The 2019 Novel Coronavirus, also known as SARS-CoV-2, caused an outbreak of respiratory illness called COVID-19, in Wuhan, China. Coronaviruses are a family of viruses that infect birds and mammals (this includes humans!). Typically, they cause mild respiratory symptoms similar to the common cold, but can lead to severe symptoms and even death, often in those who are already immunocompromised.

**SARS**
- 2002
- In 8 mo
- 8,000 confirmed cases
- 9.6% death rate

**MERS**
- 2012
- In 36 mo
- 2,484 confirmed cases
- 34.4% death rate

**COVID-19**
- 2019-March 2020
- In 3 mo
- +98,000 confirmed cases
- 3.5% death rate

**How deadly is COVID-19?**
While COVID-19 is much more infectious, it appears to be less deadly than SARS or MERS. However, it is more deadly than the annual flu, which has a death rate of less than 1%. This is why it is even more important that if you experience mild symptoms, you should seek medical care right away, and practice hygienic habits to slow the spread of germs and COVID-19 to the people around you.

**COVID-19 death rate by age**
- 0-9 years old: 0%
- 10-39 years old: 0.2%
- 40-49 years old: 0.4%
- 50-59 years old: 1.3%
- 60-69 years old: 3.6%
- 70-79 years old: 8.0%
- 80+ years old: 14.8%
### How it all began: The first months of COVID-19

- **1 Dec 2019**: First patient is confirmed in Wuhan, China
- **31 Dec 2019**: China sends urgent notice to WHO of unknown pneumonia cause
- **11 Jan 2020**: First death is announced in China
- **21 Jan 2020**: First case in the US is confirmed; Snohomish County, Washington
- **30 Jan 2020**: World Health Organization declares the outbreak a global public-health emergency
  - The United States reports the first confirmed instance of person-to-person spread
- **31 Jan 2020**: HHS Secretary declares a public health emergency (PHE) for the US
  - President Trump enforces a 14-day quarantine preceding the entry of travelers from mainland China into the US
- **25 Feb 2020**: CDC warns community to prepare for the spread of COVID-19 in the US
- **29 Feb 2020**: First death in the US in King County, Washington

### What happens now?

So far, COVID-19 has spread from Asia to North America, South America, Europe, Oceania, and Africa. The scale of the impact of this disease is still to be determined. The world continues to work towards treating the sick and containing the disease as we learn more about it.
**How is it spreading?**

**Human-to-human transmission is possible**
The virus first came from an animal source, but it is now able to spread from human to human.

**It travels through droplets in the air**
It can infect humans through...

...close contact of 6 feet or less, which includes touching, and shaking hands

...and by touching an object or surface contaminated by the virus, then touching one’s mouth, nose, or eyes
It takes 5.2-12.5 days for COVID-19 to cause symptoms. To be safe, make sure to monitor your health for 14 days after coming into contact with someone who is confirmed to have, or is suspected of having COVID-19. If you experience the COVID-19 symptoms (see Close Contact section), call your doctor ahead of your visit.
YOUR PART

Outbreaks at this scale can be scary, but besides staying up to date on the news, there are still a lot of things that you can do to stay healthy and help stop the spread of disease!

Prevention
Here’s what you can do to prevent COVID-19 from spreading:

1. Stay home when you are sick.
2. Wash your hands often with soap and water. If unable to wash your hands, use alcohol-based hand sanitizer.
3. Avoid close contact with people who are sick.
4. Clean and disinfect frequently touched objects and surfaces.
5. Cover coughs and sneezes with your elbow or a tissue. Throw tissues in the trash.
6. Get your annual flu vaccine
7. Take flu antivirals if prescribed
8. Avoid touching your eyes, nose, and mouth with unwashed hands
9. Check CDC’s COVID-19 travel health notices often and avoid nonessential travel
If you come into close contact with someone who is confirmed to have COVID-19, here’s what you can do to stay well:

- **Monitor your health** for at least **14 days** after your last contact with the infected person
- Watch for signs and symptoms; **contact your healthcare provider right away if you notice these signs:**

1. **Fever**
2. **Coughing**
3. **Shortness of breath**

If you feel unwell within 14 days of close contact, call your doctor ahead of time to tell them...

...you’ve had **close contact** with someone confirmed to have COVID-19

...to call the **local or state health department**

This helps your provider prevent other people from being infected

**STAY CALM, TAKE CARE**

Remember, **don’t panic**!

For now, take care of yourself just like you would during the annual flu season.

**Stay on top of the news** and other credible sources to keep updated on if you need to do anything different.
If you or someone you know becomes sick with COVID-19 and does not require hospitalization or is told they are medically stable to go home, here’s what you can do to take care and prevent further spread of the disease for patients (P) and for caregivers (C).

Stay home except to get medical care.

Stay in a different room from other people in your home, and use a separate bathroom if available.

Call ahead before visiting your doctor.

Wear a facemask.

Cover coughs and sneezes with your elbow or a tissue. Throw tissues in a lined trash and wash your hands.

Ensure shared spaces have good air flow.

Clean all “high-touch” surfaces.

Dispose of contaminated items in a lined container before disposing them with household waste.

Wash your hands often with soap and water. If unable to and your hands are not visibly dirty, use an alcohol-based hand sanitizer. Avoid touching your face with unwashed hands.

Wear at least a disposable facemask and gloves when you touch or have contact with the person’s blood, body fluids, and/or secretions.

Understand and help the person follow the healthcare provider’s instructions for medication and care.

Avoid sharing household items.

Monitor your symptoms. Seek medical attention as soon as you notice symptoms and/or if your illness worsens.

Wash laundry thoroughly. Immediately remove and wash clothes or bedding that have any of the patient’s body fluids, secretions and/or excretions on them.

Only have people essential for providing care for the person in the home. Keep the elderly and those likely to get sick away from the patient.

Healthcare providers and state/local health departments must be consulted to get permission to end home isolation. They will give their permission when the patient’s risk of spreading COVID-19 to others is low; the timing differs from patient-to-patient.

Contact your state or local health department if you still have any questions.

Stay home and follow these precautions until you are fully recovered from COVID-19, to prevent the spread of disease and ensure that you get better!
In light of the outbreak, two kinds of facemasks have been flying off American shelves:

**Surgical mask**
- Protects others from sprays or mucus when the wearer sneezes or coughs

**N95 Respirator**
- Filters out at least 95% of smaller particles

✅ Will help **prevent the spread** of COVID-19 if you are sick
✅ Will help **prevent against catching and spreading** COVID-19

❌ Does not effectively prevent catching COVID-19
❌ If it has a breathing valve, does not effectively prevent the spread of COVID-19 if you are sick

However, the CDC does not recommend public citizens to wear either of these masks!

In order to maintain supply for the people who need it most, **please do not hoard masks**. Only wear a facemask if you are sick and need to go out in public or are caring for someone who is sick.

For now, the CDC recommends only healthcare providers taking care of patients known to be infected with COVID-19 to wear a N95 respirator.

Just remember, if you do buy a mask, be sensible and make sure it fits you and your needs.

**END THE PREJUDICE!**

*Asian people are not at a higher risk* than other people from becoming sick with COVID-19.

Only people who have traveled to **high-risk areas**, or been in contact with someone confirmed or suspected to have COVID-19 in the last 14 days are at a higher risk of being infected.

Just because someone is of Asian descent does not mean that they have COVID-19!
An epidemic in the world is pretty scary. But the good news is that we have a plan on how to deal with situations like these.

**The World Health Organization (WHO)**
Their primary role is to direct international health and provide global leadership and guidance on how to manage. Its headquarters are located in Geneva, Switzerland.

Each country has a Regional WHO Office
The US Regional Office is in Washington, DC. Here, teams can communicate with the WHO headquarters and get up-to-date information about the emerging situation and consequently manage the outbreak response.

WHO uses its international network of collaborating centers to collect information
In the US, the Centers for Disease and Control (CDC) in Atlanta, Georgia collects international and national data, analyzes that data, and synthesizes recommendations.

Our world is more connected than ever
This means that there are plenty of ways for diseases to spread to other people and places. There is a fine balance between protecting borders by quarantine and overreactions (that cause panic).
Local Emergency Operations Centers

Day-to-day operations are managed by a local ground team. These centers have a set of experts that work together to control the local situation.

Incident Manager oversees the entire EOC, provides leadership to ensure coordination between the team, and is a liason to the Regional Office.

Policy makers ensure we have the regulations and permissions necessary to control the situation and may create new ones as needed.

Environment experts study the environmental causes related to the disease.

Scientists analyze lab samples, research, and learn about the disease.

Communications oversee how information is being disseminated to the public to ensure a unified strong voice.

Epidemiologists analyze the distribution and patterns of the disease so that we can understand how it is affecting the population.
So what does this look like in practice?

At the national level, our first line of defense is monitoring ports-of-entry.\textsuperscript{11,12}

Since the virus outbreak began outside of the US, the first line of defense is to manage places where the disease could enter. The CDC has ordered airlines to find out which passengers have traveled to China in the last 14 days and for major international airports to screen all incoming travelers.

The three-part process begins with Customs and Border Protection agents questioning travelers. Next, those at-risk are sent to a secondary screening by health workers where their temperature is taken. Then, those showing symptoms are evaluated and monitored by the CDC—which may involve a 14-day quarantine. Travelers who have been to China in the last 14 days are advised to stay home and monitor their symptoms.
If the virus enters a state, hospitals need to be prepared to respond\textsuperscript{13,14,15}

If there is a suspected case of COVID-19 in the region, hospitals and local clinics should be trained in how to deal with the virus. Massachusetts General Hospital (MGH) is 1 of 10 CDC designated “regional ebola and special pathogen treatment centers” in the US—meaning that they have expert knowledge in how to deal with something like an outbreak. Many other hospitals have turned to MGH as they update their emergency plans.
The US has already taken aggressive quarantine measures\(^6\)

After closing its borders to China, the US took strict measures to prevent the spread of the virus. HHS has been allocated $250 million in emergency funds to help prevent the spread of disease. All people who have traveled to China within 14 days of arrival to the US have been ordered to be quarantined for 14 days—this has led to more than 800 patients quarantined in 6 military bases across the States so far.

These military bases were chosen because they could comfortably house hundreds of people. Patients are served 3 catered meals a day and have access to a mental health counselor. They are encouraged to maintain 6 feet of distance at all times with other people, and they regularly have their symptoms checked.

If a city shuts down, what happens?\(^7,8\)

In the US, it is very unlikely that the CDC would mandate an entire city be quarantined. US policy is actually to avoid location-based mass quarantines. Many experts have noted that the effectiveness of a mass quarantine for disease may not be worth the significant psychological and economic costs. However, in the case that a mass quarantine is ordered, cities have a plan to manage the situation. However, the situation is under control, and more extreme measures like this have not been required yet to deal with COVID-19 in the US.
For now, **keep calm**, follow **regular flu season preventative measures**, and **keep up to date** on the news for updates on protocols and treatment development.

**While you may not see it, a lot of people are working hard to contain this virus so you can stay well.**
IMPORTANT RESOURCES

World Health Organization
Information and guidance for the general public
Live updates:
https://www.who.int/emergencies/diseases/novel-coronavirus-2019

Centers for Disease Control and Prevention
Information and guidance for the general public and healthcare professionals
Live updates:

National Institute of Allergy and Infectious Diseases
https://www.niaid.nih.gov/diseases-conditions/coronaviruses

US Food and Drug Administration

Massachusetts Medical Society
Provides latest guidance and up to date information on COVID19 from MA DPH and CDC.
http://www.massmed.org/COVID-19/#.XlkqgJNkJyJ
This is open source.
Use it, share it, make it better.

Licensed under Creative Commons Attribution 4.0 license
https://github.com/goinvo/COVID19

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REFERENCES


Stay well.
Wash your hands,
for 20 seconds.

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