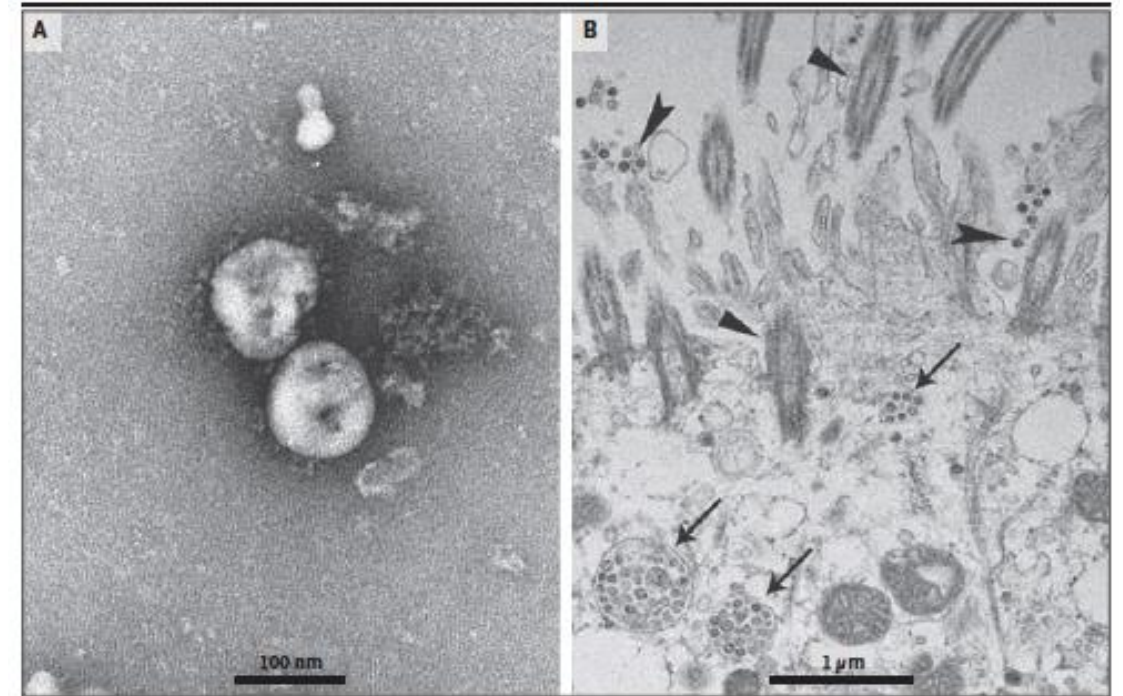
Other Famous Severe and Novel Coronaviruses

- SARS-CoV (Severe acute respiratory syndrome-CoV): 2002
 - 8,098 cases, 775 deaths (10%)
- MERS-CoV (Middle East respiratory syndrome-CoV): 2012
 - 2,494 cases, 858 deaths (35%)



The Science Behind Tracking an Outbreak

- Chinese CDC team dispatched to Wuhan Dec. 31, 2019
- Identified novel coronavirus with genetic sequencing
- Virus isolated in human airway cells
- Viral genome sequenced and compared to human/animal coronaviruses



Virus particles and infected human airway cells

COVID-19 Symptoms

SYMPTOMS* OF CORONAVIRUS DISEASE

Patients with COVID-19 have reportedly had mild to severe respiratory illness. Symptoms can include

- Fever
- Cough
- Shortness of breath

*** Symptoms may appear 2–14 days after exposure. If you have been in China within the past 2 weeks and develop symptoms, call your doctor.**



www.cdc.gov/COVID19

314705-B February 13, 2020 12:00 PM

- Most patients have mild illness (~80%).
- Symptoms also can include sore throat, diarrhea, and general malaise.
- Potential for severe symptoms during the second week of illness
- 23-32% of hospitalized patients required intensive care.

How Is COVID-19 Different From the Flu?

- Similar symptoms and lung complications
- Similar spread through droplets
- Caused by different viruses
- Vaccines and antivirals currently available for flu but not COVID-19



| | Flu | COVID-19 |
|------------------|-------------------|---------------------|
| Cases worldwide | 1 billion | 90,000+ |
| Deaths worldwide | 291,000 – 646,000 | Approximately 3,053 |

How Does COVID-19 Spread?

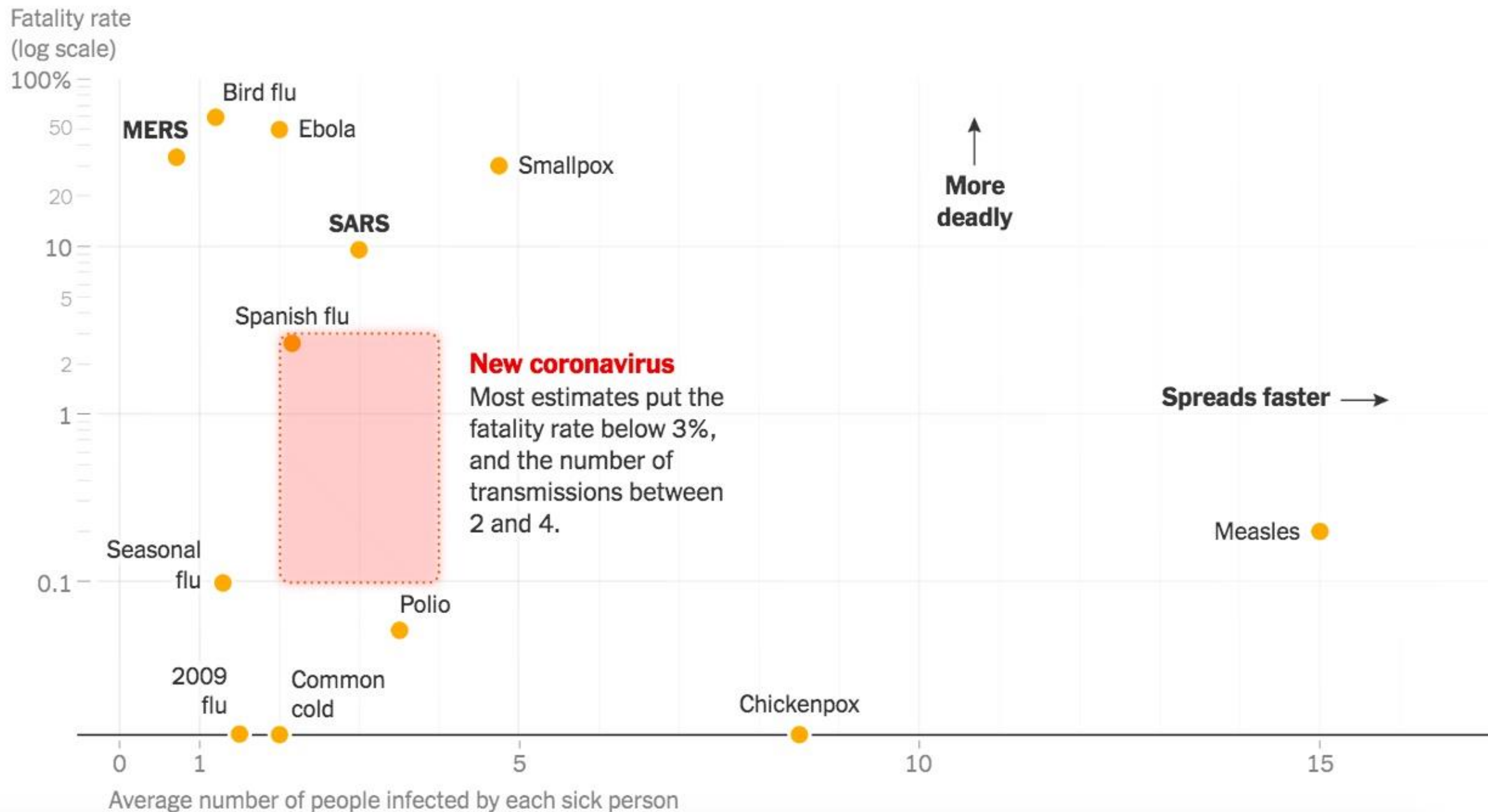
- Mainly from person-to-person
 - Via air droplets produced when an infected person coughs or sneezes
 - Between people within about 6 feet of one another
- To a lesser extent, from touching a surface or object that has the virus on it and then touching one's face



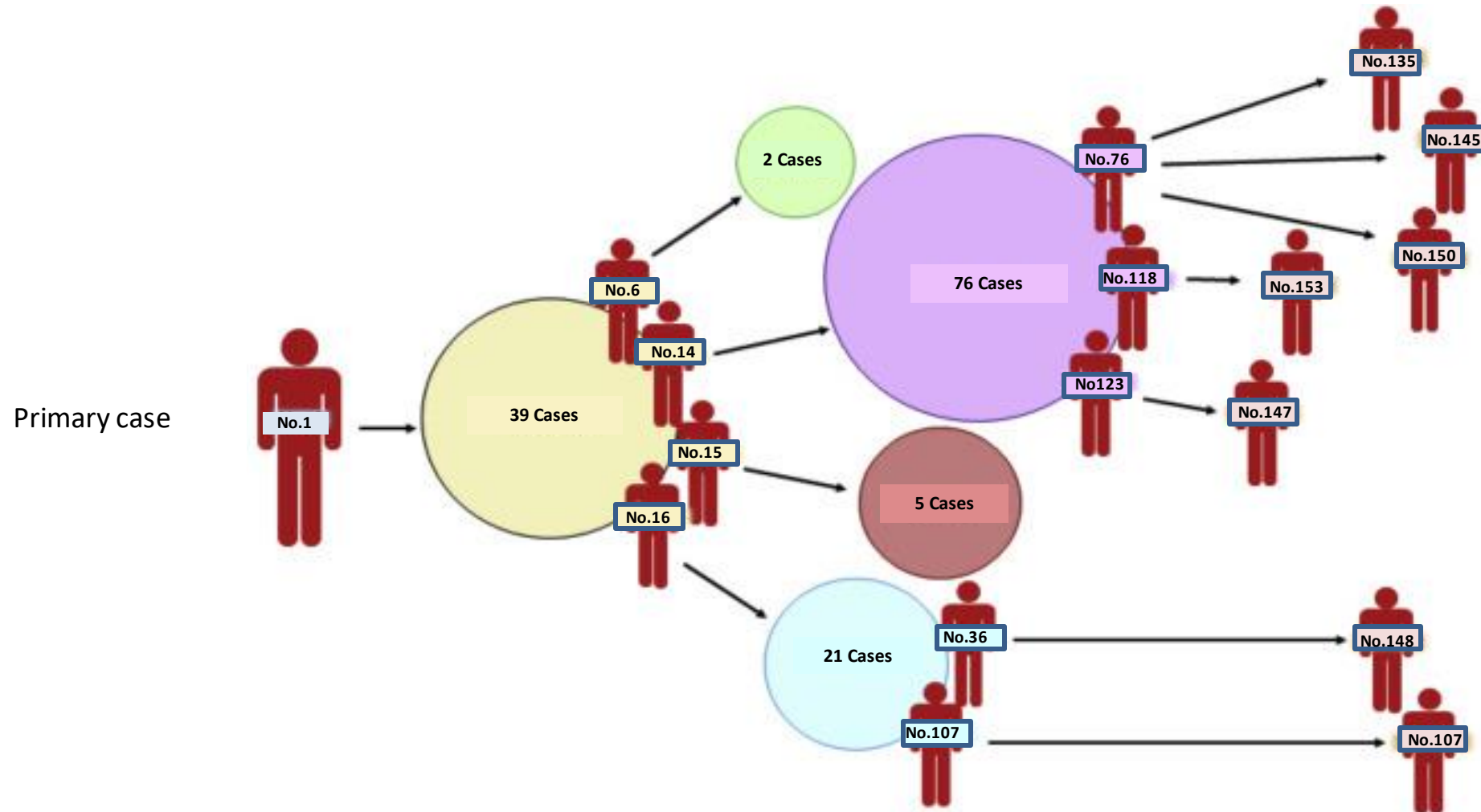
How Does the Newest Coronavirus Compare?

| | SARS-CoV | MERS-CoV | SARS-CoV-2 (COVID-19)* |
|--|-------------------------|---------------------|--|
| Origin | Guangdong, China. 2002. | Saudi Arabia. 2012. | Wuhan, China. 2019. |
| How long before a person shows symptoms? | 2–10 days | 2–14 days | 2–14 days (typically ~5 days) |
| How many people does one person typically infect? | About 2 | Less than 1 | 2–3.5? |
| Can it be spread when someone is not yet showing symptoms? | No | Yes | Unknown |
| Spread within hospitals | 58% of cases | 70% of cases | Yes, unknown how common |
| Fatality rate | 10% | 35% | Unknown (so far 2.5–3% overall; 10–15% in hospital patients) |
| Outbreak contained? | Yes | No | No |
| Number of cases | ~8,000 | ~2,500 | Over 90,000 and counting |

*SARS-CoV-2 (the virus) causes COVID-19 (the disease)

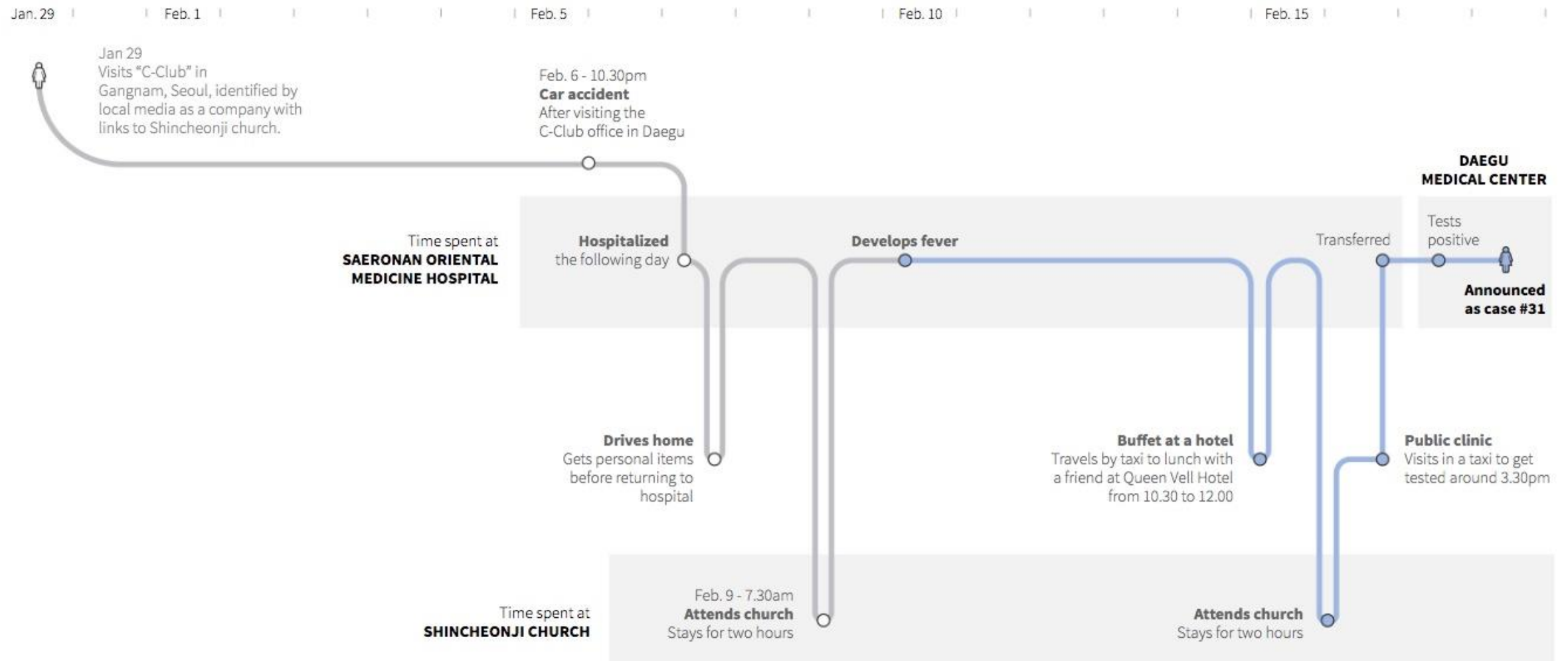


Impact of the Super-Spreader Phenomenon



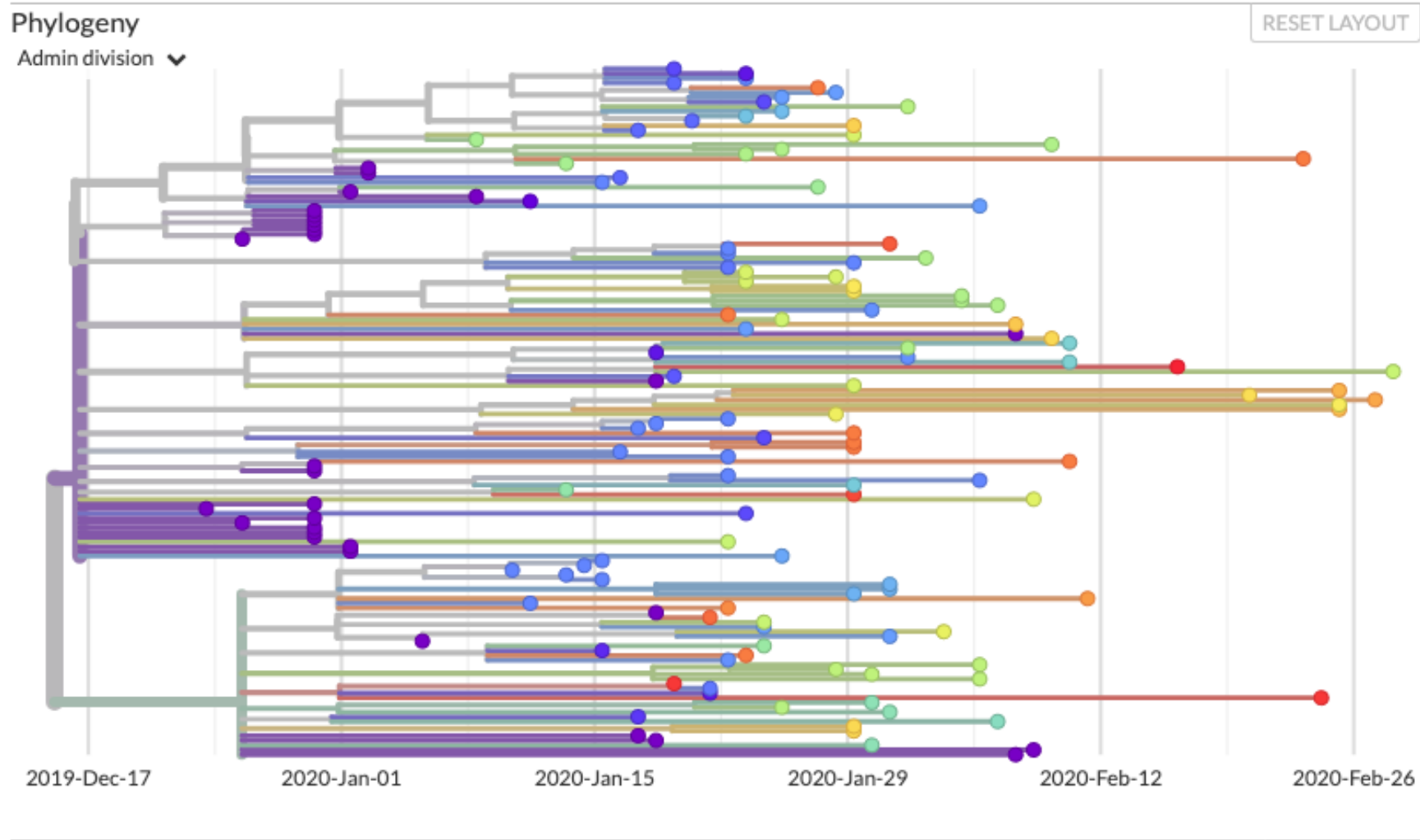
1: Kim Y, Lee S, Chu C, Choe S, Hong S, Shin Y. The Characteristics of Middle Eastern Respiratory Syndrome Coronavirus Transmission Dynamics in South Korea. Osong Public Health Res Perspect. 2016 Feb;7(1):49-55. doi: 10.1016/j.phrp.2016.01.001 Epub 2016 Jan 18. PubMed PMID: 26981343; PubMed Central PMCID: PMC4776270.

A COVID-19 Super-Spreader in South Korea



One patient with 1,160 contacts

Real-Time Genetic Tracking of an Epidemic



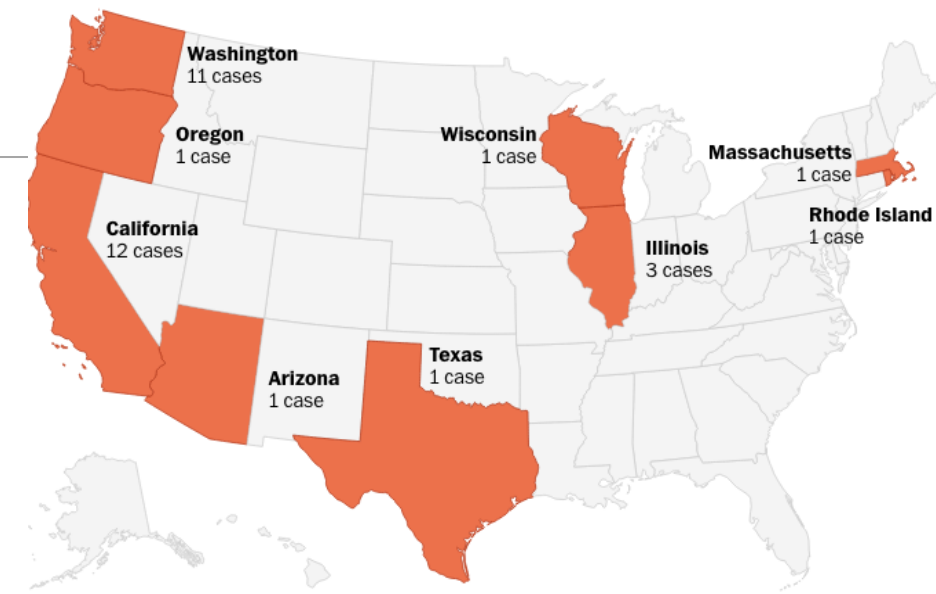
<https://nextstrain.org/ncov>.
Accessed March 2, 2020

Current State of the COVID-19 Outbreak

wp Washington Post

Live updates: Global coronavirus death toll surpasses 3000 ...

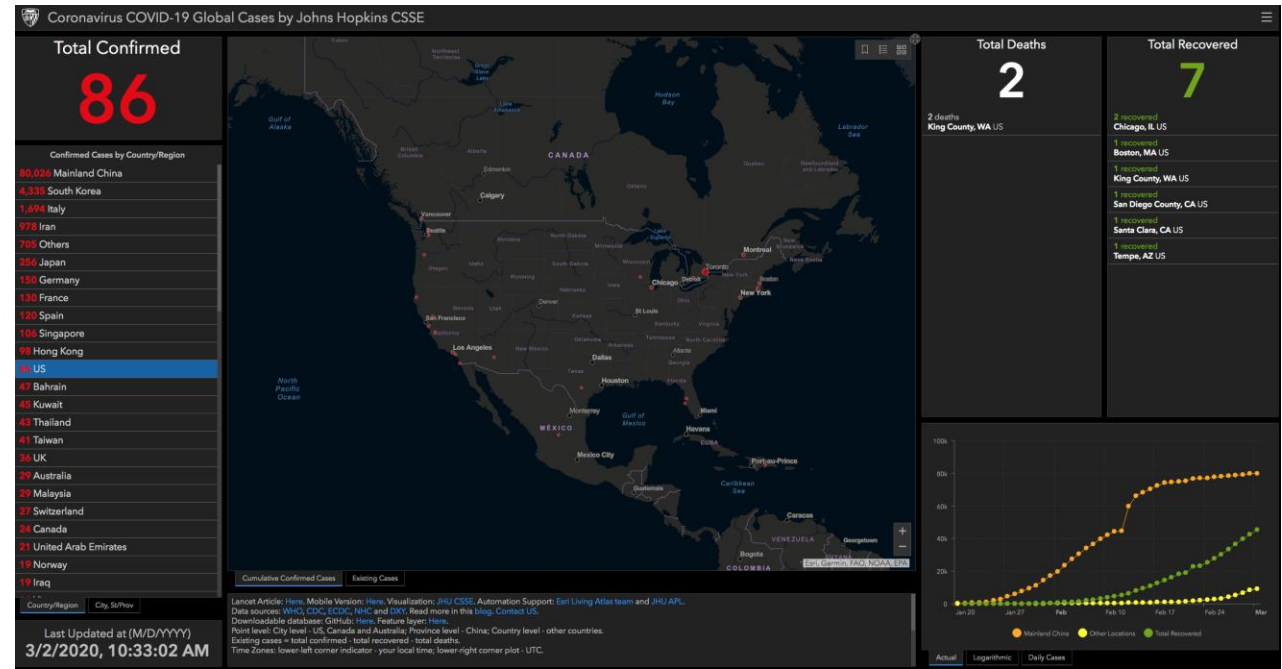
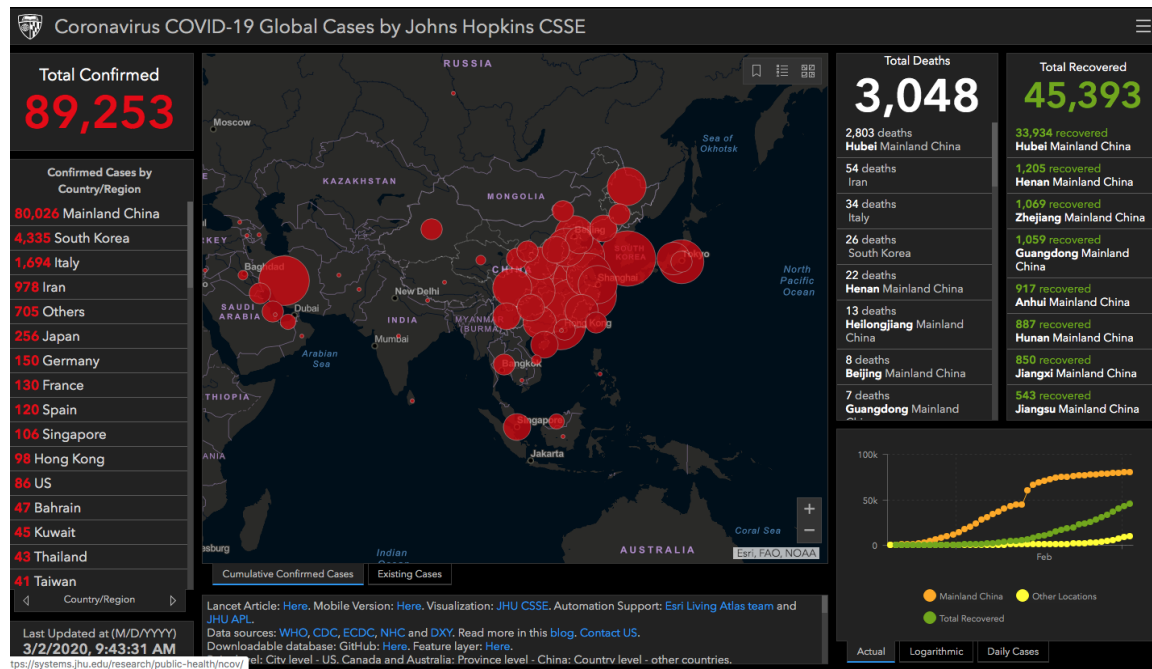
The novel coronavirus continued its march around the globe Monday, despite travel restrictions aimed at curtailing its spread, but hopes of a ...
27 mins ago



- 91 total cases (44 former Diamond Princess cruisers; 45 others)
- Six deaths in Washington
- The CDC confirmed the first U.S. coronavirus case of “unknown” origin on Feb. 25 in California.
- Two health care workers tested positive in California.

Current State of the COVID-19 Outbreak

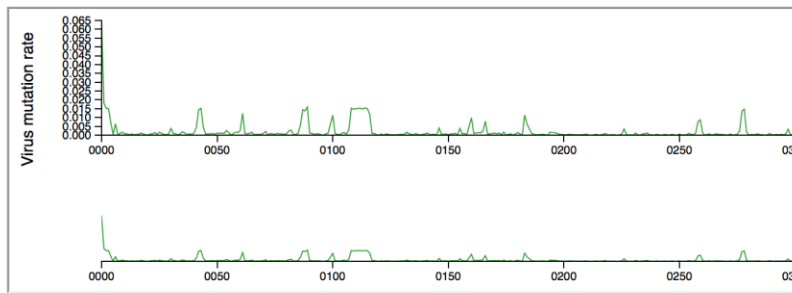
- The coronavirus has been reported across at least 67 countries.
- The vast majority of the 90,279 confirmed cases (80,026) are in mainland China, where COVID-19 was first detected in December.



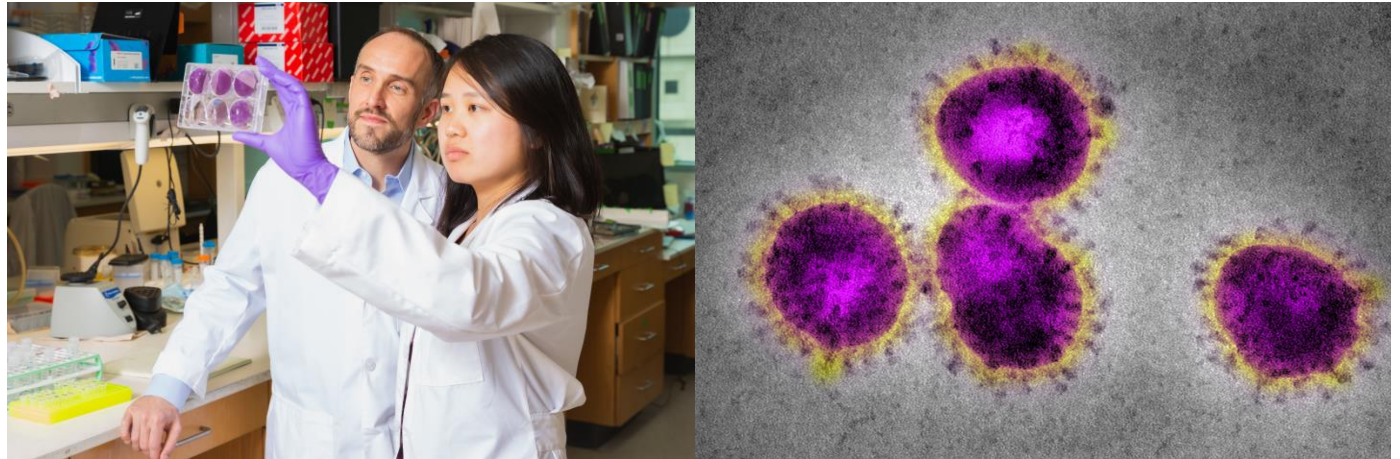
UTSW Advancing the Scientific Understanding of COVID-19

- Data scientists analyzing genetic sequences of the COVID-19 coronavirus identified potential vulnerabilities that could help in vaccine development.
- Quantitative Biomedical Research Center scientists created a publicly available immune vulnerability map of the virus for research groups worldwide.
- The Schoggins lab is studying how mammals – including humans, mice, and bats – control viral infections.

2019-ncov - Mutation rate



2019-ncov - T cell epitope density



National Preparedness

- Jan. 21: CDC activated its Emergency Operations Center to better provide continual support to the COVID-19 response.
- Feb. 26: CDC and FDA developed a protocol using two of the three components of the original CDC test kit to detect the SARS-CoV-2 virus.
- By next week, 93 public health labs will be able to test for the virus (currently ~40).
- The U.S. government suspended entry of foreign nationals who have been in China or Iran within the past 14 days.
 - Travelers who have been in China during the past 14 days will be required to enter through specific airports and participate in monitoring by health officials until 14 days after they left China.

North Texas Preparedness

- Dallas County Health and Human Services is closely monitoring the situation with the CDC and the Texas Department of State Health Services.
- Airport screening protocols are in place.
- "Through the coordinated efforts of our state agencies, Texas is working tirelessly to ensure every community has the resources and preventative measures needed to respond to the coronavirus."
 - Governor Greg Abbott



UT Southwestern Prevention

- Intake coordinators are trained to ask an initial round of questions about recent travel to areas where infections have been common.
- Patients are immediately identified who have potential respiratory or other infectious diseases and provided masks and isolation for further screening.
- Infection preventionists and/or infectious diseases specialists may ask additional questions to further guide the potential infectious diagnoses and to order appropriate tests.
- All patient rooms at UTSW William P. Clements Jr. University Hospital are private rooms, limiting exposure to other patients.

What Does This Mean for Me? Risk Factors

People of all ages can be infected by the new coronavirus (nCoV-2019).

Older people, and people with pre-existing medical conditions (such as asthma, diabetes, heart disease) appear to be more vulnerable to becoming severely ill with the virus.

WHO advise people of all age to take steps to protect themselves from the virus, for example by following good hand hygiene and good respiratory hygiene.



#Coronavirus

Does the new coronavirus affect older people, or are younger people also susceptible?



What Does This Mean for Me? Risk Factors

| AGE | DEATH RATE* |
|------------------------|----------------------|
| 80+ years old | 14.8% |
| 70-79 years old | 8.0% |
| 60-69 years old | 3.6% |
| 50-59 years old | 1.3% |
| 40-49 years old | 0.4% |
| 30-39 years old | 0.2% |
| 20-29 years old | 0.2% |
| 10-19 years old | 0.2% |
| 0-9 years old | no fatalities |

| PRE-EXISTING CONDITION | DEATH RATE* |
|--|--------------|
| Cardiovascular disease | 10.5% |
| Diabetes | 7.3% |
| Chronic respiratory disease | 6.3% |
| Hypertension | 6.0% |
| Cancer | 5.6% |
| <i>no pre-existing conditions</i> | 0.9% |

Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) – China CDC, Feb 17, 2020.

What Does This Mean for Me? Prevention

- Frequent hand washing is the most effective prevention method!
 - Wash hands for 20 seconds with soap and water, or use alcohol-based hand sanitizer.
- Avoid touching your eyes, nose, and mouth.
- Avoid close contact with sick people.
- Cover your mouth when you cough or sneeze.
- Stay at home when you are sick.
- Get your flu shot.



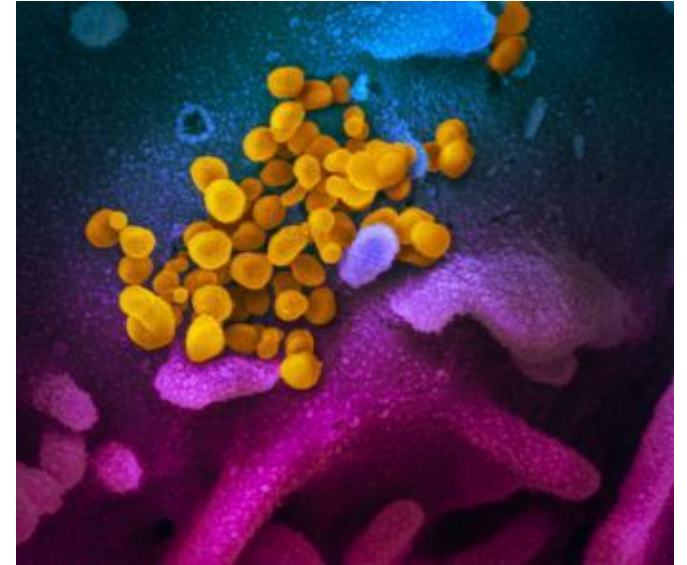
What Does This Mean for Me at Home?

- Soap destroys the virus! Frequently wipe down surfaces with soap and water or normal household cleansers.
- CDC currently does not recommend face masks for the general public.
- If you do:
 - A surgical face mask is as effective as an N95 respirator mask.
 - Do not touch the front of it.



What Does This Mean for Me? Treatment

- Supportive care, infection prevention, and control are key.
- Since most cases are mild, they can be handled like a bad cold or flu.
- No antiviral treatment is recommended.
- Severe cases should be treated in the hospital.
- Call your health care provider immediately if you think you have been exposed.



What Does This Mean for Me? Make a Plan



- Make backup plans for child care and caring for older relatives near and far.
- To avoid crowds in the event of an outbreak, stock up on a couple weeks' worth of essential daily medications and nonperishable foods.
- Have fever reducers and your go-to sickbed foods on hand so that you are ready to ride out a mild illness at home.

What Does This Mean for Me? Travel

- Travel restrictions to and from China have been put in place. Travelers can find updated advisories on the [Centers for Disease Control and Prevention's website](https://www.cdc.gov/disease/index.html).
- Travel health notices are in place in Iran, South Korea, Italy, and Japan.
- The CDC does not recommend canceling or postponing travel within the U.S.

2019
nCoV
CORONAVIRUS

HEALTH ALERT: *Travelers from China*
There is an outbreak of respiratory illness in China.

Travelers are required to be monitored for up to 14 days after leaving China.

Travelers should stay home and monitor their health within this 14-day period.
A health official will contact you to give additional instructions.

Take your temperature with a thermometer 2 times a day and watch your health.

If you develop a fever (100.4°F/38°C or higher), cough, or have difficulty breathing:

- Call your health department for advice before seeking care.
- If you can't reach your health department, call ahead before going to a doctor's office or emergency room.
- Tell them your symptoms and that you were in China.

 For more information: www.cdc.gov/nCoV

Debunking Common Misconceptions: Fighting Fear With Facts

- The risk of getting the COVID-19 is currently low in the U.S.
- Contact with people who are symptom-free and returned from China more than 14 days ago does not put you at added risk.
- Viruses cannot target people from specific populations, ethnicities, or racial backgrounds.
- Packages shipping from China do not pose a threat. The coronavirus does not survive long on objects.

The Future

- Rapid diagnostic test
- Antiviral therapy?
- Identification of “super” spreaders, transmission routes, period of infectivity
- Spectrum of disease:
 - Asymptomatic transmission
- Vaccines
- Understanding why outbreak occurred



Resources for Additional Information

- UT Southwestern: <https://utswmed.org/conditions-treatments/infectious-diseases/what-know-about-2019-novel-coronavirus-2019-ncov/>
- CDC: <https://www.cdc.gov/coronavirus/about/index.html>
- WHO: <https://www.who.int/health-topics/coronavirus>
- IDSA: <https://www.idsociety.org/public-health/Novel-Coronavirus/>
- FDA: <https://www.fda.gov/emergency-preparedness-and-response/mcm-issues/novel-coronavirus-2019-ncov>