

UNDERSTANDING COVID-19

A graphic guide to understanding the disease

Last Updated: 13 March 2020



go[!]invo

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OVERVIEW

What is COVID-19?

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

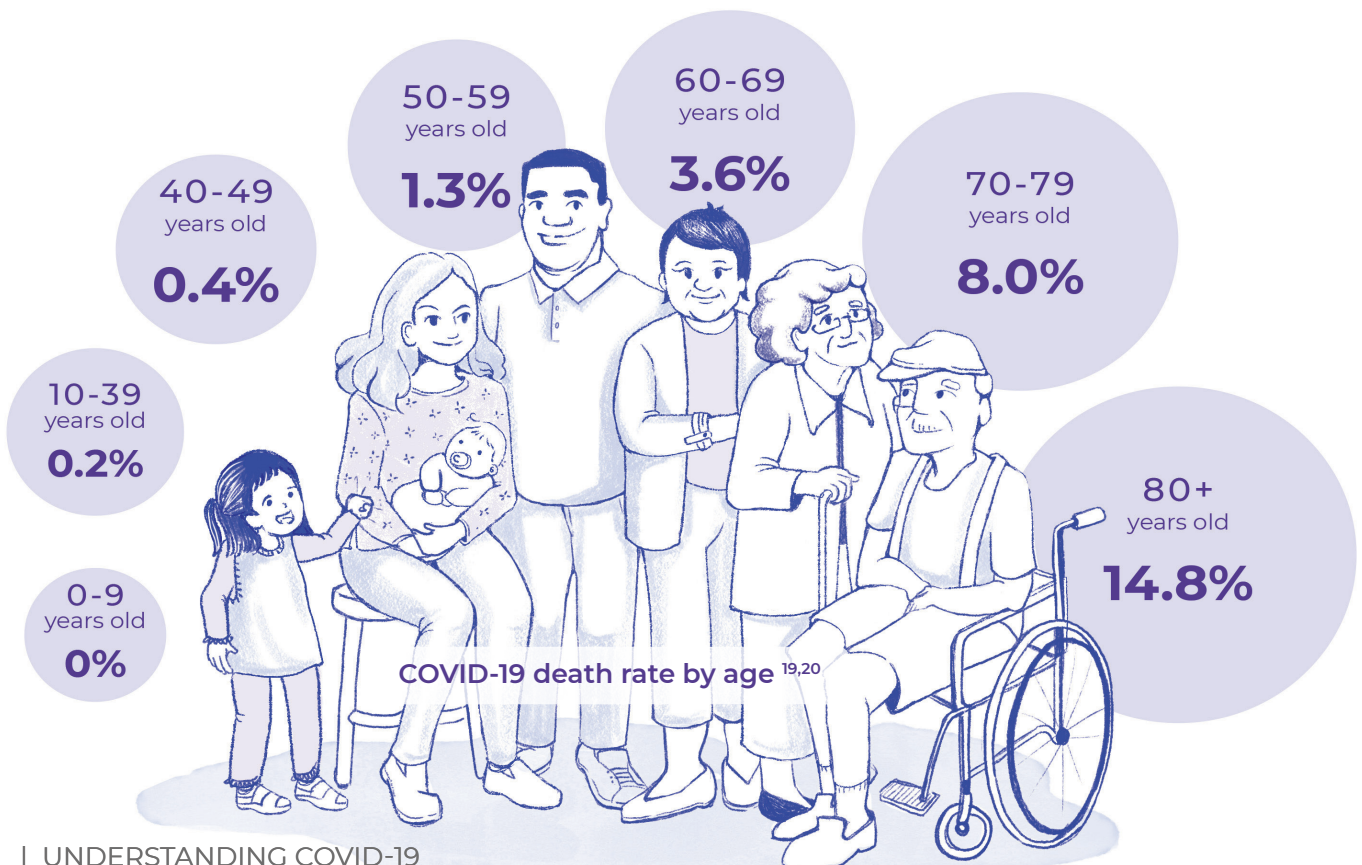
confirmed cases

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.



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

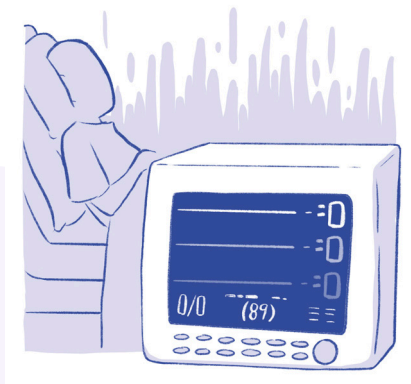
21 Jan 2020
First case in the US is confirmed; Snohomish County, Washington



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?⁴

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

...the air by coughing and sneezing. People nearby may inhale droplets from coughs and sneezes into their lungs



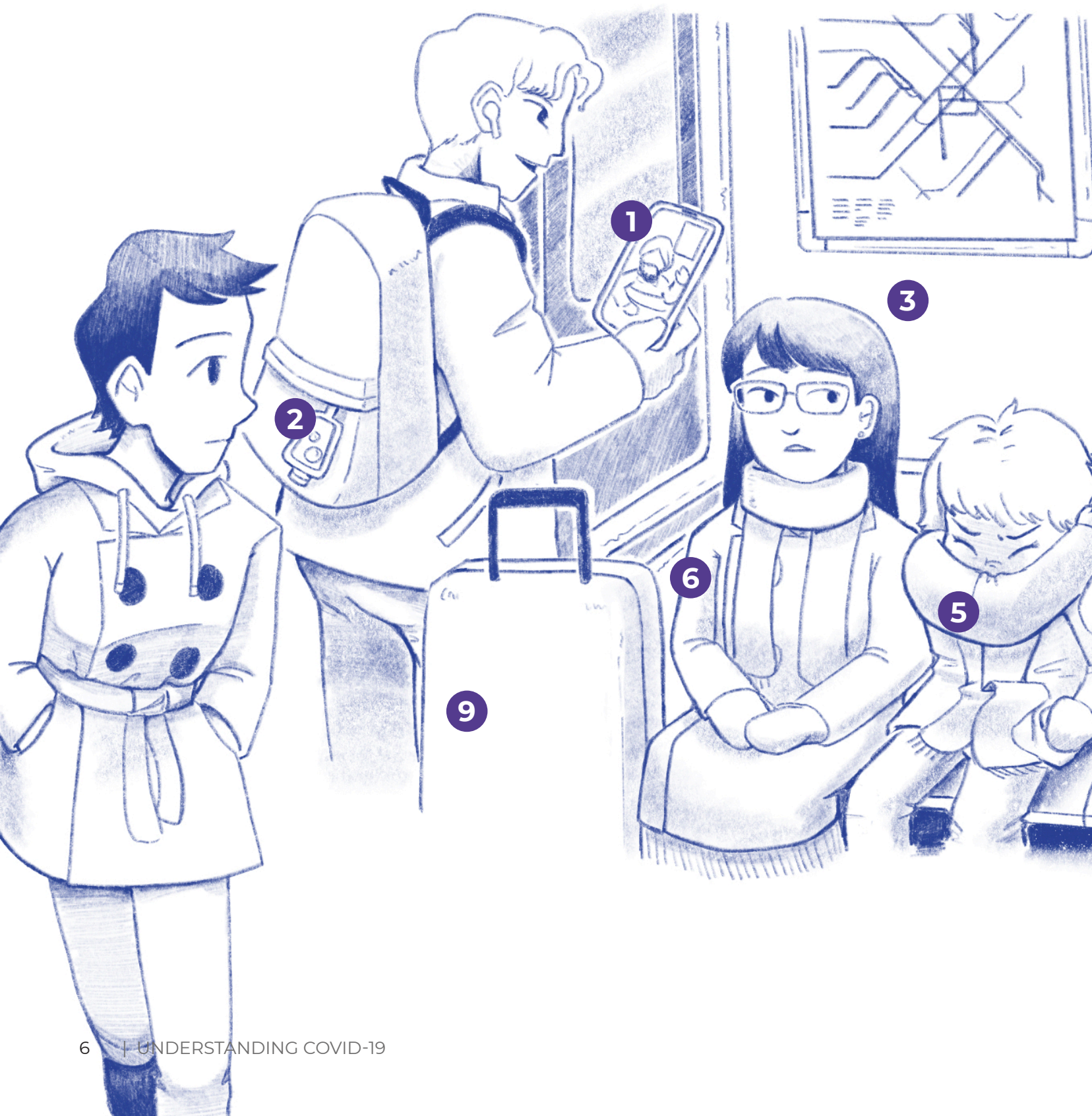
Incubation Period⁵

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.

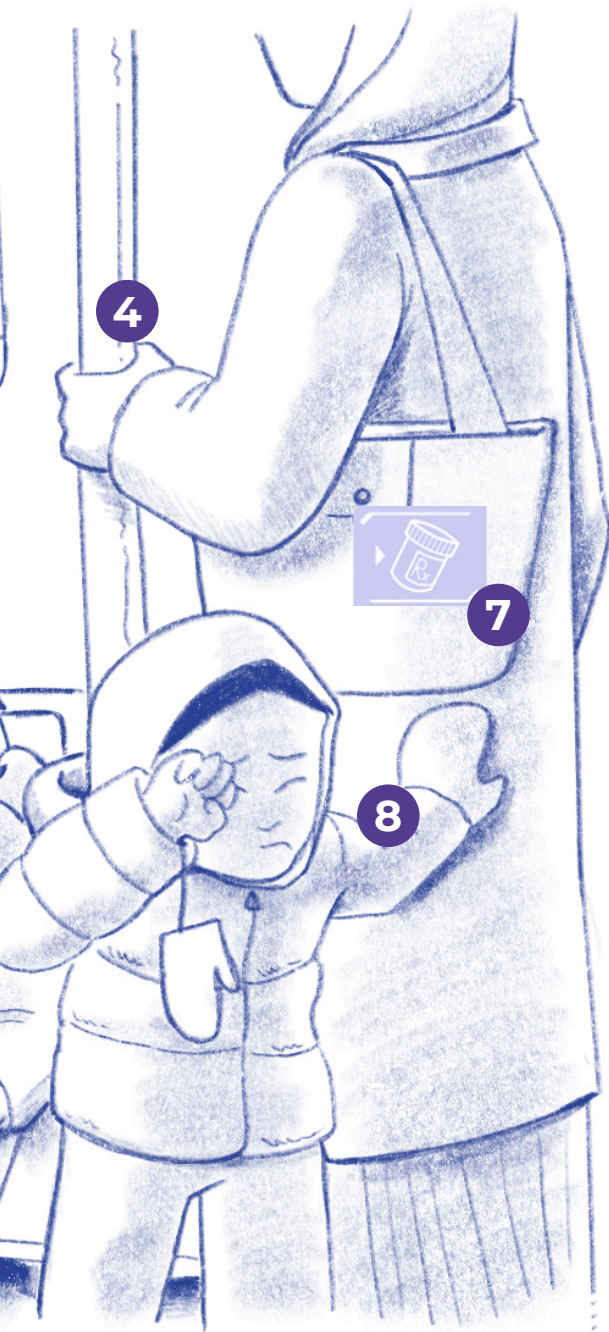
YOUR PART

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!

Prevention⁶



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**

Close Contact⁷

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

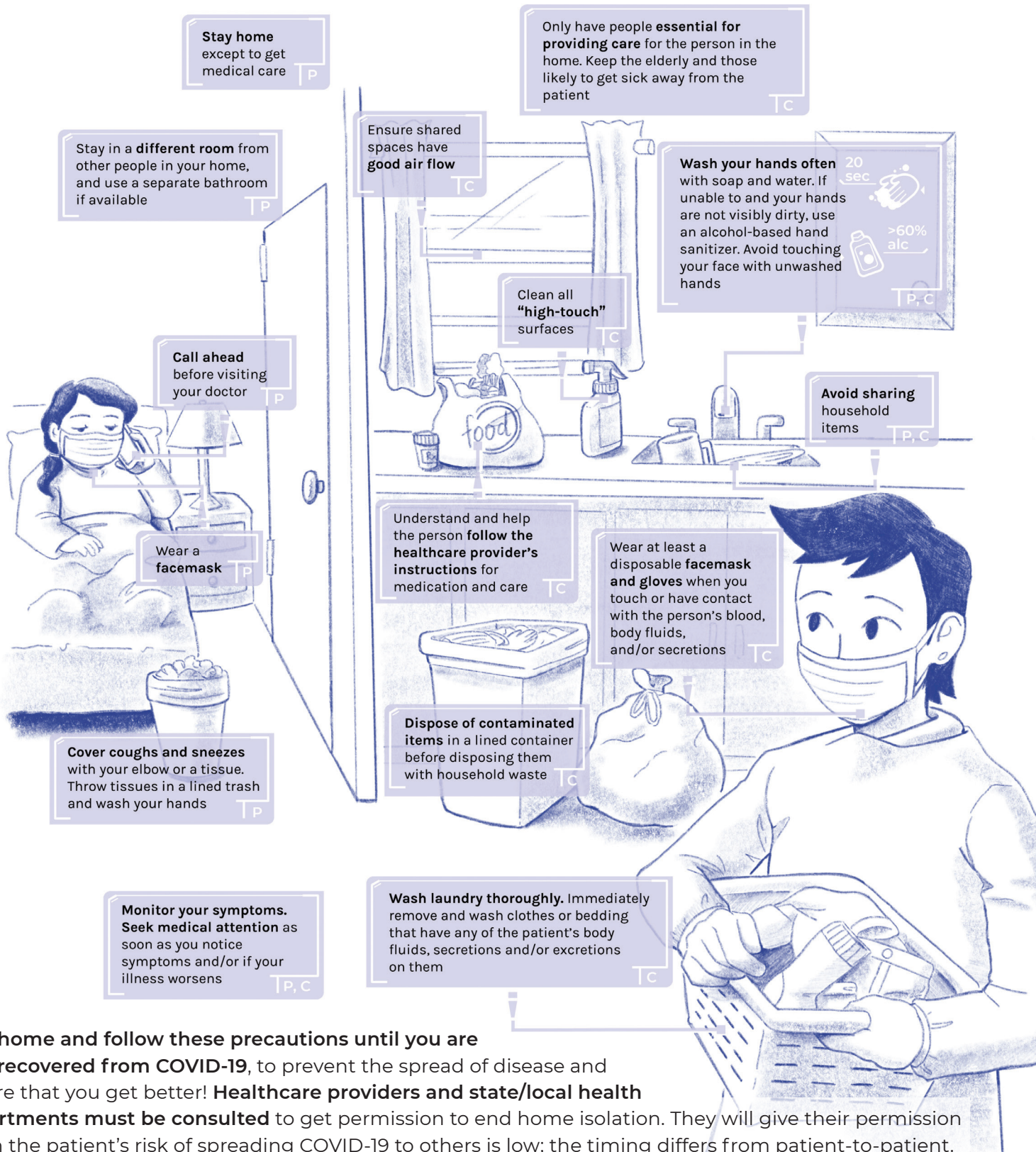
Remember, **don't panic!**

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.

Patient Care⁸

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 and follow these precautions until you are fully recovered from COVID-19, to prevent the spread of disease and ensure that you get better! 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.

PHYSICIANS WEAR MASKS, BUT YOU SHOULDN'T HAVE TO IF YOU'RE WELL!⁹

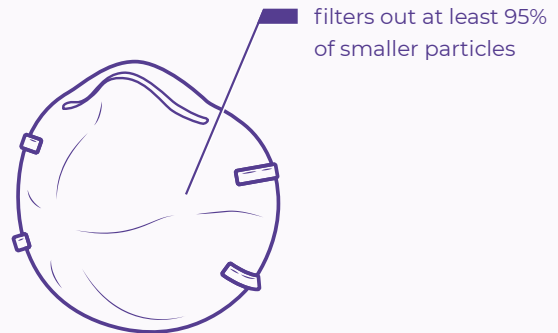
In light of the outbreak, two kinds of facemasks have been flying off American shelves:

Surgical mask



- ✓ Will help **prevent the spread** of COVID-19 if you are sick
- ✗ **Does not effectively prevent catching** COVID-19

N95 Respirator



- ✓ Will help **prevent against catching and spreading** 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!⁶

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!

ACTION PLAN

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)¹⁰

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

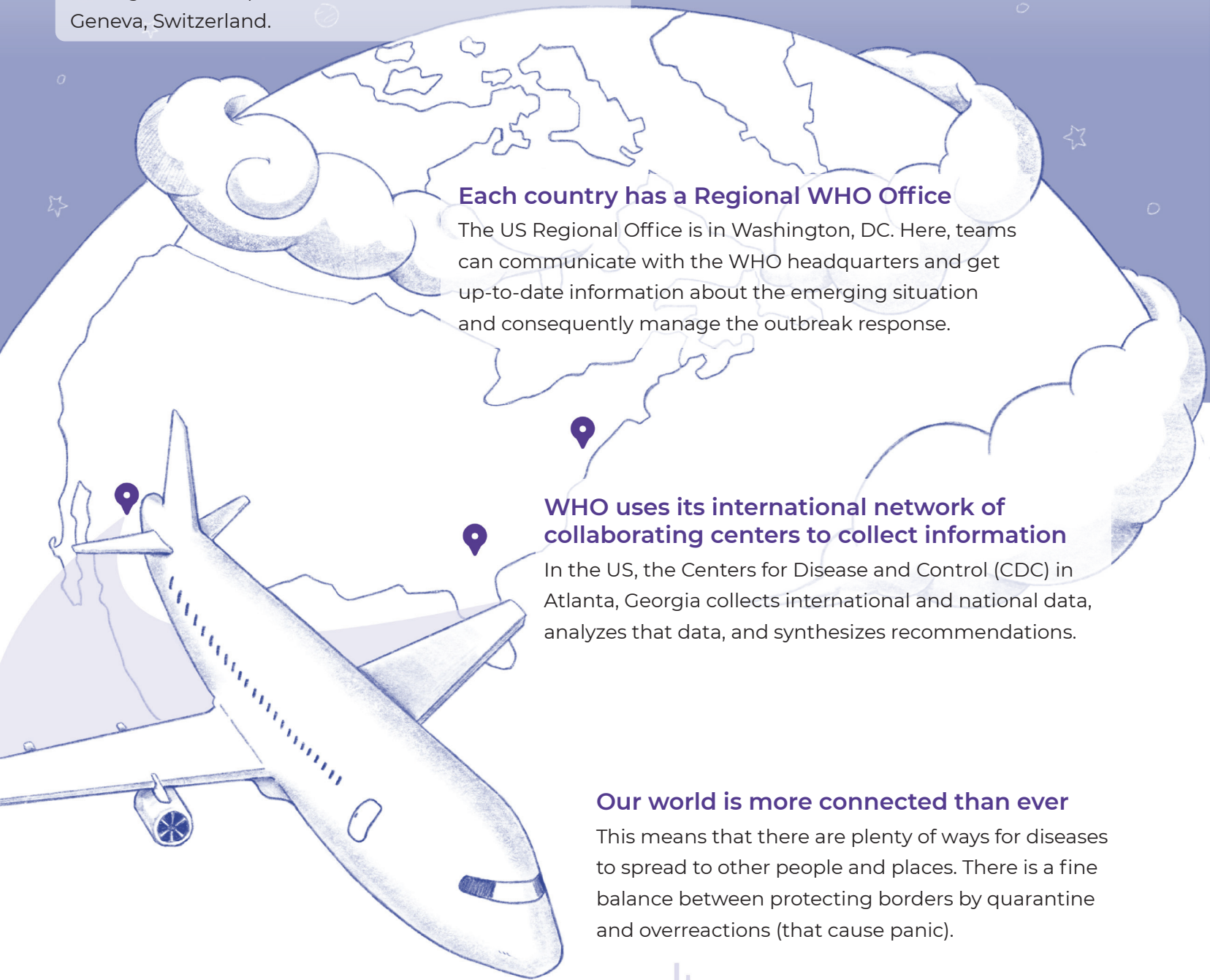
The US Regional Office is in Washington, DC. Here, teams can communicate with the WHO headquarters and get up-to-date information about the emerging situation and consequently manage the outbreak response.

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.

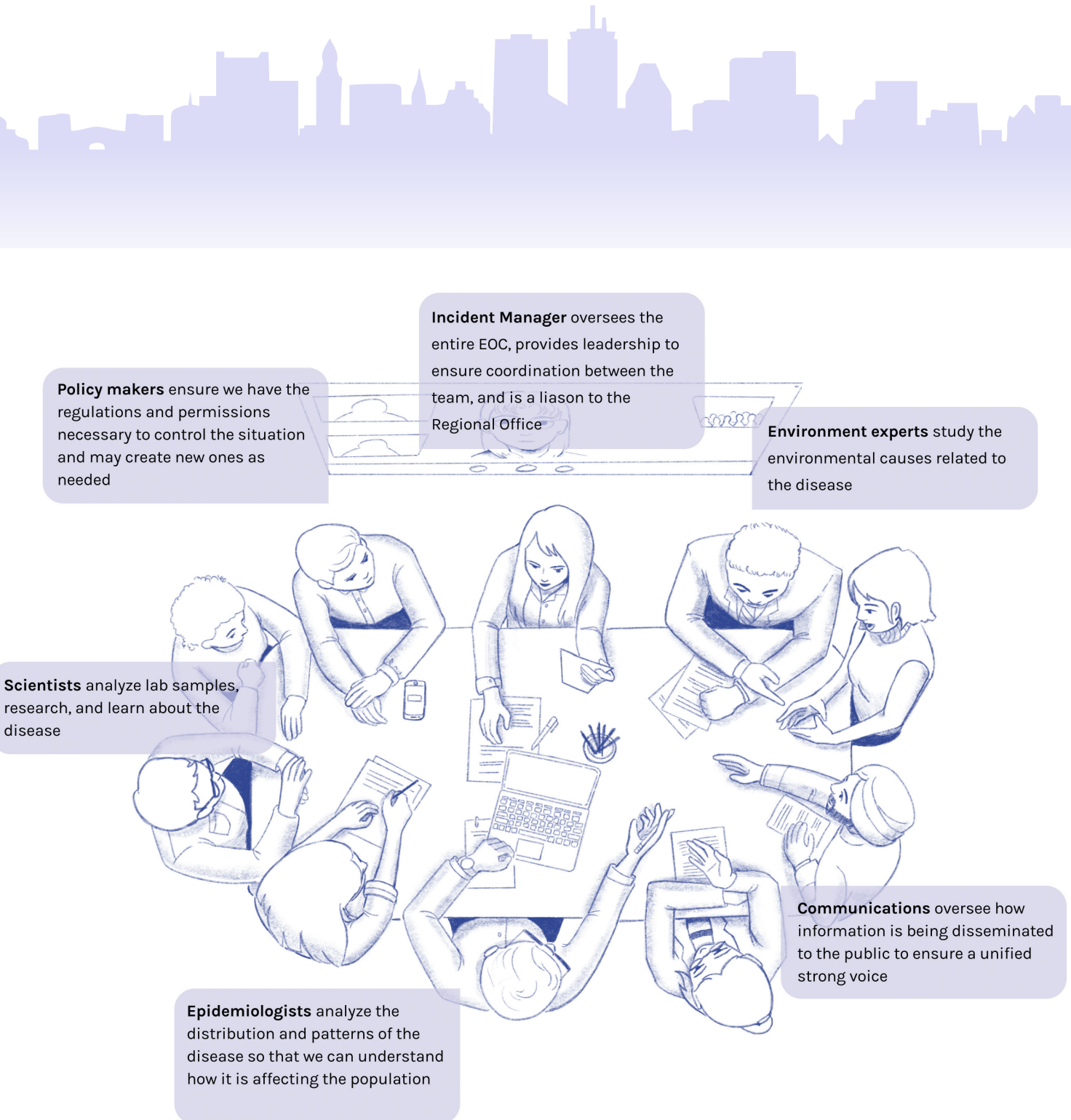
Our world is more connected than ever

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 Centers¹⁰

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.

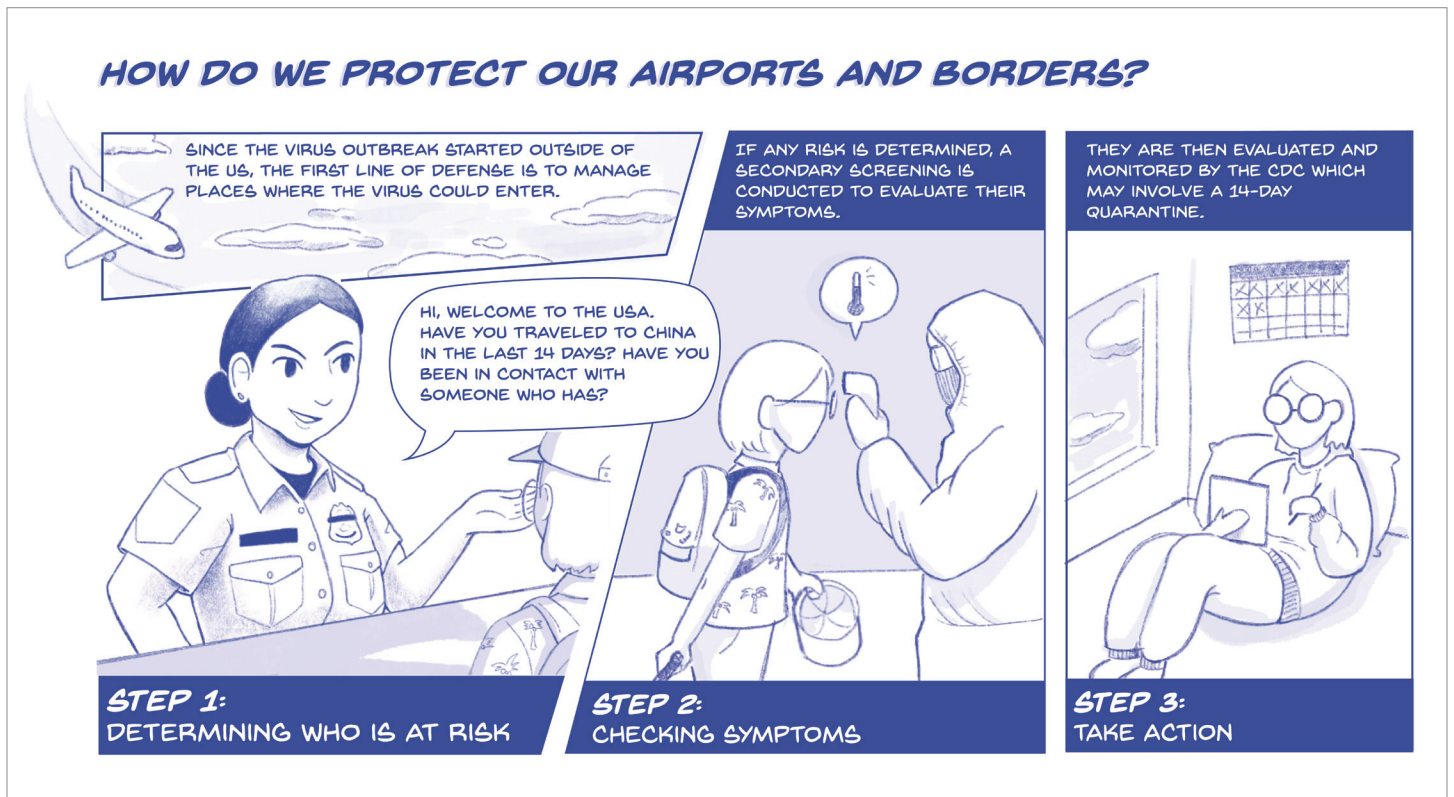


So what does this look like in practice?

At the national level, our first line of defense is monitoring ports-of-entry^{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^{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.

HOW DOES A HOSPITAL RESPOND TO A QUARANTINE?

WE’VE RECEIVED TRAINING AND HAVE PROTOCOLS ON HOW TO HANDLE PATIENTS SUSPECTED OF HAVING COVID-19.

THE HOSPITAL HAS LOTS OF SICK PEOPLE THAT MAY BE AT GREATER RISK FROM HAVING SEVERE SYMPTOMS FROM THE VIRUS.

PERSONAL PROTECTION EQUIPMENT IS CRUCIAL TO HEALTH WORKER SAFETY!

MILD CASES: SELF-QUARANTINE AT HOME

SEVERE CASES: ISOLATE IN HOSPITAL

DOCTORS AND NURSES

ADMINISTRATORS

PATIENTS

CUSTODIANS

IT’S IMPORTANT THAT *EVERYONE* IN THE HOSPITAL ENVIRONMENT IS EDUCATED ABOUT THE RISKS AND HOW TO DEAL WITH COVID-19. THIS INCLUDES NOT ONLY *DOCTORS AND NURSES*, BUT *PATIENTS, ADMINISTRATORS, AND CUSTODIANS* TOO.

WE ALL PLAY A PART IN KEEPING THIS DISEASE CONTROLLED AND PEOPLE HEALTHY.

The US has already taken aggressive quarantine measures¹⁶

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?^{17, 18}

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.

HOW DOES A CITY RESPOND TO QUARANTINE?

***BASED ON THEIR SURVEILLANCE REPORTS, THE CDC HAS IDENTIFIED A CITY TO BE QUARANTINED.**

INCIDENT MANAGER: ALRIGHT TEAM, WE'VE GOT OUR ORDERS, WE HAVE TO LOCKDOWN THE CITY. WE HAVE 5 DAYS TO DO IT.

- 1 SHUT DOWN PUBLIC PLACES**
- 2 RESTRICT MASS TRANSIT**
- 3 ENCOURAGE BUSINESSES TO CLOSE...**
...AND EMPLOYEES TO STAY HOME
- 4 CREATE CHECKPOINTS, CURFEWS, TRAVEL PERMITS, AND ISSUE HEALTH CERTIFICATES**
- 5 ENFORCE A QUARANTINE**
- 6 KEEP THE PUBLIC UPDATED VIA TEXT, CABLE TELEVISION, RADIO, AND DOOR-TO-DOOR**

*IT IS VERY UNLIKELY THIS WOULD HAPPEN IN AMERICA; U.S. POLICIES ACTUALLY ACT AGAINST ENACTING LOCATION-BASED MASS QUARANTINES.

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

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:

<https://www.cdc.gov/coronavirus/2019-nCoV/>



National Institute of Allergy and Infectious Diseases

<https://www.niaid.nih.gov/diseases-conditions/coronaviruses>



US Food and Drug Administration

<https://www.fda.gov/emergency-preparedness-and-response/mcm-issues/novel-coronavirus-2019-ncov>



**MASSACHUSETTS
MEDICAL SOCIETY**

Every physician matters, each patient counts.

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>

ABOUT

This is open source.
Use it, share it, make it better.

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<https://github.com/goinvo/COVID19>

Designing the future of healthcare



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Send feedback at coronavirus@goinvo.com

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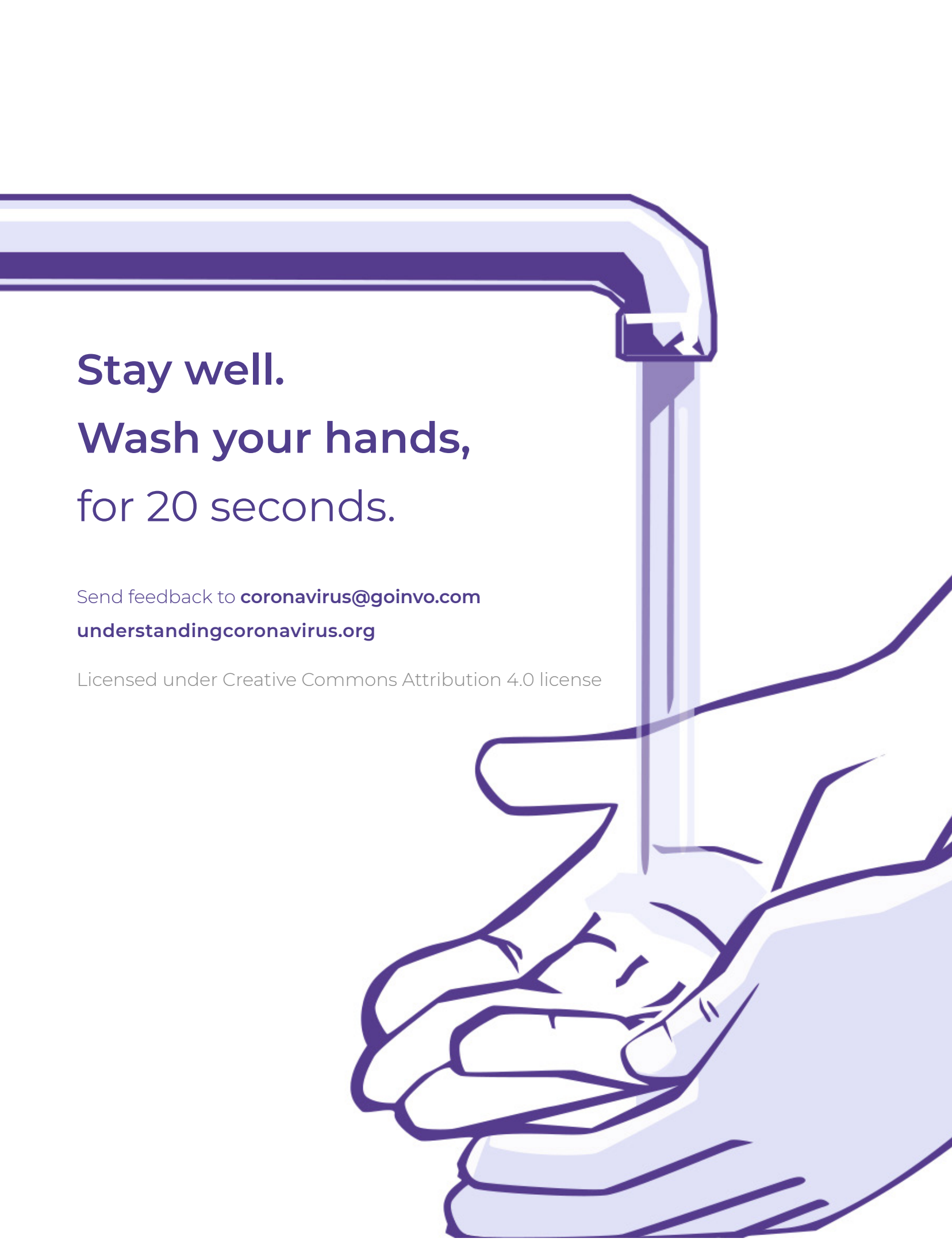
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A stylized illustration in shades of purple and blue. At the top, a faucet is shown with water dripping down. Below the faucet, two hands are positioned to be washed. The hands are rendered with simple outlines and some flat color shading. The overall style is clean and modern.

Stay well.
Wash your hands,
for 20 seconds.

Send feedback to coronavirus@goinvo.com
understandingcoronavirus.org

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