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Coronavirus and You



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What is coronavirus?

- Coronavirus is a family of viruses that includes MERS, SARS, and some versions of the common cold.
- The name of this specific coronavirus is SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2).
- The name of the illness it causes is COVID-19 (coronavirus disease 2019).

What is a virus?

- Most of what we think of as germs are either bacteria or viruses.
- Bacteria are living, single-celled organisms.
- Viruses are non-living proteins surrounding a piece of DNA or RNA.
- Bacteria are treated with antibiotics; viruses are treated with antivirals, though there is no treatment for many viruses.

If a human
red blood cell
were this size

bacteria would be
this size

viruses would be the
size of the period at
the end of this
sentence.



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Where did it come from?

- It is a novel virus (it is new to humans).
- COVID-19 was first identified in Wuhan, China, in December 2019.
- Viruses are constantly evolving and jumping from species to species.
 - Other zoonotic viruses include HIV and measles.
 - Influenza evolves annually; that is why we need a flu shot every year.



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Can I get COVID-19?

- COVID-19 is a respiratory illness spread from person to person.
- Most respiratory infections are spread by infected individuals **with or without symptoms.**
- If you have contact with infected persons and you breathe, you can get COVID-19.

World Health Organization (WHO) Director-General Tedros Adhanom Ghebreyesus, PhD, urged the countries that are experiencing the beginning of the COVID-19 pandemic to follow proper safety procedures and take a comprehensive approach toward the virus.

“Any country that looks at the experience of other countries with large epidemics and thinks ‘that won’t happen to us’ is making a deadly mistake. It can happen to any country.”

--WHO Director-General



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How is it spread?

- Infections are spread by **vectors**.
 - Mosquitoes are vectors for malaria.
 - Humans are vectors for COVID-19.

Respiratory viruses are usually spread by:

- **Contact**: Touching an infected surface, then touching a viral entry point on your body (mucous membranes);
- **Droplet**: Breathing in droplets temporarily suspended in the air expelled from infected individuals; and
- **Aerosol**: Breathing in particles that are smaller than droplets and remain airborne for long periods of time.

At this time, SARS-CoV-2 appears to only spread **via contact and droplets**:

This is why practicing social distancing, washing your hands, and not touching your face are recommended.



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Factors that affect how it spreads:

- Incubation period (time it takes to show symptoms)
- Transmission period (time you are infectious)
 - Long incubation/transmission periods mean people without symptoms will not know to avoid contact (ie, they will be contagious without knowing they have been infected)
- Infectiousness (how easy it is to invade body)
- Stability on surfaces (~3 days)
- Stability in droplets (~3 hours)
- Environmental conditions (heat, humidity, sunlight, etc)
- Population density
- Natural immunity of population (currently none)

Even though the flu is twice as infectious, COVID-19 is twice as contagious because of these other factors:

COVID-19 incubation period + transmission period are longer than flu making transmission easier.

The White House Coronavirus Task Force recommends limiting social gatherings to no more than 10 people over the next 15 days.



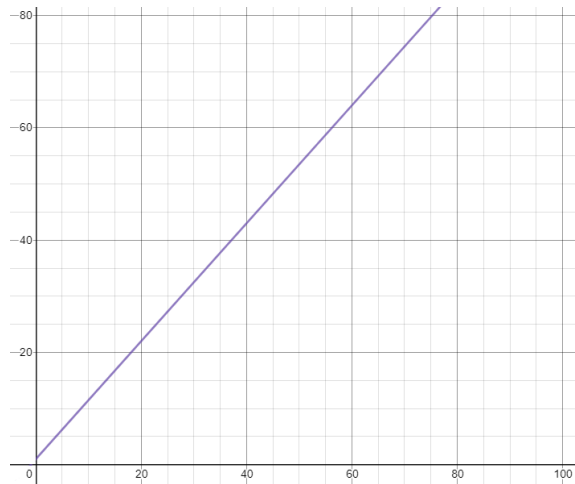
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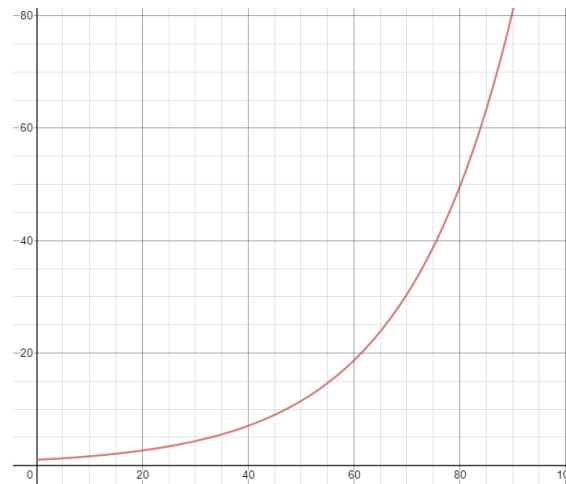
Predicting the spread

Epidemiologists at the Centers for Disease Control and Prevention (CDC) have mathematical models that consider all these factors and more. They can calculate the spread of disease and the impact social changes will have on transmission:

Linear Growth



Exponential Growth



Unchecked infections will
spread exponentially:

Instead of a steady
growth, the **rate of spread**
increases as more people
are infected.

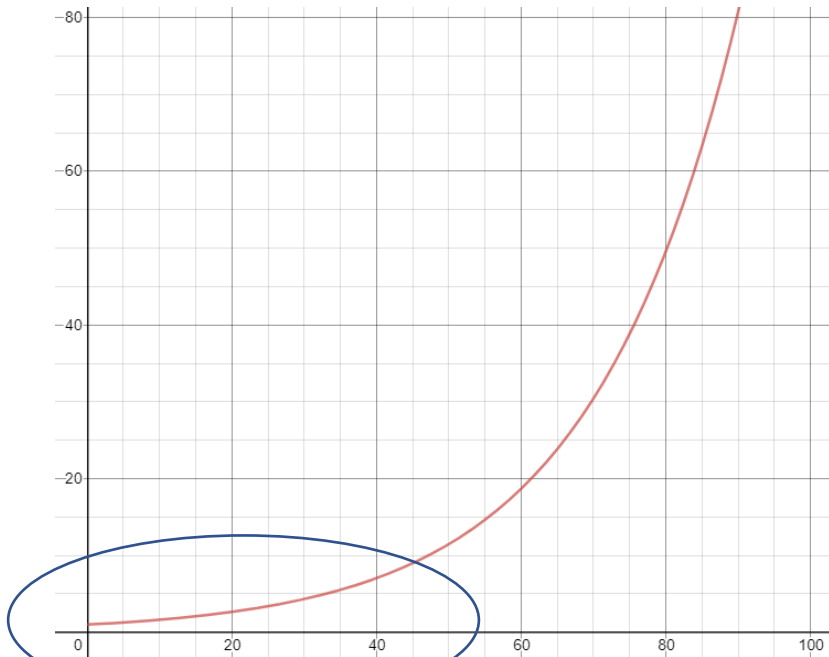


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Predicting the spread

Exponential Growth



This is important to consider because it gives us a chance to act while the rate of growth is small.

It may seem like COVID-19 is no big deal now, but acting as early as possible is important to make sure it remains no big deal.



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Timeline

January 30, 2020: The International Health Regulations Emergency Committee of WHO declared the outbreak a “public health emergency of international concern.”

January 31: United States Department of Health and Human Services Secretary Alex M. Azar II declared a public health emergency.

March 11: WHO publicly characterized COVID-19 as a pandemic.

March 13: President Donald J. Trump declared the COVID-19 outbreak a national emergency.

COVID-19 is spreading fast;
our goal is to act faster.



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Why are we practicing severe social distancing?

Our goal is to change the factors over which we have no control.

- There is no vector to target.
- There is no vaccine.
- There is no natural immunity.
- We cannot change the incubation period, transmission period, or natural infectiousness.

We can change:

- Stability on surfaces (clean/disinfect)
- Population density (social distancing)
- Droplet transmission (wearing masks when sick)

Without these changes,
COVID-19 is **twice as
contagious** as the flu.

With these changes,
COVID-19 is **half as
contagious** as the flu.



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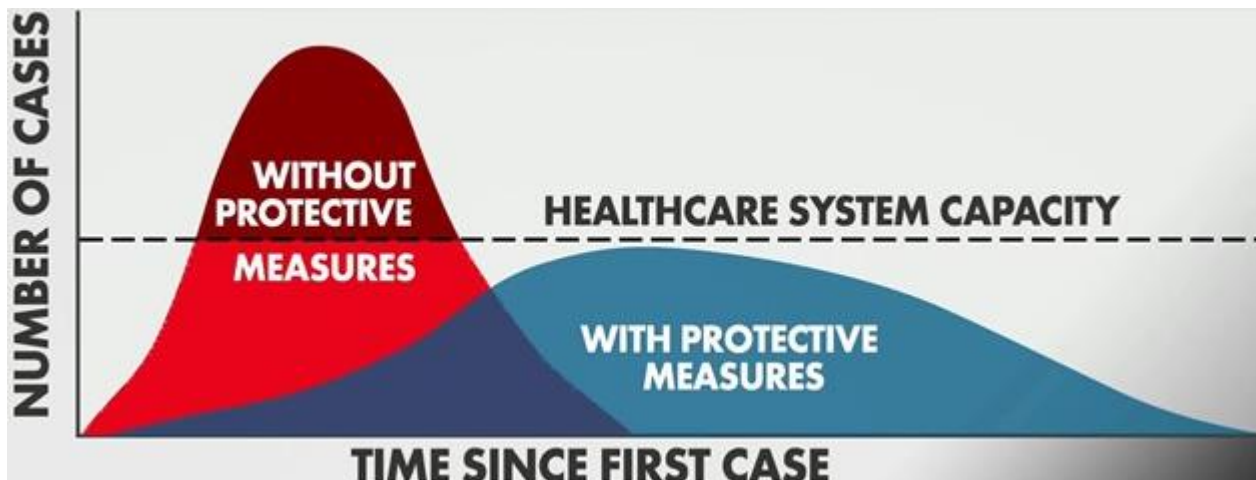
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Why are we practicing severe social distancing?

COVID-19 is 10 to 30 times more deadly than the flu.

- With the flu, one case will be fatal in every 1,000 patients.
- With COVID-19, one case will be fatal in every 50 patients.
- People with COVID-19 will need to be hospitalized more often.

If we do not control its spread, the number of patients needing hospitalization could overwhelm our health care system.



The goal of flattening the curve is to make sure we do not overwhelm hospitals all at once.

Additionally, it will buy us time to develop vaccines and treatments.



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COVID-19 symptoms

Most common:

- Respiratory symptoms – shortness of breath
- Fever
- Cough
- Tiredness

More severe:

- Pneumonia
- Severe acute respiratory syndrome
- Multi-organ failure
- Death

Some people become infected and are **asymptomatic** (do not feel unwell).

About 80% recover from COVID-19 without needing special treatment.

Around **one in every six** people infected with COVID-19 becomes seriously ill and develops difficulty breathing.

Older people and those with underlying medical problems such as high blood pressure, heart problems, cancer, lung disease, or diabetes are **more likely** to develop serious illness.



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Protection from COVID-19 and prevention of spread

1. Avoid close contact with people who are sick and keep at least three feet distance from those sneezing or coughing
2. Avoid touching your eyes, nose, and mouth with unwashed hands
3. Regularly wash your hands with soap and water for at least 20 seconds (or use hand sanitizer with a minimum of 60% alcohol)
4. Follow good respiratory hygiene, including covering your nose and mouth with a bent elbow or tissue when you sneeze or cough
5. Stay home if you feel unwell and notify the doctor before entering the building if you have COVID-19 symptoms
6. Keep up to date on COVID-19 spread and avoid areas with high infection rates, especially if you have underlying medical conditions

The why's:

1. Droplets from nose or mouth may contain the virus.
2. Hands touch many surfaces, which can transfer the virus to your body.
3. Handwashing can kill viruses that may be on your hands.
4. Droplets spread the virus. Sneezing or coughing without covering your mouth or into your hand could spread it in the droplets.
5. Social avoidance will help prevent spreading the virus and notifying your health care provider will help them protect you from spreading the virus.
6. There is a higher chance of catching the virus in these areas and those with underlying medical conditions are at higher risk.



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I am sick . . . what should I do to avoid spreading my illness?

- **Good hygiene:** Follow the steps on the previous slide
- **Self-isolate:** Quarantine by staying at home if you have even mild symptoms (headache, low-grade fever, and runny nose)
- **Protective gear:** If it is necessary for you to obtain essential supplies from someone or go out in public, **wear a mask** to avoid infecting other people
- **Avoid contact:** Do not get close to others and stop unnecessary visits to medical facilities
- **Seek medical advice promptly:** If you develop fever, cough, or difficulty breathing, call your medical provider for advice and in advance of an appointment, and let them know of any sick contacts or contact with people who recently traveled

This is especially relevant for people who are in or have recently visited areas where coronavirus is spreading (the past 14 days).



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Differences between coronavirus, cold, influenza, and allergy symptoms

Symptom	Coronavirus	Cold	Influenza	Allergies
Fever	Common	Rare	Common	Sometimes
Dry Cough	Common	Mild	Common	Sometimes
Shortness of Breath	Common	No	No	Common
Headaches	Common	Rare	Common	Sometimes
Aches and Pains	Sometimes	Common	Common	No
Sore Throat	Sometimes	Common	Common	No
Fatigue	Sometimes	Sometimes	Common	Sometimes
Diarrhea	Rare	No	Sometimes	No
Runny Nose	Rare	Common	Sometimes	Common
Sneezing	No	Common	No	Common

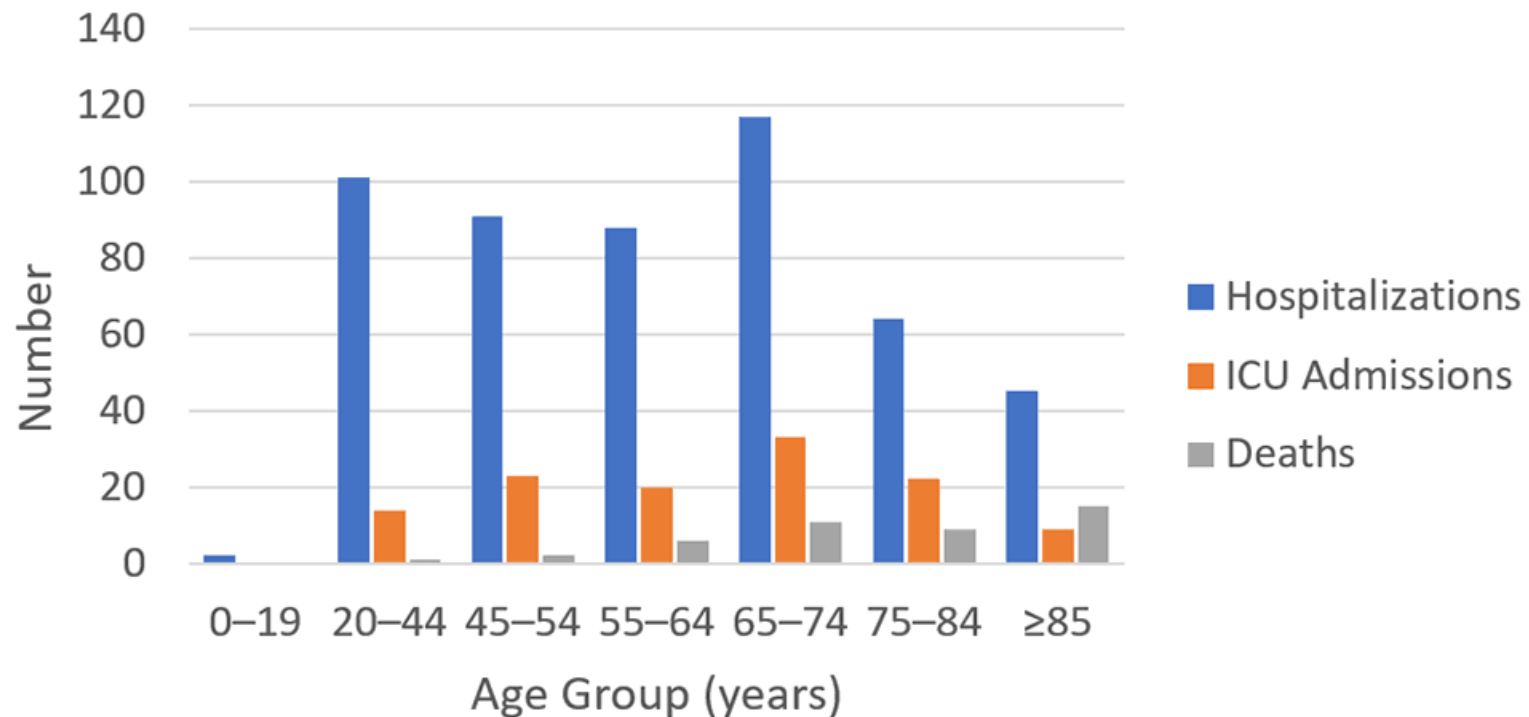


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US Hospitalizations, ICU Admissions, and Deaths from COVID-19

February 12–March 16, 2020



80% of deaths reported in the US were in patients 65 years of age or older. The majority of which were over 85 years old.



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Travel risks and restrictions

- Avoid non-essential travel
- Check with your airline to determine if flights are arriving to or departing from your destination
- Your risk of exposure to COVID-19 and other infectious diseases increases in crowded settings such as airplanes, cruise ships, buses, trains, and other public settings
- Make sure you or your travel companion are not at risk of getting severe illness if you do get exposed to COVID-19
- If you come in contact with someone with COVID-19 while on your travels, be prepared to stay home to self monitor and avoid contact with others for up to 14 days
- Consider the risk of passing on the COVID-19 virus to others on your travels or upon your return



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What should I do if I came in contact with someone with confirmed or suspected COVID-19?

- Adhere to home isolation until the risk of being infected is low (generally 14 days after exposure)
- Stay in a specific room away from others in your household with limited contact with others (including animals). If there is no one else to take care of your animal, limit contact and wash your hands before and after you interact with your pet.
- If you develop symptoms such as fever, cough, and/or difficulty breathing after having been in contact with someone with confirmed or suspected COVID-19, then **stay home** and **call** your health care provider.
- If you develop symptoms and are older (>60 years of age), **or** have severe underlying medical conditions, **or** immunocompromised, call your health care provider immediately.

Hospitals with “drive-through” COVID-19 screenings are for patients who have been instructed to do so by their health care provider. Do not go through the lines without a health care provider referral. You will not be seen and you will delay others who need to be seen.



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Treatment of COVID-19

Medical care

- Not all patients with the virus will need medical supportive care or hospitalization.
- Typically, patients with severe symptoms will be hospitalized.

Medication

- There are currently no Food and Drug Administration-approved antiviral drugs or vaccines for COVID-19 treatment.
- Some antiviral medications have been shown to be effective in some individuals. Work is still underway to determine which drugs have activity against this virus.
- There are no “alternative” remedies that will prevent or treat COVID-19 infections.

Prevention

- The best way to prevent infection is to **avoid exposure** to this virus.



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I keep stressing about the COVID-19 pandemic! What should I do?

- **Take a break** from watching the news and/or reading about the virus on social media. Always **fact check** with subject matter experts. Make sure the information you are reading is from a reliable source.
- Take care of yourself and **stay healthy** by eating healthy, getting enough sleep, doing stretching exercises, taking deep breaths, and avoiding alcohol and recreational drugs, which can exacerbate anxiety.
- **Stay connected** with people. Talk to those you trust about your feelings.
- Call your health care provider if the stress you are feeling is getting in the way of your daily activities for several days in a row. **Seek help** if you are feeling like you want to harm yourself.





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Resources

- **CDC:** *CDC.gov*
- **WHO:** *who.int*
- **National Institute of Health:** *nih.gov*