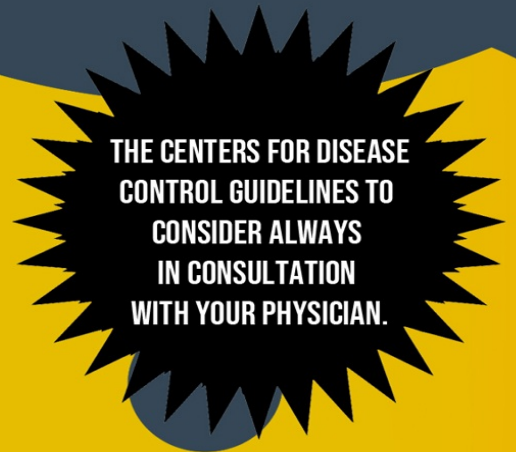




THE CENTERS FOR DISEASE
CONTROL GUIDELINES TO
CONSIDER ALWAYS
IN CONSULTATION
WITH YOUR PHYSICIAN.

CORONAVIRUS

A GUIDE TO UNDERSTANDING THE VIRUS
AND WHAT IS KNOWN SO FAR

FROM THE CENTERS FOR DISEASE CONTROL'S WEBSITE

CORONAVIRUS

A GUIDE TO UNDERSTANDING THE
VIRUS AND WHAT IS KNOWN SO FAR

FROM THE CENTERS FOR DISEASE
CONTROL'S WEBSITE

Start Publishing LLC

Copyright © 2020 by Start Publishing LLC

All rights reserved, including the right to reproduce this book or portions thereof in any form
whatsoever.

First Start Publishing eBook edition.

Start Publishing is a registered trademark of Start Publishing LLC

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1

ISBN 978-1-952438-98-1

Table of Contents

COVID-19 Situation Summary

What You Should Know

Travel Information

Preventing COVID-19 Spread in Communities

Protect Yourself & Family

Higher Risk & Special Populations

Healthcare Professionals

Resources for Healthcare Facilities

Resources for Health Departments

Laboratories

Communication Resources

Coronavirus Disease 2019 (COVID-19) Situation Summary

Background

CDC is responding to an outbreak of respiratory disease caused by a novel (new) coronavirus that was first detected in China and which has now been detected in more than 100 locations internationally, including in the United States. The virus has been named “SARS-CoV-2” and the disease it causes has been named “coronavirus disease 2019” (abbreviated “COVID-19”).

On January 30, 2020, the International Health Regulations Emergency Committee of the World Health Organization declared the outbreak a “public health emergency of international concern” (PHEIC). On January 31, 2020, Health and Human Services Secretary Alex M. Azar II declared a public health emergency (PHE) for the United States to aid the nation’s healthcare community in responding to COVID-19. On March 11, 2020 WHO publicly characterized COVID-19 as a pandemic.

Source and Spread of the Virus

Coronaviruses are a large family of viruses that are common in people and many different species of animals, including camels, cattle, cats, and bats. Rarely, animal coronaviruses can infect people and then spread between people such as with MERS-CoV, SARS-CoV, and now with this new virus (named SARS-CoV-2).

The SARS-CoV-2 virus is a betacoronavirus, like MERS-CoV and SARS-

CoV. All three of these viruses have their origins in bats. The sequences from U.S. patients are similar to the one that China initially posted, suggesting a likely single, recent emergence of this virus from an animal reservoir.

Early on, many of the patients at the epicenter of the outbreak in Wuhan, Hubei Province, China had some link to a large seafood and live animal market, suggesting animal-to-person spread. Later, a growing number of patients reportedly did not have exposure to animal markets, indicating person-to-person spread. Person-to-person spread was subsequently reported outside Hubei and in countries outside China, including in the United States. Some international destinations now have apparent community spread with the virus that causes COVID-19, as do some parts of the United States. Community spread means some people have been infected and it is not known how or where they became exposed. Learn what is known about the spread of this newly emerged coronaviruses.

Situation in U.S.

- In addition to CDC, many public health laboratories are now testing for the virus that causes COVID-19. View CDC's Public Health Laboratory Testing map.
- With this increase in testing, more and more states are reporting cases of COVID-19 to CDC. View latest case counts, deaths, and a map of states with reported cases.
- U.S. COVID-19 cases include:
 - Imported cases in travelers
 - Cases among close contacts of a known case
 - Community-acquired cases where the source of the infection is unknown.

Illness Severity

The complete clinical picture with regard to COVID-19 is not fully known. Reported illnesses have ranged from very mild (including some with no reported symptoms) to severe, including illness resulting in death. While information so far suggests that most COVID-19 illness is mild, a report out of China suggests serious illness occurs in 16% of cases. Older people and people of all ages with severe underlying health conditions — like heart disease, lung disease and diabetes, for example — seem to be at higher risk of developing serious COVID-19 illness.

Learn more about the symptoms associated with COVID-19.

There are ongoing investigations to learn more. This is a rapidly evolving situation and information will be updated as it becomes available.

Risk Assessment

Outbreaks of novel virus infections among people are always of public health concern. The risk to the general public from these outbreaks depends on characteristics of the virus, including how well it spreads between people; the severity of resulting illness; and the medical or other measures available to control the impact of the virus (for example, vaccines or medications that can treat the illness). That this disease has caused severe illness, including illness resulting in death is concerning, especially since it has also shown sustained person-to-person spread in several places. These factors meet two of the criteria of a pandemic. As community spread is detected in more and more countries, the world moves closer toward meeting the third criteria, worldwide spread of the new virus.

It is important to note that current circumstances suggest it is likely that this virus will cause a pandemic. This is a rapidly evolving situation and CDC's risk assessment will be updated as needed.

Current risk assessment:

- For the majority of people, the immediate risk of being exposed to the virus that causes COVID-19 is thought to be low. There is not widespread circulation in most communities in the United States.
- People in places where ongoing community spread of the virus that causes COVID-19 has been reported are at elevated risk of exposure, with increase in risk dependent on the location.
- Healthcare workers caring for patients with COVID-19 are at elevated risk of exposure.
- Close contacts of persons with COVID-19 also are at elevated risk of exposure.
- Travelers returning from affected international locations where community spread is occurring also are at elevated risk of exposure, with increase in risk dependent on location.

CDC has developed guidance to help in the risk assessment and management of people with potential exposures to COVID-19.

What May Happen

More cases of COVID-19 are likely to be identified in the United States in the coming days, including more instances of community spread. It's likely that at some point, widespread transmission of COVID-19 in the United States will occur. Widespread transmission of COVID-19 would translate into large numbers of people needing medical care at the same time. Schools, childcare centers, and workplaces, may experience more absenteeism. Mass gatherings may be sparsely attended or postponed. Public health and healthcare systems may become overloaded, with elevated rates of hospitalizations and deaths. Other critical infrastructure, such as law enforcement, emergency medical services, and sectors of the transportation industry may also be affected. Healthcare providers and hospitals may be overwhelmed. At this time, there is no vaccine to

protect against COVID-19 and no medications approved to treat it. Nonpharmaceutical interventions would be the most important response strategy.

CDC Response

Global efforts at this time are focused concurrently on lessening the spread and impact of this virus. The federal government is working closely with state, local, tribal, and territorial partners, as well as public health partners, to respond to this public health threat.

CDC is implementing its pandemic preparedness and response plans, working on multiple fronts, including providing specific guidance on measures to prepare communities to respond to local spread of the virus that causes COVID-19. There is an abundance of pandemic guidance developed in anticipation of an influenza pandemic that is being adapted for a potential COVID-19 pandemic.

Highlights of CDC's Response

- CDC established a COVID-19 Incident Management System on January 7, 2020. On January 21, CDC activated its Emergency Operations Center to better provide ongoing support to the COVID-19 response.
- The U.S. government has taken unprecedented steps with respect to travel in response to the growing public health threat posed by this new coronavirus:
 - Foreign nationals who have been in China or Iran within the past 14 days cannot enter the United States.
 - U.S. citizens, residents, and their immediate family members who have been in China or Iran within in the past 14 days can

enter the United States, but they are subject to health monitoring and possible quarantine for up to 14 days.

- On March 8, CDC recommended that people at higher risk of serious COVID-19 illness avoid cruise travel and non-essential air travel.
- Additionally, CDC has issued the following additional specific travel guidance related to COVID-19.
- CDC has issued clinical guidance, including:
 - On January 30, CDC published guidance for healthcare professionals on the clinical care of COVID-19 patients.
 - On February 3, CDC posted guidance for assessing the potential risk for various exposures to COVID-19 and managing those people appropriately.
 - On February 27, CDC updated its criteria to guide evaluation of persons under investigation for COVID-19.
 - On March 8, CDC issued a Health Alert Network (HAN).
- CDC has deployed multidisciplinary teams to support state health departments case identification, contact tracing, clinical management, and public communications.
- CDC has worked with federal partners to support the safe return of Americans overseas who have been affected by COVID-19.



This is a picture of CDC's laboratory test kit for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). CDC tests are provided to U.S. state and local public health laboratories, Department of Defense (DOD) laboratories and select international laboratories.

- An important part of CDC's role during a public health emergency is to develop a test for the pathogen and equip state and local public health labs with testing capacity.
 - CDC developed an rRT-PCR test to diagnose COVID-19.
 - As of the evening of March 8, 78 state and local public health labs in 50 states and the District of Columbia have successfully verified and are currently using COVID-19 diagnostic tests.
 - Combined with other reagents that CDC has procured, there are enough testing kits to test more than 75,000 people.
 - In addition, CDC has two laboratories conducting testing for the virus that causes COVID-19. CDC can test approximately

350 specimens per day.

- Commercial labs are working to develop their own tests that hopefully will be available soon. This will allow a greater number of tests to happen close to where potential cases are.
- CDC has grown the COVID-19 virus in cell culture, which is necessary for further studies, including for additional genetic characterization. The cell-grown virus was sent to NIH's BEI Resources Repository for use by the broad scientific community.
- CDC also is developing a serology test for COVID-19.

CDC Recommends

- Everyone can do their part to help us respond to this emerging public health threat:
 - Individuals and communities should familiarize themselves with recommendations to protect themselves and their communities from getting and spreading respiratory illnesses like COVID-19.
 - Older people and people with severe chronic conditions should take special precautions because they are at higher risk of developing serious COVID-19 illness.
 - If you are a healthcare provider, be on the look-out for:
 - People who recently traveled from China or another affected area and who have symptoms associated with COVID-19, and
 - People who have been in close contact with someone with COVID-19 or patients with pneumonia of unknown cause. (Consult the most recent definition for patients under investigation [PUIs].)
 - If you are a healthcare provider or a public health responder

caring for a COVID-19 patient, please take care of yourself and follow recommended infection control procedures.

- If you are a close contact of someone with COVID-19 and develop symptoms of COVID-19, call your healthcare provider and tell them about your symptoms and your exposure. They will decide whether you need to be tested, but keep in mind that there is no treatment for COVID-19 and people who are mildly ill are able to isolate at home.
- If you are a resident in a community where there is ongoing spread of COVID-19 and you develop COVID-19 symptoms, call your healthcare provider and tell them about your symptoms. They will decide whether you need to be tested, but keep in mind that there is no treatment for COVID-19 and people who are mildly ill are able to isolate at home.
- For people who are ill with COVID-19, but are not sick enough to be hospitalized, please follow CDC guidance on how to reduce the risk of spreading your illness to others. People who are mildly ill with COVID-19 are able to isolate at home during their illness.
- If you have been in China or another affected area or have been exposed to someone sick with COVID-19 in the last 14 days, you will face some limitations on your movement and activity. Please follow instructions during this time. Your cooperation is integral to the ongoing public health response to try to slow spread of this virus.

Coronavirus Disease 2019 (COVID-19) in the U.S.

CDC is responding to an outbreak of respiratory illness caused by a novel (new) coronavirus. The outbreak first started in Wuhan, China, but

cases have been identified in a growing number of other locations internationally, including the United States. In addition to CDC, many public health laboratories are now testing for the virus that causes COVID-19.

COVID-19: U.S. at a Glance*

Total cases: 647

Total deaths: 25

States reporting cases: 36 (includes District of Columbia)

* Data include both confirmed and presumptive positive cases of COVID-19 reported to CDC or tested at CDC since January 21, 2020, with the exception of testing results for persons repatriated to the United States from Wuhan, China and Japan. State and local public health departments are now testing and publicly reporting their cases. In the event of a discrepancy between CDC cases and cases reported by state and local public health officials, data reported by states should be considered the most up to date.

COVID-19: Cases in the United States Reported to CDC*†‡

Travel-related	83
Person-to-person spread	36
Under Investigation	528

Total cases

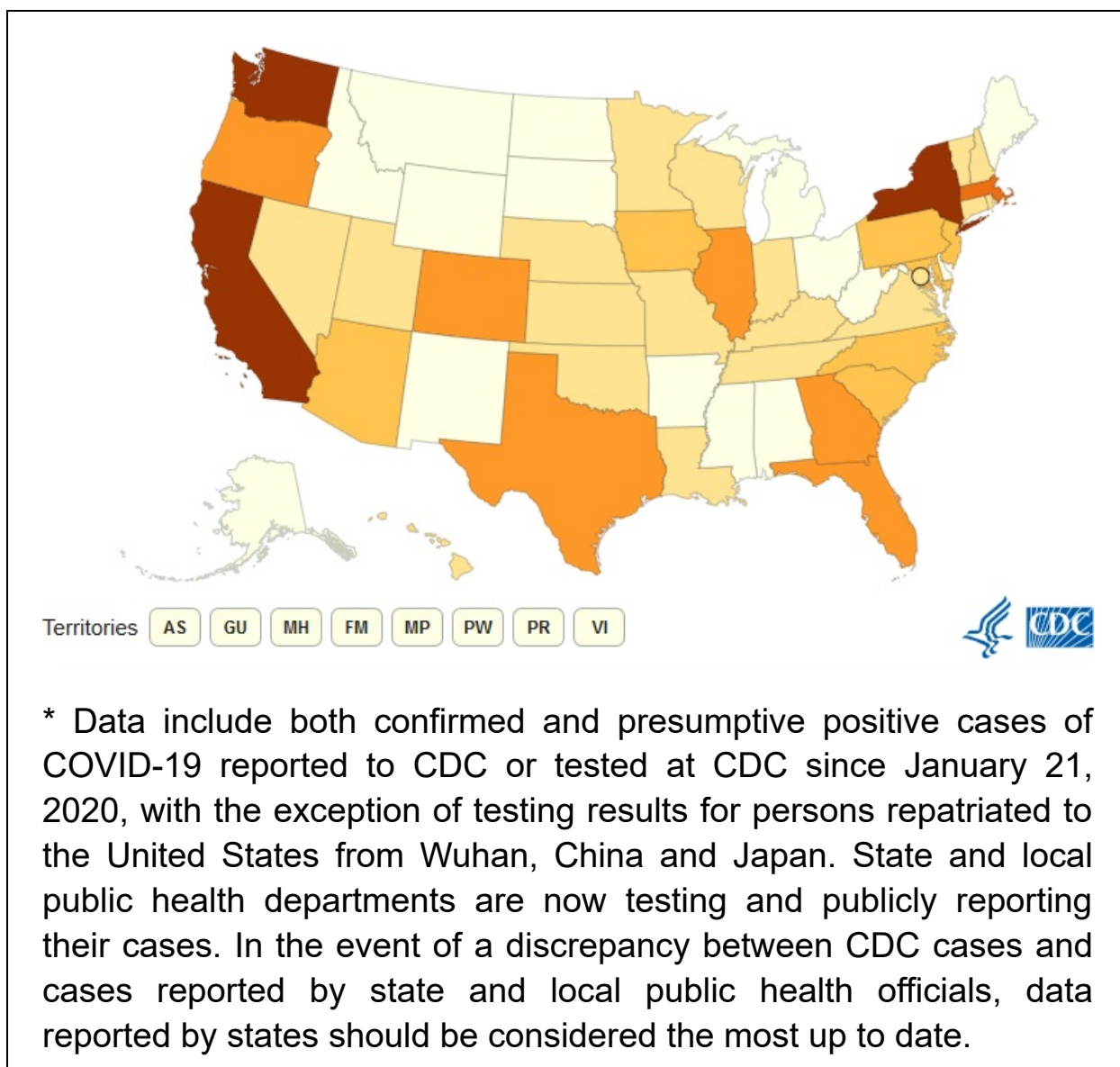
647

* Data include both confirmed and presumptive positive cases of COVID-19 reported to CDC or tested at CDC since January 21, 2020, with the exception of testing results for persons repatriated to the United States from Wuhan, China and Japan. State and local public health departments are now testing and publicly reporting their cases. In the event of a discrepancy between CDC cases and cases reported by state and local public health officials, data reported by states should be considered the most up to date.

† CDC is no longer reporting the number of persons under investigation (PUIs) that have been tested, as well as PUIs that have tested negative. Now that states are testing and reporting their own results, CDC's numbers are not representative of all testing being done nationwide.

‡ As of March 8, 2020 1,707 patients had been tested at CDC. This does not include testing being done at state and local public health laboratories, which began this week.

States Reporting Cases of COVID-19 to CDC*

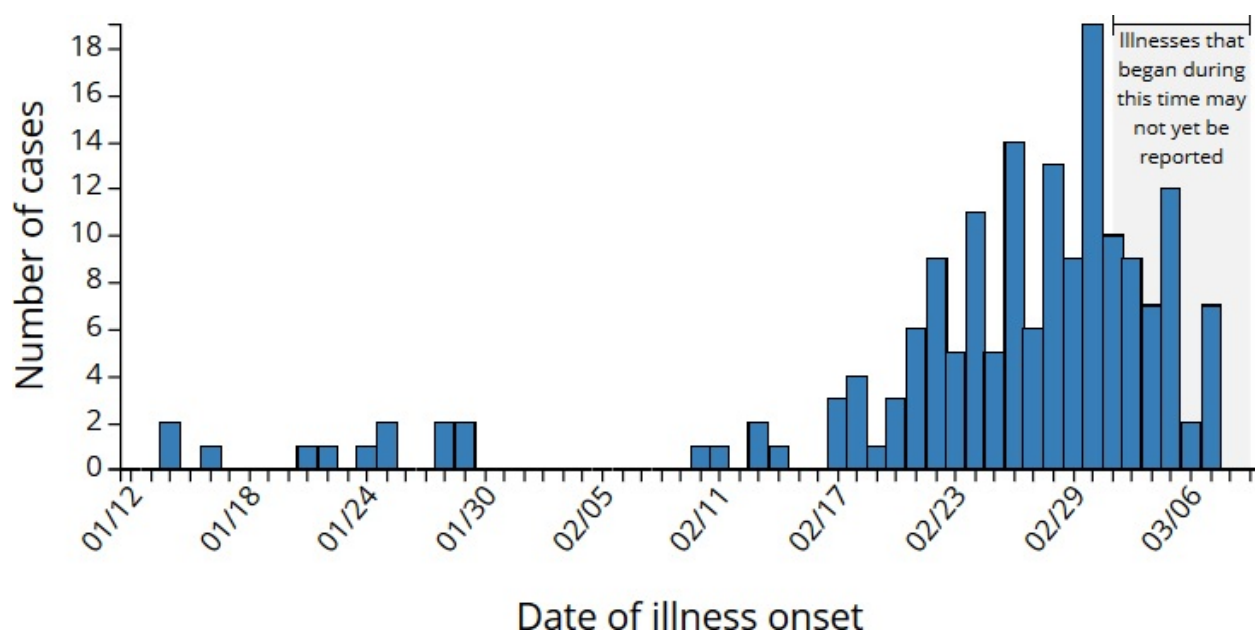


COVID-19: Cases among Persons Repatriated to the United States

	Positive
Wuhan, China	3

Diamond Princess Cruise Ship¶¶	46
¶¶ Cases have laboratory confirmation and may or may not have been symptomatic.	

COVID-19 cases in the United States by date of illness onset, January 12, 2020, to March 8, 2020, at 4pm ET (n=137)**



Region Name	Start Date	End Date
Illnesses that began during this time may not yet be reported	03/01/2020	03/08/2020

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

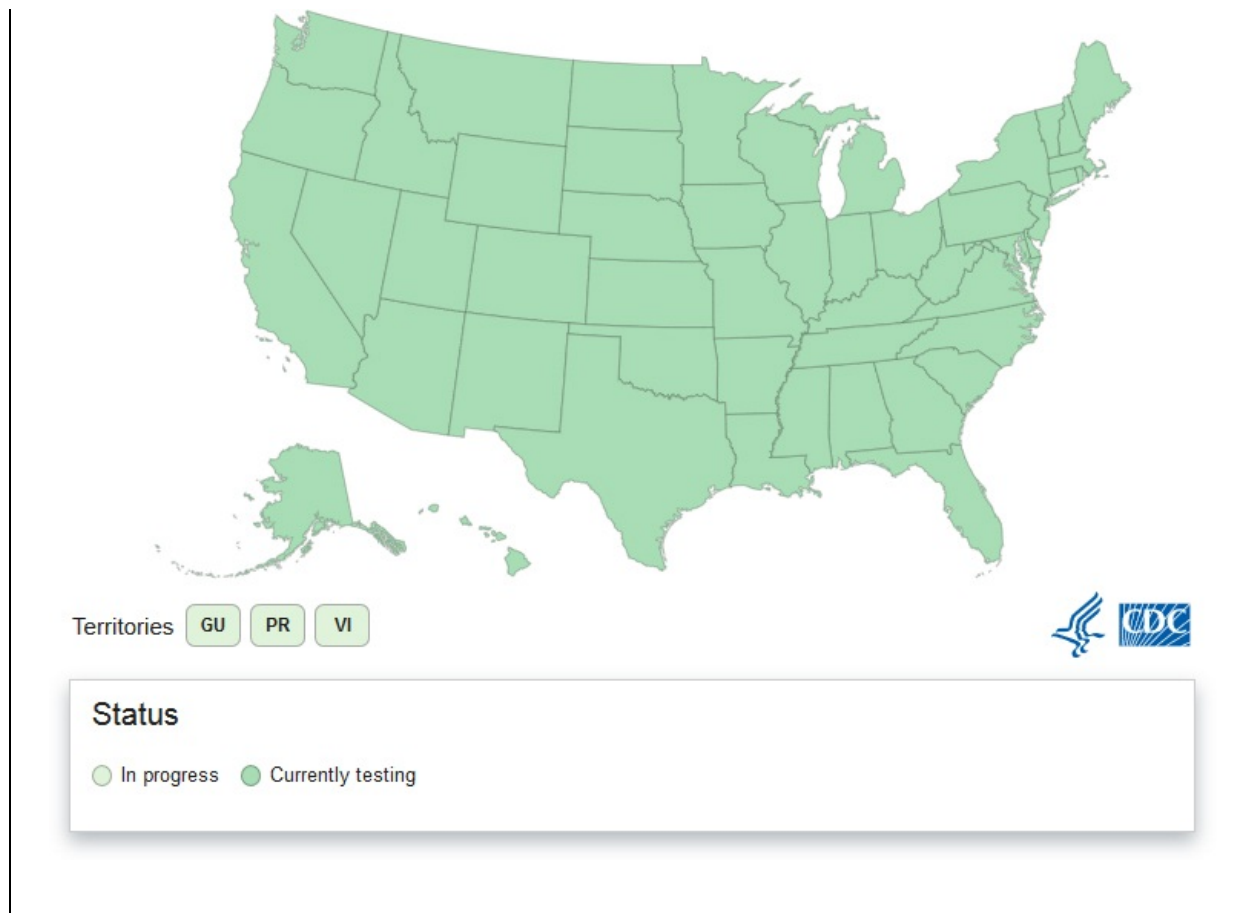
Testing in the U.S.

CDC is responding to an outbreak of respiratory illness caused by a novel (new) coronavirus. The outbreak first started in Wuhan, China, but cases have been identified in a growing number of other locations internationally, including the United States.

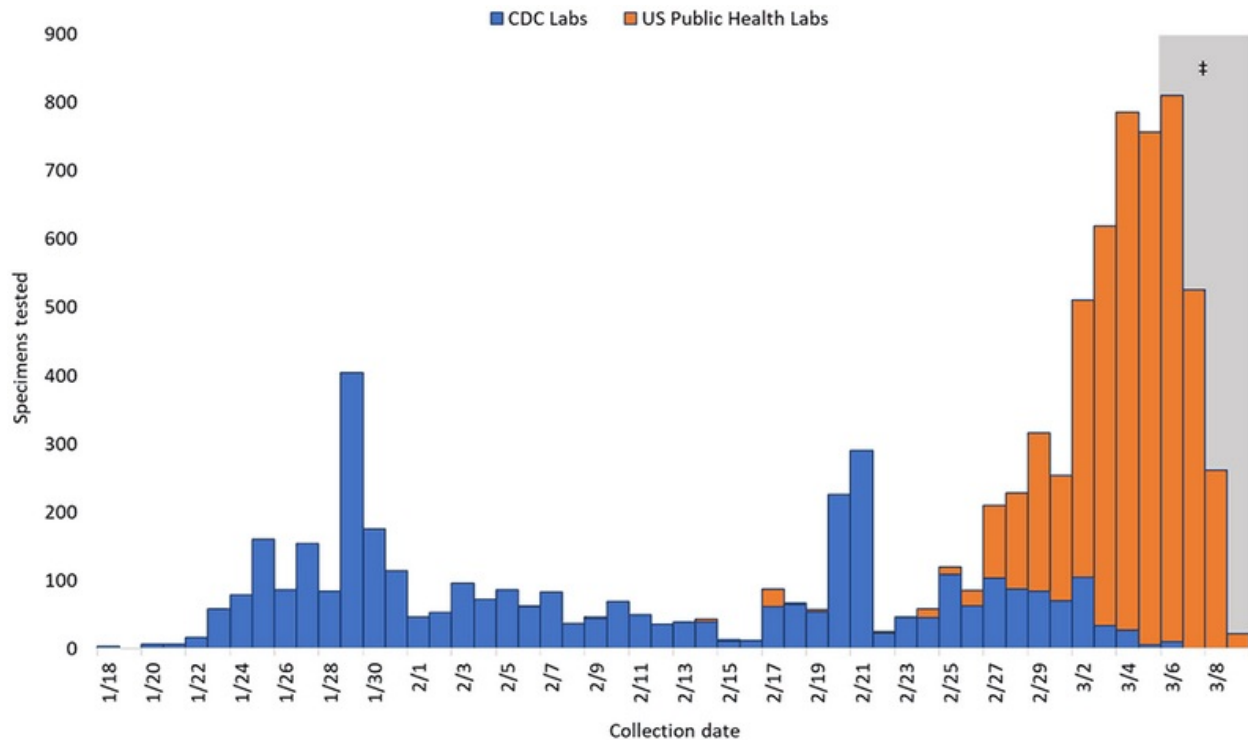
Public Health Laboratory Testing for COVID-19

This map includes states and territories with one or more laboratories that have successfully verified and are currently using COVID-19 diagnostic tests. As of the evening of March 9, 79 state and local public health labs in 50 states and the District of Columbia have successfully verified and are currently using COVID-19 diagnostic tests.

This list is provided by the Association of Public Health Laboratories (APHL). Contact your state health department regarding questions about testing.



Number of specimens tested for the virus that causes COVID-19 by CDC labs (N=3,698) and U.S. public health laboratories* (N=4,856) by date of specimen collection†



* Reporting public health laboratories are 42 state public health labs (AL, AR, AZ, CA, CO, CT, DE, GA, HI, IA, ID, IL, IN, KS, KY, LA, MA, MD, MI, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, TN, TX, VT, WA, WI and WY), New York City, USAF, and 5 California counties.

† Non-respiratory specimens were excluded. If collection date is not available then, for CDC results, the date received or reported is used and, for U.S. public health laboratories, the date tested is used. Results reported as of 3:15pm on March 9 were included.

‡ Data during this period are pending.

Lab Collection Dates

Date Collected	CDC Labs	US Public Health Labs
1/18	4	0
1/19	0	0

1/20	7	0
1/21	7	0
1/22	17	0
1/23	58	0
1/24	79	0
1/25	160	0
1/26	86	0
1/27	154	0
1/28	84	0
1/29	404	0
1/30	175	0
1/31	114	0
2/1	47	0
2/2	53	0
2/3	96	0

2/4	72	0
2/5	86	0
2/6	62	1
2/7	83	0
2/8	37	0
2/9	45	2
2/10	69	0
2/11	50	0
2/12	36	0
2/13	39	0
2/14	39	4
2/15	11	2
2/16	12	0
2/17	62	26
2/18	65	2
2/19	54	3

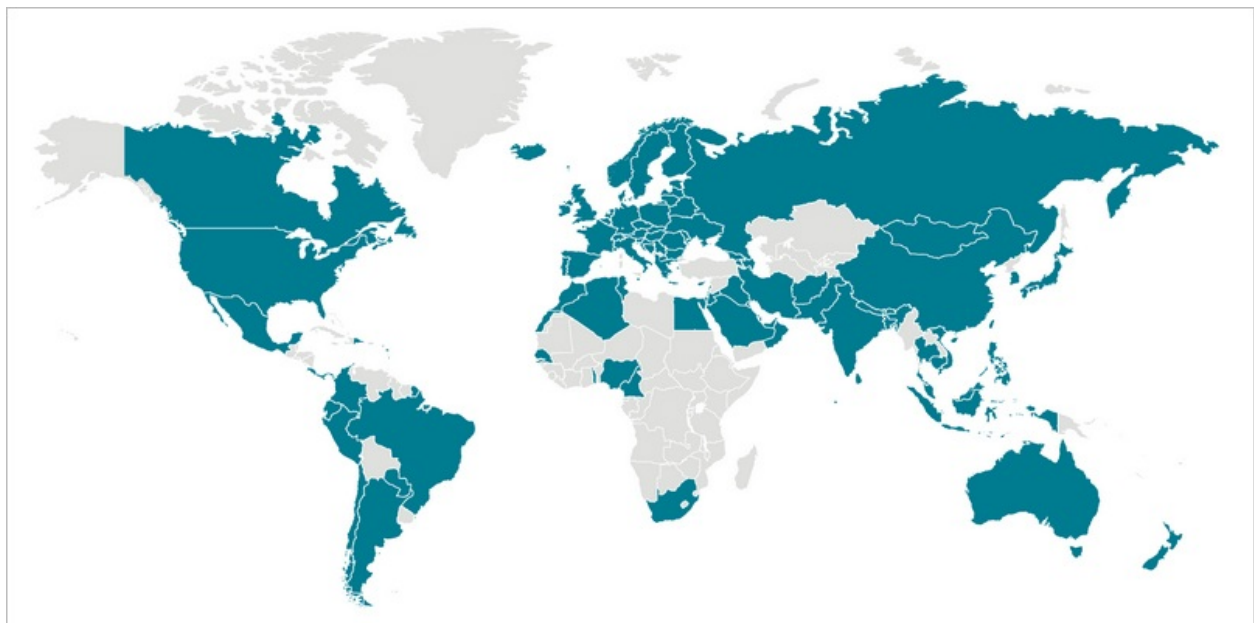
2/20	226	0
2/21	290	0
2/22	23	2
2/23	46	1
2/24	46	12
2/25	109	11
2/26	63	22
2/27	104	106
2/28	88	140
2/29	84	232
3/1	70	184
3/2	105	405
3/3	34	585
3/4	27	758
3/5	6	750

3/6	10	800
3/7	0	525
3/8	0	261
3/9	0	22
	3698	4856

Global Map

As of 12:00 p.m. ET March 10, 2020

World map showing countries with COVID-19 cases



Global case numbers are reported by the World Health Organization (WHO) in their coronavirus disease 2019 (COVID-19) situation report.

For U.S. information, visit CDC's COVID-19 in the U.S.

Locations with Confirmed COVID-19 Cases, by WHO Region

Africa

- Algeria
- Cameroon
- Nigeria
- Senegal
- South Africa
- Togo

Americas

- Argentina
- Brazil
- Canada
- Chile
- Colombia
- Costa Rica
- Dominican Republic
- Ecuador
- French Guiana
- Guadalupe
- Martinique
- Mexico

- Panama
- Paraguay
- Peru
- United States

Eastern Mediterranean

- Afghanistan
- Bahrain
- Egypt
- Iran
- Iraq
- Jordan
- Kuwait
- Lebanon
- Morocco
- Oman
- Pakistan
- Qatar
- Saudi Arabia
- Tunisia
- United Arab Emirates

Europe

- Albania
- Andorra
- Armenia
- Austria

- Azerbaijan
- Belarus
- Belgium
- Bosnia and Herzegovina
- Bulgaria
- Croatia
- Cyprus
- Czechia
- Denmark
- Estonia
- Finland
- France
- Georgia
- Germany
- Gibraltar
- Greece
- Holy See (Vatican City)
- Hungary
- Iceland
- Ireland
- Israel
- Italy
- Latvia
- Liechtenstein
- Lithuania

- Luxembourg
- Malta
- Moldova
- Monaco
- Netherlands
- North Macedonia
- Norway
- Poland
- Portugal
- Romania
- Russia
- San Marino
- Serbia
- Slovakia
- Slovenia
- Spain
- Sweden
- Switzerland
- Ukraine
- United Kingdom

South-East Asia

- Bangladesh
- Bhutan
- India
- Indonesia

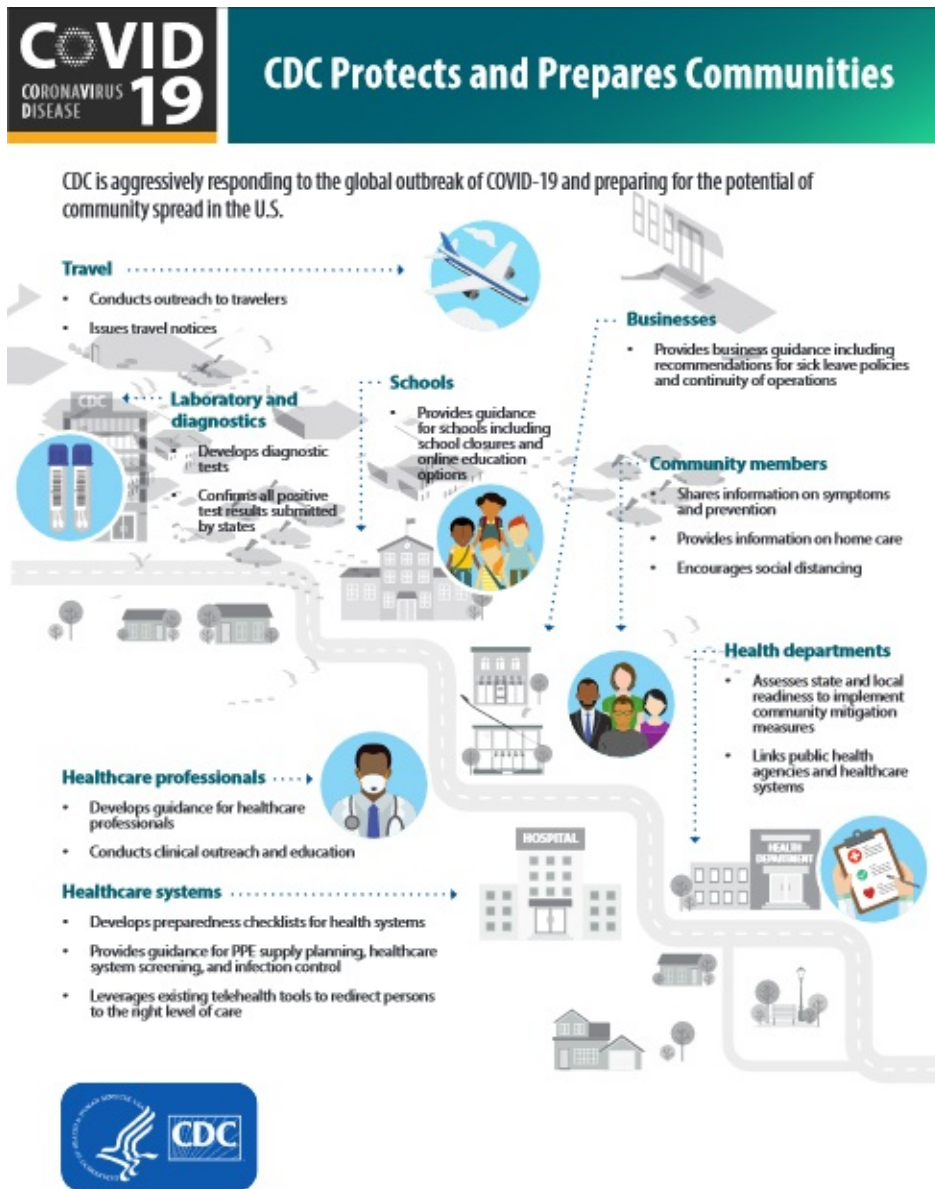
- Maldives
- Nepal
- Sri Lanka
- Thailand

Western Pacific

- Australia
- Brunei Darussalam
- Cambodia
- China
- Hong Kong
- Japan
- Macau
- Malaysia
- New Zealand
- Philippines
- Republic of Korea
- Singapore
- Taiwan
- Vietnam

CDC in Action: Preparing Communities for Potential Spread of COVID-19

CDC is aggressively responding to the global outbreak of COVID-19 and preparing for the potential of community spread in the United States.



CDC Protects and Prepares Communities

Preparing first responders, healthcare

providers, and health systems

- Establishing visibility across healthcare systems to understand healthcare use, particularly surges in demand for medical care and associated resources.
- Conducting extensive outreach to clinical and hospital professional organizations to ensure health system preparedness.
- Producing more than 23 guidance documents on infection control, hospital preparedness assessments, personal protective equipment (PPE) supply planning, and clinical evaluation and management (as of February 22, 2020).
 - Working closely with healthcare facilities and providers to reinforce infection control principles that recognize PPE is one component of a larger set of practices that help to limit the spread of disease.
 - Developing a range of respirator conservation strategies, including strategies to make supplies last longer (such as using alternative products like reusable respirators) and extending the use of disposable respirators.
- Leveraging existing telehealth tools to direct people to the right level of healthcare for their medical needs.
- Working with supply chain partners to understand supply usage, what products are available, and when more aggressive measures may need to be taken to ensure that healthcare workers at highest risk have access to PPE.
- Sharing information with stakeholders to help them recognize when to shift the strategies they are using.

Infographic: CDC Protects and Prepares Communities

CDC Protects and Prepares Communities

Reinforcing state, territorial, and local public health readiness

- Assessing state and local readiness to implement community mitigation measures like home containment, including housing and transportation needs.
- Coordinating with states to identify and mitigate gaps in readiness that will help reduce the spread of disease in the community while protecting workers, infrastructure, and institutions.
- Linking public health agencies and healthcare systems to identify and mitigate stressors to the health system.
- Tracking stockpiles of PPE across jurisdictions.
- Working with state and local public health to use existing Public Health Emergency Preparedness (PHEP) funding to support COVID-19 preparedness and response activities.
- Leveraging funding mechanisms to help states accelerate preparedness activities.
- Providing technical assistance and guidance to states to improve their ability to respond to the outbreak.

Supporting communities, businesses, and schools

- Creating business guidance to help the public and private sectors ensure they are able to operate with adaptations like telework and flexible sick leave policies, as well as how to respond if an employee gets sick.
- Developing guidance for childcare programs, K-12 schools, and colleges/universities to help them plan and prepare for COVID-19

and respond if there is a local outbreak in their community.

- Providing planning guides for COVID-19 that households, community- and faith-based organizations, event planners of mass gatherings, and public health communicators can use.
- Educating communities about nonpharmaceutical interventions (NPIs) that help slow the spread of illness, like COVID-19.

About Coronavirus Disease 2019 (COVID-19)

Latest Updates on his Outbreak

How it spreads

Symptoms

Prevention & treatment

What to do if you are sick

Stigma and Resilience

Frequently asked questions

How COVID-19 Spreads

COVID-19 is a new disease and we are still learning how it spreads, the severity of illness it causes, and to what extent it may spread in the United States.

How COVID-19 Spreads

Person-to-person spread

The virus is thought to spread mainly from person-to-person.

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes.

These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

Can someone spread the virus without being sick?

- People are thought to be most contagious when they are most symptomatic (the sickest).
- Some spread might be possible before people show symptoms; there have been reports of this occurring with this new coronavirus, but this is not thought to be the main way the virus spreads.

Spread from contact with contaminated surfaces or objects

It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the main way the virus spreads.

How easily the virus spreads

How easily a virus spreads from person-to-person can vary. Some viruses are highly contagious (spread easily), like measles, while other viruses do not spread as easily. Another factor is whether the spread is

sustained, spreading continually without stopping.

The virus that causes COVID-19 seems to be spreading easily and sustainably in the community (“community spread”) in some affected geographic areas.

Community spread means people have been infected with the virus in an area, including some who are not sure how or where they became infected.

Situation in U.S.

- In addition to CDC, many public health laboratories are now testing for the virus that causes COVID-19. View CDC’s Public Health Laboratory Testing map.
- With this increase in testing, now 19 states have reported cases of COVID-19 to CDC. View latest case counts, deaths, and a map of states with reported cases.
- U.S. COVID-19 cases include:
 - Imported cases in travelers
 - Cases among close contacts of a known case
 - Community-acquired cases where the source of the infection is unknown.

Latest Updates on this Outbreak

International Areas with Sustained (Ongoing)

Transmission

- China (Level 3 Travel Health Notice)
- Iran (Level 3 Travel Health Notice)
- Italy (Level 3 Travel Health Notice)
- Japan (Level 2 Travel Health Notice)
- South Korea (Level 3 Travel Health Notice)

Symptoms

Watch for symptoms

Reported illnesses have ranged from mild symptoms to severe illness and death for confirmed coronavirus disease 2019 (COVID-19) cases.

The following symptoms may appear 2-14 days after exposure.*

- Fever
- Cough
- Shortness of breath



Call your doctor if you...

Develop symptoms, and have been in close contact with a person known to have COVID-19

OR

Have recently traveled from an area with widespread or ongoing community spread of COVID-19.

How to protect yourself

What to do if you are sick

More information

- Travelers
- Households
- Pregnant Women & Children
- People Who are Sick
- Caregivers
- Schools
- Businesses
- Healthcare Professionals
- Health Departments
- Laboratories

Stop the spread of germs

Printable Flyer



- English [1 page]
- Spanish [1 page]

What to do if you are sick

Printable Flyer



Prevention & Treatment

There is currently no vaccine to prevent coronavirus disease 2019 (COVID-19).

The best way to prevent illness is to avoid being exposed to this virus.

The virus is thought to spread mainly from person-to-person.

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes.

These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.



Older adults and people who have severe underlying chronic medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness. Please consult with your health care provider about additional steps you may be able to take to protect yourself.

Take steps to protect yourself

Clean your hands often



- Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing.
- If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.
- Avoid touching your eyes, nose, and mouth with unwashed hands.

Avoid close contact



- Avoid close contact with people who are sick
- Put distance between yourself and other people if COVID-19 is spreading in your community. This is especially important for people who are at higher risk of getting very sick.

Take steps to protect others

Stay home if you're sick



- Stay home if you are sick, except to get medical care. Learn what to do if you are sick.

Cover coughs and sneezes



- Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow.
- Throw used tissues in the trash.
- Immediately wash your hands with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains at least 60% alcohol.

Wear a facemask if you are sick



- If you are sick: You should wear a facemask when you are around other people (e.g., sharing a room or vehicle) and before you enter a healthcare provider's office. If you are not able to wear a facemask (for example, because it causes trouble breathing), then you should do your best to cover your coughs and sneezes, and people who are caring for you should wear a facemask if they enter your room. Learn what to do if you are sick.
- If you are NOT sick: You do not need to wear a facemask unless you are caring for someone who is sick (and they are not able to wear a facemask). Facemasks may be in short supply and they should be saved for caregivers.

Clean and disinfect



- Clean AND disinfect frequently touched surfaces daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks.

- If surfaces are dirty, clean them: Use detergent or soap and water prior to disinfection.

To disinfect:

Most common EPA-registered household disinfectants will work. Use disinfectants appropriate for the surface.

Options include:

- Diluting your household bleach.
- To make a bleach solution, mix:
 - 5 tablespoons (1/3rd cup) bleach per gallon of water
 - OR
 - 4 teaspoons bleach per quart of water
- Follow manufacturer's instructions for application and proper ventilation. Check to ensure the product is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Unexpired household bleach will be effective against coronaviruses when properly diluted.
- Alcohol solutions.
- Ensure solution has at least 70% alcohol.
- Other common EPA-registered household disinfectants.
- Products with EPA-approved emerging viral pathogens [7 pages] claims are expected to be effective against COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.).

Complete disinfection guidance



More handwashing tips

Hand Hygiene in Healthcare Settings

Prevent the spread of COVID-19 if you are sick

 Call your doctor: If you think you have been exposed to COVID-19 and develop a fever¹ and symptoms of respiratory illness, such as cough or difficulty breathing, call your healthcare provider immediately.

Steps to help prevent the spread of COVID-19 if you are sick

Follow the steps below: If you are sick with COVID-19 or suspect you are infected with the virus that causes COVID-19, follow the steps below to help prevent the disease from spreading to people in your home and community.

Stay home except to get medical care

Stay home: People who are mildly ill with COVID-19 are able to isolate at home during their illness. You should restrict activities outside your home, except for getting medical care.



- Avoid public areas: Do not go to work, school, or public areas.
- Avoid public transportation: Avoid using public transportation, ride-sharing, or taxis.

Separate yourself from other people and animals in your home



- Stay away from others: As much as possible, you should stay in a
- specific room and away from other people in your home. Also, you should use a separate bathroom, if available.
 - Limit contact with pets & animals: You should restrict contact with pets and other animals while you are sick with COVID-19, just like you would around other people. Although there have not been reports of pets or other animals becoming sick with COVID-19, it is still recommended that people sick with COVID-19 limit contact with animals until more information is known about the virus.
 - When possible, have another member of your household care for your animals while you are sick. If you are sick with COVID-19, avoid contact with your pet, including petting, snuggling, being kissed or licked, and sharing food. If you must care for your pet or be around animals while you are sick, wash your hands before and after you interact with pets and wear a facemask. See COVID-19 and Animals for more information.

Information for Household Members and Caregivers of Someone who is Sick

Call ahead before visiting your doctor



- Call ahead: If you have a medical appointment, call the healthcare provider and tell them that you have or may have COVID-19. This will help the healthcare provider's office take steps to keep other people from getting infected or exposed.

Wear a facemask if you are sick



- If you are sick: You should wear a facemask when you are around other people (e.g., sharing a room or vehicle) or pets and before you enter a healthcare provider's office.
- If you are caring for others: If the person who is sick is not able to wear a facemask (for example, because it causes trouble breathing), then people who live with the person who is sick should not stay in the same room with them, or they should wear a facemask if they enter a room with the person who is sick.

Cover your coughs and sneezes



- Cover: Cover your mouth and nose with a tissue when you cough or sneeze.
- Dispose: Throw used tissues in a lined trash can.
- Wash hands: Immediately wash your hands with soap and water for at least 20 seconds or, if soap and water are not available, clean your hands with an alcohol-based hand sanitizer that contains at least 60% alcohol.

Clean your hands often



- Wash hands: Wash your hands often with soap and water for at least 20 seconds, especially after blowing your nose, coughing, or sneezing; going to the bathroom; and before eating or preparing food.
- Hand sanitizer: If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry.
- Soap and water: Soap and water are the best option if hands are visibly dirty.
- Avoid touching: Avoid touching your eyes, nose, and mouth with unwashed hands.

Handwashing Tips

Avoid sharing personal household items



- Do not share: You should not share dishes, drinking glasses, cups,

eating utensils, towels, or bedding with other people or pets in your home.

- Wash thoroughly after use: After using these items, they should be washed thoroughly with soap and water.

Clean all “high-touch” surfaces everyday



- Clean and disinfect: Practice routine cleaning of high touch surfaces.

High touch surfaces include counters, tabletops, doorknobs, bathroom fixtures, toilets, phones, keyboards, tablets, and bedside tables.

- Disinfect areas with bodily fluids: Also, clean any surfaces that may have blood, stool, or body fluids on them.
- Household cleaners: Use a household cleaning spray or wipe, according to the label instructions. Labels contain instructions for safe and effective use of the cleaning product including precautions you should take when applying the product, such as wearing gloves and making sure you have good ventilation during use of the product.

Complete disinfection guidance

Monitor your symptoms



- Seek medical attention: Seek prompt medical attention if your illness is worsening (e.g., difficulty breathing).
- Call your doctor: Before seeking care, call your healthcare provider and tell them that you have, or are being evaluated for, COVID-19.
- Wear a facemask when sick: Put on a facemask before you enter the facility. These steps will help the healthcare provider's office to keep other people in the office or waiting room from getting infected or exposed.
- Alert health department: Ask your healthcare provider to call the local or state health department. Persons who are placed under active monitoring or facilitated self-monitoring should follow instructions provided by their local health department or occupational health professionals, as appropriate.

 **Call 911 if you have a medical emergency:** If you have a medical emergency and need to call 911, notify the dispatch personnel that you have, or are being evaluated for COVID-19. If possible, put on a facemask before emergency medical services arrive.

Discontinuing home isolation



- Stay at home until instructed to leave: Patients with confirmed COVID-19 should remain under home isolation precautions until the risk of secondary transmission to others is thought to be low.
- Talk to your healthcare provider: The decision to discontinue home isolation precautions should be made on a case-by-case basis, in consultation with healthcare providers and state and local health departments.

Stigma and Resilience

Knowing and sharing Facts can help stop stigma

- Share facts about COVID-19
- COVID-19 FAQs

Public health emergencies, such as the outbreak of coronavirus disease 2019 (COVID-19), are stressful times for people and communities. Fear and anxiety about a disease can lead to social stigma (1) toward people, places, or things. For example, stigma and discrimination can occur when people associate a disease, such as COVID-19, with a population or nationality, even though not everyone in that population or from that region is specifically at risk for the disease. Stigma can also occur after a person has been released from COVID-19 quarantine even though they

are not considered a risk for spreading the virus to others.

It is important to remember that people – including those of Asian descent – who do not live in or have not recently been in an area of ongoing spread of the virus that causes COVID-19, or have not been in contact with a person who is a confirmed or suspected case of COVID-19 are not at greater risk of spreading COVID-19 than other Americans.

Some groups of people who may be experiencing stigma because of COVID-19 include:

- Persons of Asian descent
- People who have traveled
- Emergency responders or healthcare professionals

Stigma hurts everyone by creating fear or anger towards other people.

Stigmatized groups may be subjected to:

- Social avoidance or rejection
- Denials of healthcare, education, housing or employment
- Physical violence.

Stigma affects the emotional or mental health (2) of stigmatized groups and the communities they live in. Stopping stigma is important to making communities and community members resilient (3). See resources on mental health and coping during COVID-19.

Everyone can help stop stigma related to COVID-19 by knowing the facts and sharing them with others in your community.

Communicators and public health officials can help counter stigma during the COVID-19 response.

- Maintain privacy and confidentiality of those seeking healthcare and those who may be part of any contact investigation.
- Quickly communicate the risk or lack of risk from associations with products, people, and places.
- Raise awareness about COVID-19 without increasing fear.
- Share accurate information about how the virus spreads.
- Speak out against negative behaviors, including negative statements on social media about groups of people, or exclusion of people who pose no risk from regular activities.
- Be cautious about the images that are shared. Make sure they do not reinforce stereotypes.
- Engage with stigmatized groups in person and through media channels including news media and social media.
- Thank healthcare workers and responders. People who have traveled to areas where the COVID-19 outbreak is happening to help have performed a valuable service to everyone by helping make sure this disease does not spread further.
- Share the need for social support for people who have returned from China or are worried about friends or relatives in the affected region.

Key Terms

1. Stigma occurs when people associate a risk with a specific people, place, or thing – like a minority population group – and there is no evidence that the risk is greater in that group than in the general population. Stigmatization is especially common in disease outbreaks. (https://emergency.cdc.gov/cerc/cerccorner/article_123016.asp)
2. Resilience is the ability to withstand and recover from stress. (<https://blogs.cdc.gov/publichealthmatters/2017/08/predicting-community-resilience-and-recovery-after-a-disaster/>)
3. Mental health is defined by the World Health Organization as a state of well being in which a person realizes his or her own abilities, can cope with normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (<https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>).

Mental Health and Coping During COVID-19

The outbreak of coronavirus disease 2019 (COVID-19) may be stressful for people and communities. Fear and anxiety about a disease can be overwhelming and cause strong emotions in adults and children.

Everyone reacts differently to stressful situations. The emotional impact of an emergency on a person can depend on the person's characteristics and experiences, the social and economic circumstances of the person and their community, and the availability of local resources. People can become more distressed if they see repeated images or hear repeated

reports about the outbreak in the media.

People who may respond more strongly to the stress of a crisis include:

- People who have preexisting mental health conditions including problems with substance use
- Children
- People who are helping with the response to COVID-19, like doctors and other health care providers, or first responders

Additional information and resources on mental health care can be found at the Substance Abuse and Mental Health Services Administration (SAMHSA) website.

- Substance Abuse and Mental Health Services Administration's (SAMHSA's) Disaster Distress Hotline: 1-800-985-5990 or text TalkWithUs to 66746.
- People with deafness or hearing loss can use their preferred relay service to call 1-800-985-5990.

Reactions during an infectious disease outbreak can include:

- Fear and worry about your own health status and that of your loved ones who may have been exposed to COVID-19
- Changes in sleep or eating patterns
- Difficulty sleeping or concentrating
- Worsening of chronic health problems
- Increased use of alcohol, tobacco, or other drugs

People with preexisting mental health conditions should continue with their treatment plans during an emergency and monitor for any new symptoms. Additional information can be found at the Substance Abuse and Mental Health Services Administration (SAMHSA) website.

Coping with these feelings and getting help when you need it will help you, your family, and your community recover from a disaster. Connect with family, friends, and others in your community. Take care of yourself and each other, and know when and how to seek help.

Call your healthcare provider if stress reactions interfere with your daily activities for several days in a row.

Things you can do to support yourself:

- Avoid excessive exposure to media coverage of COVID-19.
- Take care of your body. Take deep breaths, stretch or meditate. Try to eat healthy, well-balanced meals, exercise regularly, get plenty of sleep and avoid alcohol and drugs.
- Make time to unwind and remind yourself that strong feelings will fade. Take breaks from watching, reading, or listening to news stories. It can be upsetting to hear about the crisis and see images repeatedly. Try to do some other activities you enjoy to return to your normal life.
- Connect with others. Share your concerns and how you are feeling with a friend or family member. Maintain healthy relationships.
- Maintain a sense of hope and positive thinking.

Share the facts about COVID-19 and the actual risk to others. People who have returned from areas of ongoing spread more than 14 days ago and do not have symptoms of COVID-19 do not put others at risk.

What are quarantine and social distancing?

- Quarantine separates and restricts the movement of people who were exposed to a contagious disease to see if they become sick.
- Social distancing means remaining out of places where people meet or gather, avoiding local public transportation

(e.g., bus, subway, taxi, rideshare), and maintaining distance (approximately 6 feet or 2 meters) from others.

Sharing accurate information can help calm fears in others and allow you to connect with them.

Learn more about taking care of your emotional health.

For parents:

Children react, in part, on what they see from the adults around them. When parents and caregivers deal with the COVID-19 calmly and confidently, they can provide the best support for their children. Parents can be more reassuring to others around them, especially children, if they are better prepared.

Not all children respond to stress in the same way. Some common changes to watch for in children:

- Excessive crying and irritation
- Returning to behaviors they have outgrown (e.g., toileting accidents or bedwetting)
- Excessive worry or sadness
- Unhealthy eating or sleeping habits
- Irritability and “acting out” behaviors
- Poor school performance or avoiding school
- Difficulty with attention and concentration
- Avoidance of activities enjoyed in the past
- Unexplained headaches or body pain
- Use of alcohol, tobacco, or other drugs

There are many things you can do to support your child:

- Take time to talk with your child about the COVID-19 outbreak. Answer questions and share facts about COVID-19

in a way that your child can understand.

- Reassure your child that they are safe. Let them know it is ok if they feel upset. Share with them how you deal with your own stress so that they can learn how to cope from you.
- Limit your child's exposure to media coverage of the event. Children may misinterpret what they hear and can be frightened about something they do not understand.
- Help your child to have a sense of structure. Once it is safe to return to school or child care, help them return to their regular activity.
- Be a role model; take breaks, get plenty of sleep, exercise, and eat well. Connect with your friends and family members and rely on your social support system.

Learn more about helping children cope.

For responders:

Responding to COVID-19 can take an emotional toll on you. There are things you can do to reduce secondary traumatic stress (STS) reactions:

- Acknowledge that STS can impact anyone helping families after a traumatic event.
- Learn the symptoms including physical (fatigue, illness) and mental (fear, withdrawal, guilt).
- Allow time for you and your family to recover from responding to the outbreak.
- Create a menu of personal self-care activities that you enjoy, such as spending time with friends and family, exercising, or reading a book.
- Take a break from media coverage of COVID-19.
- Ask for help if you feel overwhelmed or concerned that COVID-19 is affecting your ability to care for your family and

patients as you did before the outbreak.

For people who have been released from quarantine:

Being separated from others if a health care provider thinks you may have been exposed to COVID-19 can be stressful, even if you do not get sick. Some typical reactions after being released from COVID-19 quarantine can include:

- Mixed emotions, including relief after quarantine
- Fear and worry about your own health status and that of your loved ones who may have been exposed to COVID-19
- Stress from the experience of monitoring yourself, or being monitored by others for signs and symptoms of COVID-19
- Sadness, anger, or frustration because friends or loved ones have unfounded fears of contracting the disease from contact with you, even though you have been determined not to be contagious
- Guilt about not being able to perform normal work or parenting duties during quarantine
- Other emotional or mental health changes

Children may also feel upset or have other strong emotions if they, or someone they know, has been released from quarantine. You can help your child cope.

Learn more tips for taking care of yourself during emergency response.

Share Facts About COVID-19

Know the facts about coronavirus disease 2019 (COVID-19) and help stop the spread

of rumors.

For up-to-date information, visit [CDC's coronavirus disease 2019 situation summary page](#).

Fact 1

Diseases can make anyone sick regardless of their race or ethnicity.

People of Asian descent, including Chinese Americans, are not more likely to get COVID-19 than any other American. Help stop fear by letting people know that being of Asian descent does not increase the chance of getting or spreading COVID-19.

Fact 2

Some people are at increased risk of getting COVID-19.

People who have been in close contact with a person known to have COVID-19 or people who live in or have recently been in an area with ongoing spread are at an increased risk of exposure.

Fact 3

Someone who has completed quarantine or has been released from isolation does not pose a risk of infection to other people.

For up-to-date information, visit [CDC's coronavirus disease situation summary page](#).

Fact 4

You can help stop COVID-19 by knowing the signs and symptoms:

- Fever
- Cough
- Shortness of breath

Seek medical advice if you

- Develop symptoms

AND

- Have been in close contact with a person known to have COVID-19 or live in or have recently traveled from an area with ongoing spread of COVID-19. Call ahead before you go to a doctor's office or emergency room. Tell them about your recent travel and your symptoms.

Fact 5

There are simple things you can do to help keep yourself and others healthy.

- Wash your hands often with soap and water for at least 20 seconds, especially after blowing your nose, coughing, or sneezing; going to the bathroom; and before eating or preparing food.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Stay home when you are sick.

- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.

Frequently Asked Questions and Answers

Coronavirus Disease 2019 Basics

How It Spreads

How to Protect Yourself

Symptoms & Testing

Healthcare Professionals and Health Departments

COVID-19 and Funerals

What CDC is Doing

COVID-19 and Animals

Other Frequently Asked Questions and Answers About:

Travel

Pregnant Women and COVID-19

Water Transmission

Healthcare Professionals

Healthcare Infection

Laboratory Diagnostic Panels

Laboratory Biosafety

Personal Protective Equipment

K-12 Schools and Childcare Program Administrators

Coronavirus Disease 2019 Basics

What is a novel coronavirus?

A novel coronavirus is a new coronavirus that has not been previously identified. The virus causing coronavirus disease 2019 (COVID-19), is not the same as the coronaviruses that commonly circulate among humans and cause mild illness, like the common cold.

A diagnosis with coronavirus 229E, NL63, OC43, or HKU1 is not the same as a COVID-19 diagnosis. Patients with COVID-19 will be evaluated and cared for differently than patients with common coronavirus diagnosis.

Why is the disease being called coronavirus disease 2019, COVID-19?

On February 11, 2020 the World Health Organization announced an official name for the disease that is causing the 2019 novel coronavirus outbreak, first identified in Wuhan China. The new name of this disease is coronavirus disease 2019, abbreviated as COVID-19. In COVID-19, 'CO' stands for 'corona,' 'VI' for 'virus,' and 'D' for disease. Formerly, this disease was referred to as "2019 novel coronavirus" or "2019-nCoV".

There are many types of human coronaviruses including some that commonly cause mild upper-respiratory tract illnesses. COVID-19 is a new disease, caused by a novel (or new) coronavirus that has not previously been seen in humans. The name of this disease was selected following the World Health Organization (WHO) best practice for naming of new human infectious diseases.

Why might someone blame or avoid individuals and groups (create stigma) because of COVID-19?

People in the U.S. may be worried or anxious about friends and relatives who are living in or visiting areas where COVID-19 is spreading. Some people are worried about the disease. Fear and anxiety can lead to social stigma, for example, towards Chinese or other Asian Americans or people who were in quarantine.

Stigma is discrimination against an identifiable group of people, a place, or a nation. Stigma is associated with a lack of knowledge about how COVID-19 spreads, a need to blame someone, fears about disease and death, and gossip that spreads rumors and myths.

Stigma hurts everyone by creating more fear or anger towards ordinary people instead of the disease that is causing the problem.

People can fight stigma and help, not hurt, others by providing social support. Counter stigma by learning and sharing facts. Communicating the facts that viruses do not target specific racial or ethnic groups and how COVID-19 actually spreads can help stop stigma.

How It Spreads

What is the source of the virus?

Coronaviruses are a large family of viruses. Some cause illness in people, and others, such as canine and feline coronaviruses, only infect animals. Rarely, animal coronaviruses that infect animals have emerged to infect people and can spread between people. This is suspected to have occurred for the virus that causes COVID-19. Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) are two other examples of coronaviruses that originated from animals and then spread to people. More information about the source and spread of COVID-19 is available on the Situation Summary: Source

and Spread of the Virus.

How does the virus spread?

This virus was first detected in Wuhan City, Hubei Province, China. The first infections were linked to a live animal market, but the virus is now spreading from person-to-person. It's important to note that person-to-person spread can happen on a continuum. Some viruses are highly contagious (like measles), while other viruses are less so.

The virus that causes COVID-19 seems to be spreading easily and sustainably in the community ("community spread") in some affected geographic areas. Community spread means people have been infected with the virus in an area, including some who are not sure how or where they became infected.

Learn what is known about the spread of newly emerged coronaviruses.

Can someone who has had COVID-19 spread the illness to others?

The virus that causes COVID-19 is spreading from person-to-person. Someone who is actively sick with COVID-19 can spread the illness to others. That is why CDC recommends that these patients be isolated either in the hospital or at home (depending on how sick they are) until they are better and no longer pose a risk of infecting others.

How long someone is actively sick can vary so the decision on when to release someone from isolation is made on a case-by-case basis in consultation with doctors, infection prevention and control experts, and public health officials and involves considering specifics of each situation including disease severity, illness signs and symptoms, and results of laboratory testing for that patient.

Current CDC guidance for when it is OK to release someone from isolation is made on a case by case basis and includes meeting all of the following requirements:

- The patient is free from fever without the use of fever-reducing

medications.

- The patient is no longer showing symptoms, including cough. The patient has tested negative on at least two consecutive respiratory specimens collected at least 24 hours apart.

Someone who has been released from isolation is not considered to pose a risk of infection to others.

Can someone who has been quarantined for COVID-19 spread the illness to others?

Quarantine means separating a person or group of people who have been exposed to a contagious disease but have not developed illness (symptoms) from others who have not been exposed, in order to prevent the possible spread of that disease. Quarantine is usually established for the incubation period of the communicable disease, which is the span of time during which people have developed illness after exposure. For COVID-19, the period of quarantine is 14 days from the last date of exposure, because 14 days is the longest incubation period seen for similar coronaviruses. Someone who has been released from COVID-19 quarantine is not considered a risk for spreading the virus to others because they have not developed illness during the incubation period.

Can the virus that causes COVID-19 be spread through food, including refrigerated or frozen food?

Coronaviruses are generally thought to be spread from person-to-person through respiratory droplets. Currently there is no evidence to support transmission of COVID-19 associated with food. Before preparing or eating food it is important to always wash your hands with soap and water for 20 seconds for general food safety. Throughout the day wash your hands after blowing your nose, coughing or sneezing, or going to the bathroom.

It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the main way the virus

spreads.

In general, because of poor survivability of these coronaviruses on surfaces, there is likely very low risk of spread from food products or packaging that are shipped over a period of days or weeks at ambient, refrigerated, or frozen temperatures.

Learn what is known about the spread of COVID-19.

Will warm weather stop the outbreak of COVID-19?

It is not yet known whether weather and temperature impact the spread of COVID-19. Some other viruses, like the common cold and flu, spread more during cold weather months but that does not mean it is impossible to become sick with these viruses during other months. At this time, it is not known whether the spread of COVID-19 will decrease when weather becomes warmer. There is much more to learn about the transmissibility, severity, and other features associated with COVID-19 and investigations are ongoing.

What is community spread?

Community spread means people have been infected with the virus in an area, including some who are not sure how or where they became infected.

How to Protect Yourself

Am I at risk for COVID-19 in the United States?

This is a rapidly evolving situation and the risk assessment may change daily. The latest updates are available on CDC's Coronavirus Disease 2019 (COVID-19) website.

Has anyone in the United States gotten infected?

Yes. There have been cases of COVID-19 in the U.S. related to travel

and person-to-person spread. U.S. case counts are updated regularly on Mondays, Wednesday, and Fridays. See the current U.S. case count of COVID-19.

How can I help protect myself?

Visit the COVID-19 Prevention and Treatment page to learn about how to protect yourself from respiratory illnesses, like COVID-19.

What should I do if I had close contact with someone who has 2019-nCoV?

There is information for people who have had close contact with a person confirmed to have, or being evaluated for, COVID-19 available online.

Who is at higher risk for serious illness from COVID-19?

Early information out of China, where COVID-19 first started, shows that some people are at higher risk of getting very sick from this illness including older adults, and people who have serious chronic medical conditions like heart disease, diabetes, and lung disease.

What should people at higher risk of serious illness with COVID-19 do?

If you are at higher risk of getting very sick from COVID-19, you should: stock up on supplies; take everyday precautions to keep space between yourself and others; when you go out in public, keep away from others who are sick; limit close contact and wash your hands often; and avoid crowds, cruise travel, and non-essential travel. If there is an outbreak in your community, stay home as much as possible. Watch for symptoms and emergency signs. Watch for symptoms and emergency signs. If you get sick, stay home and call your doctor. More information on how to prepare, what to do if you get sick, and how communities and caregivers can support those at higher risk is available on People at Risk for Serious Illness from COVID-19.

Does CDC recommend the use of facemask to prevent COVID-19?

CDC does not recommend that people who are well wear a facemask to

protect themselves from respiratory illnesses, including COVID-19. You should only wear a mask if a healthcare professional recommends it. A facemask should be used by people who have COVID-19 and are showing symptoms. This is to protect others from the risk of getting infected. The use of facemasks also is crucial for health workers and other people who are taking care of someone infected with COVID-19 in close settings (at home or in a health care facility).

Am I at risk for COVID-19 from a package or products shipping from China?

There is still a lot that is unknown about the newly emerged COVID-19 and how it spreads. Two other coronaviruses have emerged previously to cause severe illness in people (MERS-CoV and SARS-CoV). The virus that causes COVID-19 is more genetically related to SARS-CoV than MERS-CoV, but both are betacoronaviruses with their origins in bats. While we don't know for sure that this virus will behave the same way as SARS-CoV and MERS-CoV, we can use the information gained from both of these earlier coronaviruses to guide us. In general, because of poor survivability of these coronaviruses on surfaces, there is likely very low risk of spread from products or packaging that are shipped over a period of days or weeks at ambient temperatures. 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. Information will be provided on the Coronavirus Disease 2019 (COVID-19) website as it becomes available.

Symptoms & Testing

What are the symptoms and complications that COVID-19 can cause?

Current symptoms reported for patients with COVID-19 have included

mild to severe respiratory illness with fever¹, cough, and difficulty breathing. Read about COVID-19 Symptoms.

Should I be tested for COVID-19?

If you develop symptoms such as fever, cough, and/or difficulty breathing, and have been in close contact with a person known to have COVID-19 or have recently traveled from an area with ongoing spread of COVID-19, stay home and call your healthcare provider. Older patients and individuals who have severe underlying medical conditions or are immunocompromised should contact their healthcare provider early, even if their illness is mild. If you have severe symptoms, such as persistent pain or pressure in the chest, new confusion or inability to arouse, or bluish lips or face, contact your healthcare provider or emergency room and seek care immediately. Your doctor will determine if you have signs and symptoms of COVID-19 and whether you should be tested.

Your healthcare professional will work with your state's public health department and CDC to determine if you need to be tested for COVID-19.

Can a person test negative and later test positive for COVID-19?

Using the CDC-developed diagnostic test, a negative result means that the virus that causes COVID-19 was not found in the person's sample. In the early stages of infection, it is possible the virus will not be detected.

For COVID-19, a negative test result for a sample collected while a person has symptoms likely means that the COVID-19 virus is not causing their current illness.

Why might someone blame or avoid individuals and groups (create stigma) because of COVID-19?

People in the U.S. may be worried or anxious about friends and relatives who are living in or visiting areas where COVID-19 is spreading. Some people are worried about the disease. Fear and anxiety can lead to social stigma, for example, towards Chinese or other Asian Americans or

people who were in quarantine.

Stigma is discrimination against an identifiable group of people, a place, or a nation. Stigma is associated with a lack of knowledge about how COVID-19 spreads, a need to blame someone, fears about disease and death, and gossip that spreads rumors and myths.

Stigma hurts everyone by creating more fear or anger towards ordinary people instead of the disease that is causing the problem.

How can people help stop stigma related to COVID-19?

People can fight stigma and help, not hurt, others by providing social support. Counter stigma by learning and sharing facts. Communicating the facts that viruses do not target specific racial or ethnic groups and how COVID-19 actually spreads can help stop stigma.

Healthcare Professionals and Health Departments

What should healthcare professionals and health departments do?

For recommendations and guidance on persons under investigation; infection control, including personal protective equipment guidance; home care and isolation; and case investigation, see Information for Healthcare Professionals. For information on specimen collection and shipment, see Information for Laboratories. For information for public health professional on COVID-19, see Information for Public Health Professionals.

COVID-19 and Funerals

Am I at risk if I go to a funeral or visitation service for someone who died of COVID-19?

There is currently no known risk associated with being in the same room at a funeral or visitation service with the body of someone who died of COVID-19.

Am I at risk if I touch someone who died of COVID-19 after they have passed away?

COVID-19 is a new disease and we are still learning how it spreads. The virus that causes COVID-19 is thought to mainly spread from close contact (i.e., within about 6 feet) with a person who is currently sick with COVID-19. The virus likely spreads primarily through respiratory droplets produced when an infected person coughs or sneezes, similar to how influenza and other respiratory infections spread. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs. This type of spread is not a concern after death.

It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the main way the virus spreads.

People should consider not touching the body of someone who has died of COVID-19. Older people and people of all ages with severe underlying health conditions are at higher risk of developing serious COVID-19 illness. There may be less of a chance of the virus spreading from certain types of touching, such as holding the hand or hugging after the body has been prepared for viewing. Other activities, such as kissing, washing, and shrouding should be avoided before, during, and after the body has been prepared, if possible. If washing the body or shrouding are important religious or cultural practices, families are encouraged to work with their community cultural and religious leaders and funeral home staff on how to reduce their exposure as much as possible. At a minimum, people conducting these activities should wear disposable gloves. If splashing of fluids is expected, additional personal protective equipment (PPE) may be required (such as disposable gown, faceshield or goggles and facemask).

Cleaning should be conducted in accordance with manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.). Products with EPA-approved emerging viral pathogens claims are expected to be effective against COVID-19 based on data for harder to kill viruses. After removal of PPE, perform hand hygiene by washing hands with soap and water for at least 20 seconds or using an alcohol-based hand sanitizer that contains at least 60% alcohol if soap and water are not available. Soap and water should be used if the hands are visibly soiled.

What do Funeral Home Workers need to know about handling decedents who had COVID-19?

A funeral or visitation service can be held for a person who has died of COVID-19. Funeral home workers should follow their routine infection prevention and control precautions when handling a decedent who died of COVID-19. If it is necessary to transfer a body to a bag, follow Standard Precautions, including additional personal protective equipment (PPE) if splashing of fluids is expected. For transporting a body after the body has been bagged, disinfect the outside of the bag with a product with EPA-approved emerging viral pathogens claims expected to be effective against COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.). Wear disposable nitrile gloves when handling the body bag.

Embalming can be conducted. During embalming, follow Standard Precautions including the use of additional PPE if splashing is expected (e.g. disposable gown, faceshield or goggles and facemask). Wear appropriate respiratory protection if any procedures will generate aerosols or if required for chemicals used in accordance with the manufacturer's label. Wear heavy-duty gloves over nitrile disposable gloves if there is a risk of cuts, puncture wounds, or other injuries that break the skin. Additional information on how to safely conduct aerosol-generating procedures is in the CDC's Postmortem Guidance. Cleaning should be conducted in accordance with manufacturer's instructions.

Products with EPA-approved emerging viral pathogens claims are expected to be effective against COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.).

After cleaning and removal of PPE, perform hand hygiene by washing hands with soap and water for at least 20 seconds or using an alcohol-based hand sanitizer that contains at least 60% alcohol if soap and water is not available. Soap and water should be used if the hands are visibly soiled.

Decedents with COVID-19 can be buried or cremated, but check for any additional state and local requirements that may dictate the handling and disposition of the remains of individuals who have died of certain infectious diseases.

What should I do if my family member died from COVID-19 while overseas?

When a US citizen dies outside the United States, the deceased person's next of kin or legal representative should notify US consular officials at the Department of State. Consular personnel are available 24 hours a day, 7 days a week, to provide assistance to US citizens for overseas emergencies. If a family member, domestic partner, or legal representative is in a different country from the deceased person, he or she should call the Department of State's Office of Overseas Citizens Services in Washington, DC, from 8 am to 5 pm Eastern time, Monday through Friday, at 888-407-4747 (toll-free) or 202-501-4444. For emergency assistance after working hours or on weekends and holidays, call the Department of State switchboard at 202-647-4000 and ask to speak with the Overseas Citizens Services duty officer. In addition, the US embassy closest to or in the country where the US citizen died can provide assistance.

My family member died from COVID-19 while overseas. What are the

requirements for returning the body to the United States?

CDC does not require an autopsy before the remains of a person who died overseas are returned to the United States. Depending on the circumstances surrounding the death, some countries may require an autopsy. Sources of support to the family include the local consulate or embassy, travel insurance provider, tour operator, faith-based and aid organizations, and the deceased's employer. There likely will need to be an official identification of the body and official documents issued by the consular office.

CDC requirements for importing human remains depend upon if the body has been embalmed, cremated, or if the person died from a quarantinable communicable disease.

At this time, COVID-19 is a quarantinable communicable disease in the United States and the remains must meet the standards for importation found in 42 Code of Federal Regulations Part 71.55 and may be cleared, released, and authorized for entry into the United States only under the following conditions:

- The remains are cremated; OR
- The remains are properly embalmed and placed in a hermetically sealed casket; OR
- The remains are accompanied by a permit issued by the CDC Director. The CDC permit (if applicable) must accompany the human remains at all times during shipment.
 - Permits for the importation of the remains of a person known or suspected to have died from a quarantinable communicable disease may be obtained through the CDC Division of Global Migration and Quarantine by calling the CDC Emergency Operations Center at 770-488-7100 or emailing dgmqpolicyoffice@cdc.gov.

Please see CDC's guidance for additional information.

What CDC is Doing

What is CDC doing about COVID-19?

This is an emerging, rapidly evolving situation and CDC will continue to provide updated information as it becomes available. CDC works 24/7 to protect people's health. More information about CDC's response to COVID-19 is available online.

COVID-19 and Animals

What about animals or animal products imported from China?

CDC does not have any evidence to suggest that animals or animal products imported from China pose a risk for spreading COVID-19 in the United States. This is a rapidly evolving situation and information will be updated as it becomes available. The U.S. Centers for Disease Control and Prevention (CDC), the U. S. Department of Agriculture (USDA), and the U.S. Fish and Wildlife Service (FWS) play distinct but complementary roles in regulating the importation of live animals and animal products into the United States. CDC regulates animals and animal products that pose a threat to human health, USDA regulates animals and animal products that pose a threat to agriculture; and FWS regulates importation of endangered species and wildlife that can harm the health and welfare of humans, the interests of agriculture, horticulture, or forestry, and the welfare and survival of wildlife resources.

Can I travel to the United States with dogs or import dogs into the United States during the COVID-19 outbreak?

Please refer to CDC's requirements for bringing a dog to the United States. The current requirements for rabies vaccination apply to dogs imported from China, a high-risk country for rabies.

Should I be concerned about pets or other animals and COVID-19?

While this virus seems to have emerged from an animal source, it is now spreading from person-to-person in China. There is no reason to think that any animals including pets in the United States might be a source of infection with this new coronavirus. To date, CDC has not received any reports of pets or other animals becoming sick with COVID-19. At this time, there is no evidence that companion animals including pets can spread COVID-19. However, since animals can spread other diseases to people, it's always a good idea to wash your hands after being around animals. For more information on the many benefits of pet ownership, as well as staying safe and healthy around animals including pets, livestock, and wildlife, visit CDC's Healthy Pets, Healthy People website.

Should I avoid contact with pets or other animals if I am sick with COVID-19?

You should restrict contact with pets and other animals while you are sick with COVID-19, just like you would around other people. Although there have not been reports of pets or other animals becoming sick with COVID-19, it is still recommended that people sick with COVID-19 limit contact with animals until more information is known about the virus. When possible, have another member of your household care for your animals while you are sick. If you are sick with COVID-19, avoid contact with your pet, including petting, snuggling, being kissed or licked, and sharing food. If you must care for your pet or be around animals while you are sick, wash your hands before and after you interact with pets and wear a facemask.

What precautions should be taken for animals that have recently been imported (for example, by shelters, rescue groups, or as personal pets) from China?

Animals imported from China will need to meet CDC and USDA requirements for entering the United States. At this time, there is no evidence that companion animals including pets can spread COVID-19. As with any animal introduced to a new environment, animals recently imported from China should be observed daily for signs of illness. If an

animal becomes ill, the animal should be examined by a veterinarian. Call your local veterinary clinic before bringing the animal into the clinic and let them know that the animal was recently in China.

Footnotes

* This is based on what has been seen previously as the incubation period of MERS-CoV viruses.

¹ Fever may be subjective or confirmed

² Close contact is defined as—

1. a) being within approximately 6 feet (2 meters) of a COVID-19 case for a prolonged period of time; close contact can occur while caring for, living with, visiting, or sharing a health care waiting area or room with a COVID-19 case

— or —

1. b) having direct contact with infectious secretions of a COVID-19 case (e.g., being coughed on)

If such contact occurs while not wearing recommended personal protective equipment or PPE (e.g., gowns, gloves, NIOSH-certified disposable N95 respirator, eye protection), criteria for PUI consideration are met.

Coronavirus Disease 2019

Information for Travel

Travelers Returning from High Risk Countries

Travelers from China and Iran Arriving in the United States

Travel in the United States

Cruise Ship Travel

Search COVID-19 risk assessment by country.



Risk Assessment Level for COVID-19

 Widespread sustained (ongoing) transmission and restrictions on entry to the United States

 Widespread sustained (ongoing) transmission

 Sustained (ongoing) community transmission

 Risk of limited community transmission

Widespread sustained (ongoing) transmission and restrictions on entry to the United States

CDC recommends that travelers avoid all nonessential travel to the following destinations. Entry of foreign nationals from these destinations has been suspended.

- China (Level 3 Travel Health Notice)
- Iran (Level 3 Travel Health Notice)

Widespread sustained (ongoing) transmission

CDC recommends that travelers avoid all nonessential travel to the following destinations:

- South Korea (Level 3 Travel Health Notice)
- Italy (Level 3 Travel Health Notice)

Sustained (ongoing) community transmission

CDC recommends that older adults or those who have chronic medical conditions consider postponing travel to the following destinations:

- Japan (Level 2 Travel Health Notice)
-

Risk of limited community transmission

Travelers should practice usual precautions at the following destination:

- Hong Kong (Level 1 Travel Health Notice)

Travelers from Countries with Widespread Sustained (Ongoing) Transmission Arriving in the United States

To slow the spread of coronavirus disease 2019 (COVID-19) into the United States, CDC is working with state and local public health partners to implement after-travel health precautions.

Depending on your travel history, you will be asked to stay home for a period of 14 days from the time you left an area with widespread or ongoing community spread (Level 3 Travel Health Notice).

Countries that have a Level 3 Travel Health Notice (widespread, ongoing transmission):

- China (Level 3 Travel Health Notice)
 - More information for Travelers from China arriving in the United States
- Iran (Level 3 Travel Health Notice)
- Italy (Level 3 Travel Health Notice)
- South Korea (Level 3 Travel Health Notice)

HEALTH ALERT: Coronavirus Disease 2019 (COVID-19)

You have traveled to a country with an outbreak of COVID-19 and are at higher risk.

COVID-19 is a respiratory illness that can spread from person to person.

Stay Home

Stay home for the next 14 days and monitor your health. Take your temperature with a thermometer two times a day and watch for symptoms.

If you feel sick and have symptoms:

- Call ahead before you go to a doctor's office or emergency room.
- Tell the doctor about your recent travel and your symptoms.
- Avoid contact with others.
- Do not travel while sick.

Symptoms

Illnesses have ranged from mild symptoms to severe illness and death. Symptoms may appear 2–14 days after exposure.

Symptoms can include:



Fever (100.4°F/38°C or higher)



Cough



Shortness of breath

Visit the website for more information on monitoring your health and how to contact local public health officials. Visit: www.cdc.gov/COVIDtravel



CS 105649-B March 10, 2020 4:00 PM

Stay home for 14 days from the time you left an area with widespread, ongoing community spread (Level 3 Travel Health Notice countries) and practice social distancing.

Take these steps to monitor your health and practice social distancing:

1. Take your temperature with a thermometer two times a day and monitor for fever. Also watch for cough or trouble breathing.
2. Stay home and avoid contact with others. Do not go to work or school for this 14-day period. Discuss your work situation with your employer before returning to work.

3. Do not take public transportation, taxis, or ride-shares during the time you are practicing social distancing.
4. Avoid crowded places (such as shopping centers and movie theaters) and limit your activities in public.
5. Keep your distance from others (about 6 feet or 2 meters).

What To Do If You Get Sick

If you get sick with fever (100.4°F/38°C or higher), cough, or have trouble breathing:

- Seek medical care. Call ahead before you go to a doctor's office or emergency room.
- Tell your doctor about your recent travel and your symptoms.
- Avoid contact with others.

If you need to seek medical care for other reasons, such as dialysis, call ahead to your doctor and tell them about your recent travel to an area with widespread or ongoing community spread of COVID-19.

For additional questions on monitoring your health, contact your local public health officials.

Travelers from China and Iran Arriving in the United States

To slow the spread of coronavirus disease 2019 (COVID-19) into the United States, CDC is working with public health partners to implement new travel procedures announced in the Presidential Proclamation on

Novel Coronavirus and Presidential Proclamation on Additional Persons Who Pose a Risk of Transmitting Coronavirus. In summary:

1. Foreign nationals who have visited China or Iran in the past 14 days may not enter the United States.
2. American citizens, lawful permanent residents, and their families who have been in China or Iran in the past 14 days will be allowed to enter the United States, but will be redirected to one of 11 airports to undergo health screening. Depending on their health and travel history, they will have some level of restrictions on their movements for 14 days from the time they left China or Iran.

If you are in the second group above and are traveling to the United States:

- Your travel will be redirected to one of 11 U.S. airports where CDC has quarantine stations.
- You will be asked about your health and travel.
- Your health will be screened for fever, cough, or trouble breathing.

Depending on your health and travel history:

- You will have some restrictions on your movement for a period of 14 days from the time you left China or Iran.

These actions are being taken to protect your health, the health of other travelers and the health of U.S. communities.



Travelers who have been in Hubei Province in the past 14 days:

- If you have fever, cough, or trouble breathing: CDC staff at the airport will evaluate you for illness. You will be taken to a medical facility for further evaluation and care. You will not be able to complete your travel itinerary.
- If you do not have symptoms (fever, cough, trouble breathing): You will be placed under a federal, state or local quarantine order for a 14-day period from the time you left China. You may not be able to complete your travel itinerary until the 14-day period has elapsed.



Travelers from other parts of China (outside Hubei Province) and Iran in the last 14 days:

- If you have fever, cough, or trouble breathing: CDC staff at the airport will evaluate you for illness. You will be taken to a medical facility for further evaluation and care. You may not be able to complete your travel itinerary.
- If you do not have symptoms: You will be allowed to reach your final destination. After arrival at your final destination, you will be asked to monitor your health for a period of 14 days from the time you left China or Iran. You will receive a health information card that tells you what symptoms to look for and what to do if you develop symptoms. During that time, you should stay home and limit interactions with others as much as possible. Your state or local health department will contact you for further follow up. Check available hours when contacting your local health department.

Coronavirus and Travel in the United States

Should I travel within the US?

CDC does not generally issue advisories or restrictions for travel within the United States. However, cases of COVID-19 have been reported in many states, and some areas are experiencing community spread of the disease. Crowded travel settings, like airports, may increase your risk of exposure to COVID-19, if there are other travelers with COVID-19. There are several things you should consider when deciding whether it is safe for you to travel.

Things to consider before travel:

- Is COVID-19 spreading where you're going?

If COVID-19 is spreading at your destination, but not where you live, you may be at higher risk of exposure if you travel there.

- Will you or your travel companion(s) be in close contact with others during your trip?

Your risk of exposure to respiratory viruses like COVID-19 may increase in crowded settings, particularly closed-in settings with little air circulation, if there are people in the crowd who are sick. This may include settings such as conferences, public events (like concerts and sporting events), religious gatherings, public spaces (like movie theatres and shopping malls), and public transportation (like buses, metro, trains).

- Are you or your travel companion(s) at higher risk of severe illness if you do get COVID-19?

People at higher risk for severe disease are older adults and people of any age with serious chronic medical conditions (such as heart disease, lung disease, or diabetes). CDC recommends that travelers at higher risk for COVID-19 complications avoid all cruise travel and nonessential air travel.

- Do you have a plan for taking time off from work or school, in case you get exposed to, or are sick with, COVID-19?

If you have close contact with someone with COVID-19 during travel, you may be asked to stay home to self-monitor and avoid contact with others for up to 14 days after travel. If you become sick with COVID-19, you may be unable to go to work or school until you're considered noninfectious. You will be asked to avoid contact with others (including being in public places) during this period of infectiousness.

- Do you live with someone who is older or has a severe chronic health condition?

If you get sick with COVID-19 upon your return from travel, your household contacts may be at risk of infection. Household contacts who are older adults or have severe chronic medical conditions are at higher risk for severe illness from COVID-19.

- Is COVID-19 spreading where you live?

Consider the risk of passing COVID-19 to others during travel, particularly if you will be in close contact with people who are older adults or have severe chronic health condition. These people are at higher risk of getting very sick. If your symptoms are mild or you don't have a fever, you may not realize you are infectious.

Depending on your unique circumstances, you may choose to delay or cancel your plans. If you do decide to travel, be sure to practice

precautions to prevent getting and spreading COVID-19 and other respiratory diseases during travel. For the most up-to-date COVID-19 travel information, visit CDC COVID-19 Travel page.

Communication Resources for Travelers

Public Health Communication at US Ports of Entry

Travel Health Alerts



CDC's public health messaging system offers up-to-date messages to travelers at specific airports, seaports, and land borders where most international travelers enter or leave the United States.

This is the latest information posted by CDC, in partnership with US Customs and Border Protection (CBP), the Transportation Security Administration (TSA) and other port-of-entry partners.

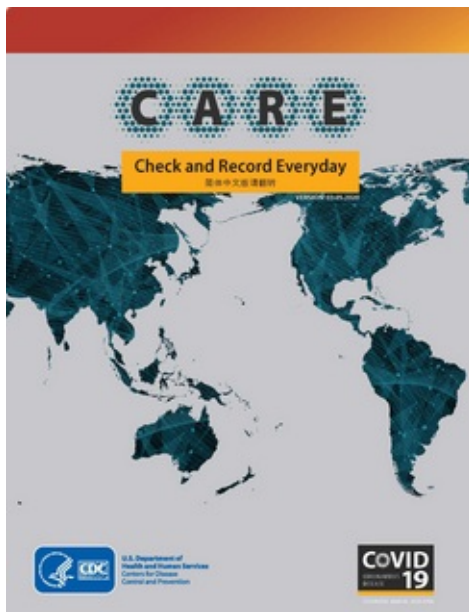
Health Alert

English

Health Alert: Protect Yourself and Others

English

CARE



The CARE (Check and Record Everyday) booklet is for travelers arriving from China and Iran. It explains self-monitoring, how to conduct daily symptom checks, and what to do if they get symptoms of COVID-19.

[visit webpage](#)

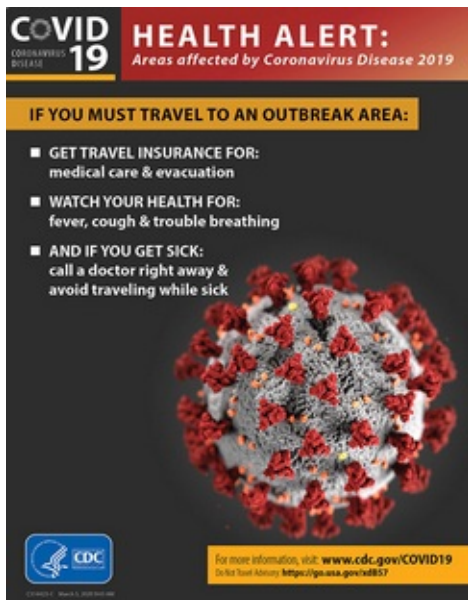
Traveler Health Alert Notice



This Travelers' Health Alert Notice (T-HAN) is given at ports of entry to travelers arriving from high-risk countries (with a LEVEL 3 Travel Health Notice). The T-HAN directs travelers to a webpage with more information in multiple languages on self-monitoring, symptoms of COVID-19, and what to do if they have symptoms.

English

Health Alert: For Departing Travelers



This health alert message is posted at TSA security-check stations at US airports for departing travelers who may be going to areas with widespread outbreaks of COVID-19.

English

Health Alert: For All Travelers



This prevention poster is available to download and use in your community. It reminds travelers to: Protect yourself and others by staying home if you feel sick, cover your mouth if you need to cough or sneeze and wash your hands often.

English

Stop the Spread of Germs Poster



This prevention poster is available to download and use in your community. It reminds travelers and others to help prevent the spread of COVID-19 by avoiding close contact with people who are sick; covering your mouth if you cough or sneeze; avoiding touching eyes, nose and mouth; and washing your hands with soap and water.

English

Symptoms of Coronavirus Disease 2019 Poster



This informational poster is available to download and use in your community to inform people that Symptoms of COVID-19 can include fever, cough and shortness of breath, and these symptoms may appear 2-14 days after exposure.

English

Stay informed

Traveler pulling a suitcase. Airplane in the background.



Travelers' Health

Get the latest updates on COVID-19 and travel information related to this outbreak.



Stay informed with Emergency Partners Information Connection (EPIC) Newsletters

Stay informed about ways to keep yourself and your loved ones safe when a public health emergency happens. Sign up for EPIC newsletters and announcements.

Other Resources

Coronavirus Disease 2019 Information for Travel

Information for travelers returning from China

Travel: Frequently asked questions

Travel Health Notices

Local Public Health Officials Contact Information

Resources for State, Local, Territorial and Tribal Health Departments

Social Media

Facebook

- CDC Travelers' Health
- CDC GOV

Twitter

- Follow CDC Travel
- Follow CDC GOV

MMWR



Coronavirus Disease 2019 (COVID-19). New report from MMWR

CDC's primary vehicle for scientific public health information and recommendations. See the latest COVID-19 reports.

Check and Record Everyday Booklet – China



If you are traveling from China, CDC recommends following the COVID-19 CARE (Check and Record Everyday) recommendations. CARE helps you understand how to self-monitor your health and how to check your symptoms daily. It also includes instructions of what to do if you have

COVID-19 symptoms. If you are experiencing symptoms or have questions, CARE has information on how to connect with the local health department in the state you are in. Check available hours when contacting your local health department.

English

Travel: Frequently Asked Questions and Answers

Table of Contents

Canceling or Postponing Travel

Air or Cruise Travel

Returning from Travel

Business Travel

Canceling or Postponing Travel

Should I cancel my trip?

CDC provides recommendations on postponing or canceling travel. These are called travel notices and are based on assessment of the potential health risks involved with traveling to a certain area. A list of destinations with travel notices is available at <https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html>.

Warning Level 3: CDC recommends travelers avoid all nonessential travel to destinations with level 3 travel notices because of the risk of getting COVID-19.

Alert Level 2: Because COVID-19 can be more serious in older adults and those with chronic medical conditions, people in these groups should talk to a healthcare provider and consider postponing travel to destinations with level 2 travel notices.

Watch Level 1: CDC does not recommend canceling or postponing travel to destinations with level 1 travel notices because the risk of COVID-19 is thought to be low. If you travel, take the following routine precautions:

- Avoid contact with sick people.
- Avoid touching your eyes, nose, or mouth with unwashed hands.
- Clean your hands often by washing them with soap and water for at least 20 seconds or using an alcohol-based hand sanitizer that contains 60%–95% alcohol. Soap and water should be used if hands are visibly dirty.
 - It is especially important to clean hands after going to the bathroom; before eating; and after coughing, sneezing or blowing your nose.

Are layovers included in CDC's recommendation to avoid nonessential travel?

Yes. Layovers at airports in destinations with level 3 travel notices are included in CDC's recommendation to avoid nonessential travel. If a layover is unavoidable, CDC recommends that travelers not leave the airport. Travelers with layovers may still be subject to screening and monitoring when entering the United States.

I don't want to travel because of COVID-19. Can CDC help me get a refund from my airline or cruise line?

Each company establishes its own refund policies, and CDC cannot intervene to get them to change their policies. Some companies may base their policies on CDC's travel health notices. The decision to post or change the level of a travel health notice is based on the best available science and takes into account numbers of cases, sustained spread,

geographic spread of cases, risk to travelers, and other factors. <https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html>

In some cases, trip cancellation insurance can protect your financial investment in a trip if you need to change your itinerary in the event of an international outbreak. <https://wwwnc.cdc.gov/travel/page/insurance>

Air or Cruise Travel

Is it safe to go on a cruise?

Cruises put large numbers of people, often from countries around the world, in frequent and close contact with each other. This can promote the spread of respiratory viruses, such as the virus that causes COVID-19. You may get sick from close contact with an infected person or by touching contaminated surfaces.

CDC recommends travelers, particularly those with underlying health issues, defer all cruise ship travel at this time. To reduce spread of respiratory viruses, including COVID-19, CDC recommends:

- Older adults and travelers with underlying health issues should avoid situations that put them at increased risk for more severe disease. This entails avoiding crowded places, avoiding non-essential travel such as long plane trips, and especially avoiding embarking on cruise ships.
- Discuss cruise ship travel with your healthcare provider prior to travel.
- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing.

- If soap and water are not readily available, use an alcohol-based hand sanitizer that contains at least 60% alcohol.
- Stay in your cabin when you are sick and let the onboard medical center know immediately if you develop a fever (100.4°F/38°C or higher), begin to feel feverish, or have other symptoms (such as cough, runny nose, shortness of breath, or sore throat).

What is the risk of getting COVID-19 on an airplane?

Because of how air circulates and is filtered on airplanes, most viruses and other germs do not spread easily on airplanes. Although the risk of infection on an airplane is low, travelers should try to avoid contact with sick passengers and wash their hands often with soap and water for at least 20 seconds or use hand sanitizer that contain 60%–95% alcohol.

For more information: [Exposure Risk During Travel](#)

What happens if there is a sick passenger on a flight?

Under current federal regulations, pilots must report to CDC all illnesses and deaths before arriving to the United States. If a sick traveler is considered to be a public health risk, CDC works with local and state health departments and international public health agencies to contact passengers and crew exposed to that sick traveler—according to CDC disease protocols.

Be sure to give the airline your current contact information when booking your ticket.

For more information: [Contact Investigation](#)

Returning from Travel

How are travelers from China being screened when they enter the United States?

At this time, American citizens, lawful permanent residents, and family members (as specified in the Presidential Proclamation) who have been in China in the past 14 days will be allowed to enter the United States. Those travelers will be directed to one of 11 US airports and will be screened for fever and symptoms and asked questions about their travel in China and exposure. Those travelers will have some level of restriction on their movement depending on their health and travel history.

For more information: Travelers from China Arriving in the United States

What if I recently traveled to an area affected by COVID-19 and got sick?

If you were in a country with a COVID-19 outbreak and feel sick with fever, cough, or difficulty breathing, within 14 days after you left, you should

- Seek medical advice – Call ahead before you go to a doctor's office or emergency room. Tell them about your recent travel and your symptoms.
- Avoid contact with others.
- Not travel on public transportation while sick.
- Cover your mouth and nose with a tissue or your sleeve (not your hands) when coughing or sneezing.
- Wash hands often with soap and water for at least 20 seconds to avoid spreading the virus to others.
- Wash your hands with soap and water immediately after coughing, sneezing or blowing your nose.
- If soap and water are not readily available, you can use an alcohol-based hand sanitizer that contains 60%–95% alcohol. Always wash hands with soap and water if hands are visibly dirty.

Business Travel

After returning from China, when can employees return to work?

Currently, anyone who enters the United States after being in China during the past 14 days will have some level of restrictions on their movements.

- Travelers from Hubei Province will be quarantined and actively monitored in a location to be determined by public health authorities for up to 14 days.
- Travelers from other parts of China who do not have any symptoms are being asked to monitor their health and practice social distancing for 14 days.

Social distancing means remaining out of:

- Public places where close contact with others may occur (such as shopping centers, movie theaters, stadiums).
- Workplaces (unless the person works in an office space that allows distancing from others).
- Schools and other classroom settings.
- Local public transportation (such as on a bus, subway, taxi, ride share, plane, ship)

These restrictions are to be in effect for 14 days from the time the person was possibly exposed.

For more information: [Guidance for Businesses and Employers](#)

Should businesses recommend facemasks or other protective equipment during travel?

CDC does not recommend travelers wear facemasks to protect themselves from COVID-19. You may choose to wear a mask, but it is more important that you take these steps.

We recommend that everyone follow everyday prevention practices:

- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Stay home when you are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Clean and disinfect frequently touched objects and surfaces using a regular household cleaning product.
- Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing.
- If soap and water are not readily available, use an alcohol-based hand sanitizer that contains 60%–95% alcohol.

Preventing COVID-19 Spread in Communities

Protect yourself and your community from getting and spreading respiratory illnesses like coronavirus disease 2019. Everyone has a role to play in getting ready and staying healthy.



CDC is aggressively responding to the global outbreak of COVID-19 and community spread in the United States. CDC's "All of Community" approach is focused to slowing the transmission of COVID-19 and reducing illness and death, while minimizing social and economic impacts.

Actions for Protecting Communities from COVID-19

How to prepare and take action for COVID-19

At Home



Get my household ready

At K-12 Schools and Childcare Programs



Get my school and childcare program ready

At Colleges and Universities



Get my college or university ready
Interim Guidance for Administrators

Cleaning and Disinfection Recommendations
Guidance for Student Travel
Checklist for Administrators
FAQs for Administrators

At Work



Get my workplace ready
Interim Guidance for Businesses and Employers
Cleaning and Disinfection Recommendations

Community- and Faith-Based Organizations



Community and faith leaders, get ready
Interim Guidance for Community and Faith Leaders
Cleaning and Disinfection Recommendations

Checklist for Community and Faith Leaders

Large Community Events/Mass Gatherings



Event planners, get ready

- Interim Guidance for event planners

- Cleaning and Disinfection Recommendations

- Recommendations for Election Polling Locations

Healthcare settings



Healthcare professionals, get ready

- Steps Healthcare Facilities Can Take

- Interim Guidance for Healthcare Facilities

- Strategies to Prevent the Spread of COVID-19 in Long-Term Care Facilities (LTCF)

Interim Guidance for Outpatient Hemodialysis Facilities

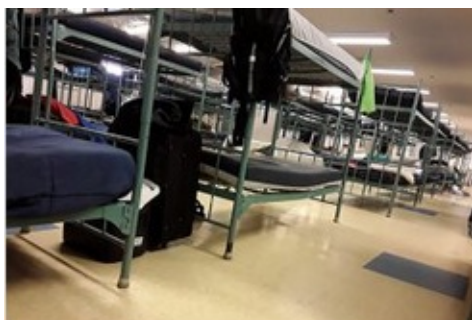
First Responders



First responders, get ready

Interim Guidance for Emergency Medical Services Systems
Information for Law Enforcement Personnel

Homeless Shelters



Shelter administrators, get ready

Interim Guidance for Homeless Shelters
Cleaning and Disinfection Recommendations

Americans should be prepared for the possibility of a COVID-19

outbreak in their community. The community can take measures to reduce the spread of COVID-19.

Currently a vaccine or drug is not available for COVID-19. Community-based interventions such as school dismissals, event cancellations, social distancing, and creating employee plans to work remotely can help slow the spread of COVID-19. Individuals can practice everyday prevention measures like frequent hand washing, staying home when sick, and covering coughs and sneezes.

Decisions about the implementation of community measures will be made by local and state officials, in consultation with federal officials as appropriate, and based on the scope of the outbreak and the severity of illness. Implementation will require extensive community engagement, with ongoing and transparent public health communications.

Resources for Home

- Plan Ahead and Be Ready
- Checklist to Get Your Household Ready
- FAQs for Individuals and Families
- Cleaning and Disinfection Recommendations
- What To Do If You Are Sick

Get Your Household Ready for Coronavirus Disease 2019

This interim guidance is based on what is currently known about the Coronavirus Disease 2019 (COVID-19). The Centers for Disease Control and Prevention (CDC) will update this interim guidance as needed and as additional information becomes available.

This interim guidance is to help household members plan for community transmission of coronavirus disease 2019 (COVID-19) in the United States. The Centers for Disease Control and Prevention (CDC) encourages household members to prepare for the possibility of a COVID-19 outbreak in their community.

COVID-19 is caused by a new virus. There is much to learn about its transmissibility, severity, and other features of the disease. We want to help everyone prepare to respond to this public health threat.

Before a COVID-19 outbreak occurs in your community: Plan

A COVID-19 outbreak could last for a long time in your community. Depending on the severity of the outbreak, public health officials may recommend community actions designed to help keep people healthy, reduce exposures to COVID-19, and slow the spread of the disease. Local public health officials may make recommendations appropriate to your local situation. Creating a household plan can help protect your health and the health of those you care about in the event of an outbreak of COVID-19 in your community. You should base the details of your household plan on the needs and daily routine of your household members.

Create a household plan of action

- ✓ Talk with the people who need to be included in your plan. Meet with household members, other relatives, and friends to discuss what to do if a COVID-19 outbreak occurs in your community and what the needs of each person will be.
- ✓ Plan ways to care for those who might be at greater risk for serious complications. There is limited information about who may be at risk for severe complications from COVID-19 illness. From the data that are available for COVID-19 patients, and from data for related coronaviruses such as SARS-CoV and MERS-CoV, it is possible that older adults and persons who have underlying chronic medical conditions may be at risk for more serious complications. Early data suggest older people are more likely to have serious COVID-19 illness. If you or your household members are at increased risk for COVID-19 complications, please consult with your health care provider for more information about monitoring your health for symptoms suggestive of COVID-19. CDC will recommend actions to help keep people at high risk for complications healthy if a COVID-19 outbreak occurs in your community.
- ✓ Get to know your neighbors. Talk with your neighbors about emergency planning. If your neighborhood has a website or social media page, consider joining it to maintain access to neighbors, information, and resources.
- ✓ Identify aid organizations in your community. Create a list of local organizations that you and your household can contact in the event you need access to information, health care services, support, and resources. Consider including organizations that provide mental health or counseling services, food, and other supplies.
- ✓ Create an emergency contact list. Ensure your household has a current list of emergency contacts for family, friends, neighbors, carpool drivers, health care providers, teachers, employers, the local public health department, and other community resources.

Practice good personal health habits and plan for home-based actions

✓ Practice everyday preventive actions now. Remind everyone in your household of the importance of practicing everyday preventive actions that can help prevent the spread of respiratory illnesses:

- Avoid close contact with people who are sick.
- Stay home when you are sick, except to get medical care.
- Cover your coughs and sneezes with a tissue.
- Clean frequently touched surfaces and objects daily (e.g., tables, countertops, light switches, doorknobs, and cabinet handles) using a regular household detergent and water.
 - If surfaces are dirty, they should be cleaned using a detergent and water prior to disinfection. For disinfection, a list of products with Environmental Protection Agency (EPA)-approved emerging viral pathogens claims, maintained by the American Chemistry Council Center for Biocide Chemistries (CBC), is available at Novel Coronavirus (COVID-19) Fighting Products. Always follow the manufacturer's instructions for all cleaning and disinfection products.
- Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Always wash your hands with soap and water if your hands are visibly dirty.

✓ Choose a room in your home that can be used to separate sick household members from those who are healthy. Identify a separate bathroom for the sick person to use, if possible. Plan to clean these rooms, as needed, when someone is sick. Learn how to care for someone with COVID-19 at home.

Be prepared if your child's school or childcare facility is temporarily dismissed

- ✓ Learn about the emergency operations plan at your child's school or childcare facility. During a COVID-19 outbreak in your community, local public health officials may recommend temporary school dismissals to help slow the spread of illness. School authorities also may decide to dismiss a school if too many students or staff are absent. Understand the plan for continuing education and social services (such as student meal programs) during school dismissals. If your child attends a college or university, encourage them to learn about the school's plan for a COVID-19 outbreak.

Plan for potential changes at your workplace

- ✓ Learn about your employer's emergency operations plan. Discuss sick-leave policies and telework options for workers who are sick or who need to stay home to care for sick household members. Learn how businesses and employers can plan for and respond to COVID-19.

During a COVID-19 outbreak in your community: Act

During an outbreak in your community, protect yourself and others by:



- Staying home from work, school, and all activities when you are sick with COVID-19 symptoms, which may include fever, cough, and difficulty breathing.

- Keeping away from others who are sick.
- Limiting close contact with others as much as possible (about 6 feet).

Put your household plan into action

- ✓ Stay informed about the local COVID-19 situation. Get up-to-date information about local COVID-19 activity from public health officials. Be aware of temporary school dismissals in your area, as this may affect your household's daily routine.
- ✓ Stay home if you are sick. Stay home if you have COVID-19 symptoms. If a member of your household is sick, stay home from school and work to avoid spreading COVID-19 to others.
 - If your children are in the care of others, urge caregivers to watch for COVID-19 symptoms.
- ✓ Continue practicing everyday preventive actions. Cover coughs and sneezes with a tissue and wash your hands often with soap and water for at least 20 seconds. If soap and water are not available, use a hand sanitizer that contains 60% alcohol. Clean frequently touched surfaces and objects daily using a regular household detergent and water.
- ✓ Use the separate room and bathroom you prepared for sick household members (if possible). Learn how to care for someone with COVID-19 at home. Avoid sharing personal items like food and drinks. Provide your sick household member with clean disposable facemasks to wear at home, if available, to help prevent spreading COVID-19 to others. Clean the sick room and bathroom, as needed, to avoid unnecessary contact with the sick person.
 - If surfaces are dirty, they should be cleaned using a detergent and water prior to disinfection. For disinfection, a list of products with EPA-approved emerging viral pathogens claims, maintained by the CBC, is available at Novel Coronavirus

(COVID-19) Fighting Products. Always follow the manufacturer's instructions for all cleaning and disinfection products.

- ✓ Stay in touch with others by phone or email. If you live alone and become sick during a COVID-19 outbreak, you may need help. If you have a chronic medical condition and live alone, ask family, friends, and health care providers to check on you during an outbreak. Stay in touch with family and friends with chronic medical conditions.
- ✓ Take care of the emotional health of your household members. Outbreaks can be stressful for adults and children. Children respond differently to stressful situations than adults. Talk with your children about the outbreak, try to stay calm, and reassure them that they are safe.

Inform your workplace if you need to change your regular work schedule

- ✓ Notify your workplace as soon as possible if your schedule changes. Ask to work from home or take leave if you or someone in your household gets sick with COVID-19 symptoms, or if your child's school is dismissed temporarily.

Take the following steps to help protect your children during an outbreak

- ✓ If your child/children become sick with COVID-19, notify their childcare facility or school. Talk with teachers about classroom assignments and activities they can do from home to keep up with their schoolwork.
- ✓ Keep track of school dismissals in your community. Read or watch local media sources that report school dismissals. If schools are dismissed temporarily, use alternative childcare arrangements, if needed.

- ✓ Discourage children and teens from gathering in other public places while school is dismissed to help slow the spread of COVID-19 in the community.

After a COVID-19 outbreak has ended in your community: Follow Up

Remember, a COVID-19 outbreak could last a long time. The impact on individuals, households, and communities might be great. When public health officials determine the outbreak has ended in your community, take time to improve your household's plan. As public health officials continue to plan for COVID-19 and other disease outbreaks, you and your household also have an important role to play in ongoing planning efforts.

Evaluate the effectiveness of your household's plan of action

- ✓ Discuss and note lessons learned. Were your COVID-19 preparedness actions effective at home, school, and work? Talk about problems found in your plan and effective solutions. Identify additional resources needed for you and your household.
- ✓ Participate in community discussions about emergency planning. Let others know about what readiness actions worked for you and your household. Maintain communication lines with your community (e.g., social media and email lists). Promote the importance of practicing good personal health habits.
- ✓ Continue to practice everyday preventive actions. Stay home when you are sick; cover your coughs and sneezes with a tissue; wash your hands often with soap and water; and clean frequently touched surfaces and objects daily.

- ✓ Take care of the emotional health of your household members. Make time to unwind and remind yourself that strong feelings will fade. Take breaks from watching, reading, or listening to news stories about COVID-19. Connect with family and friends. Share your concerns and how you are feeling with others.
- ✓ Help your child/children cope after the outbreak. Provide children with opportunities to talk about what they went through or what they think about it. Encourage them to share concerns and ask questions. Because parents, teachers, and other adults see children in different situations, it is important for them to work together to share information about how each child is coping after the outbreak.

Get Your Home Ready

Checklist for Individuals and Families

As a family, you can plan and make decisions now that will protect you and your family during a COVID-19 outbreak. Creating a household plan can help protect your health and the health of those you care about in the event of an outbreak of COVID-19 in your community. Use this checklist to help you take steps to plan and protect the health of you and your family.

PLAN AND PREPARE
Get up-to-date information about local COVID-19 activity from public health officials
Create a household plan of action. • Consider members of the household that may be at greater risk such as older adults and people

with severe chronic illnesses.

- Ask your neighbors what their plan includes.
- Create a list of local organizations you and your household can contact in case you need access to information, healthcare services, support, and resources.
- Create an emergency contact list including family, friends, neighbors, carpool drivers, healthcare providers, teachers, employers, the local public health department, and other community resources.
- Choose a room in your house that can be used to separate sick household members from others.

Take everyday preventive actions:

- Wash your hands frequently
- Avoid touching your eyes, nose, and mouth.
- Stay home when you are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Clean and disinfect frequently touched objects and surfaces Be prepared if your child's school or childcare facility is temporarily dismissed or for potential changes at your workplace.

TAKE ACTION

In case of an outbreak in your community, protect yourself and others:

- Stay home and speak to your healthcare provider if you develop fever, cough, or shortness of breath
- If you develop emergency warning signs for COVID-19

get medical attention immediately. In adults, emergency warning signs*:

- Difficulty breathing or shortness of breath
 - Persistent pain or pressure in the chest
 - New confusion or inability to arouse
 - Bluish lips or face
 - * This list is not all inclusive. Please consult your medical provider for any other symptom that is severe or concerning.
- Keep away from others who are sick
 - Limit close contact with others as much as possible (about 6 feet)

Put your household plan into action

- Continue to practice everyday preventive actions
- If someone in the household is sick, separate them into the prepared room
- If caring for a household member, follow recommended precautions and monitor your own health
- Keep surfaces disinfected
- Avoid sharing personal items
- If you become sick, stay in contact with others by phone or email
- Stay informed about the local outbreak situation
- Notify your work if your schedule needs to change
- Take care of the emotional health of your household members, including yourself

Take additional precautions for those at highest risk, particularly older adults and those who have severe underlying

health conditions.

- Consider staying at home and away from crowds if you or a family member are an older adult or have underlying health issues
- Make sure you have access to several weeks of medications and supplies in case you need to stay home
- When you go out in public, keep away from others who are sick and limit close contact with others
- Practice good hand hygiene

Take the following steps to help protect your children during an outbreak:

- Notify your child's school if your child becomes sick with COVID-19
- Keep track of school dismissals in your community
- Discourage children and teens from gathering in other public places

Get Your Home Ready

FAQs for Individuals and Families

Preparing Your Home for COVID-19

How can my family and I prepare for COVID-19?

Create a household plan of action to help protect your health and the health of those you care about in the event of an outbreak of COVID-19 in your community:

- Talk with the people who need to be included in your plan, and discuss what to do if a COVID-19 outbreak occurs in your community.
- Plan ways to care for those who might be at greater risk for serious complications, particularly older adults and those with severe chronic medical conditions like heart, lung or kidney disease.
 - Make sure they have access to several weeks of medications and supplies in case you need to stay home for prolonged periods of time.
- Get to know your neighbors and find out if your neighborhood has a website or social media page to stay connected.
- Create a list of local organizations that you and your household can contact in the event you need access to information, healthcare services, support, and resources.
- Create an emergency contact list of family, friends, neighbors, carpool drivers, health care providers, teachers, employers, the local public health department, and other community resources.

What steps can my family take to reduce our risk of getting COVID-19?

Practice everyday preventive actions to help reduce your risk of getting sick and remind everyone in your home to do the same. These actions are especially important for older adults and people

who have severe chronic medical conditions:

- Avoid close contact with people who are sick.
- Stay home when you are sick, except to get medical care.
- Cover your coughs and sneezes with a tissue and throw the tissue in the trash.
- Wash your hands often with soap and water for at least 20 seconds, especially after blowing your nose, coughing, or sneezing; going to the bathroom; and before eating or preparing food.
- If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol. Always wash hands with soap and water if hands are visibly dirty.
- Clean and disinfect frequently touched surfaces and objects (e.g., tables, countertops, light switches, doorknobs, and cabinet handles).

What should I do if someone in my house gets sick with COVID-19?

Most people who get COVID-19 will be able to recover at home. CDC has directions for people who are recovering at home and their caregivers, including:

- Stay home when you are sick, except to get medical care.
- If you develop emergency warning signs for COVID-19 get medical attention immediately. In adults, emergency warning signs^{*}:
 - Difficulty breathing or shortness of breath
 - Persistent pain or pressure in the chest

- New confusion or inability to arouse
 - Bluish lips or face
 - * This list is not all inclusive. Please consult your medical provider for any other symptom that is severe or concerning.
- Use a separate room and bathroom for sick household members (if possible).
 - Clean hands regularly by handwashing with soap and water or using an alcohol-based hand sanitizer with at least 60% alcohol.
 - Provide your sick household member with clean disposable facemasks to wear at home, if available, to help prevent spreading COVID-19 to others.
 - Clean the sick room and bathroom, as needed, to avoid unnecessary contact with the sick person.
 - Avoid sharing personal items like utensils, food, and drinks.

How can I prepare in case my child's school, childcare facility, or university is dismissed?

Talk to the school or facility about their emergency operations plan. Understand the plan for continuing education and social services (such as student meal programs) during school dismissals. If your child attends a college or university, encourage them to learn about the school's plan for a COVID-19 outbreak.

How can I prepare for COVID-19 at work?

Plan for potential changes at your workplace. Talk to your employer about their emergency operations plan, including sick-leave policies and telework options. Learn how businesses and employers can plan for and respond to COVID-19.

Should I use soap and water or a hand sanitizer to protect against COVID-19?

Handwashing is one of the best ways to protect yourself and your family from getting sick. Wash your hands often with soap and water for at least 20 seconds, especially after blowing your nose, coughing, or sneezing; going to the bathroom; and before eating or preparing food. If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol.

What cleaning products should I use to protect against COVID-19?

Clean and disinfect frequently touched surfaces such as tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks. If surfaces are dirty, clean them using detergent or soap and water prior to disinfection. To disinfect, most common EPA-registered household disinfectants will work. See CDC's recommendations for household cleaning and disinfection.

In Case of an Outbreak in Your Community

What should I do if there is an outbreak in my community?

During an outbreak, stay calm and put your preparedness plan to work. Follow the steps below:

Protect yourself and others.

- Stay home if you are sick. Keep away from people who are sick. Limit close contact with others as much as possible (about 6 feet).

Put your household plan into action.

- Stay informed about the local COVID-19 situation. Be aware of temporary school dismissals in your area, as this may affect your household's daily routine.
- Continue practicing everyday preventive actions. Cover coughs and sneezes with a tissue and wash your hands often with soap and water for at least 20 seconds. If soap and water are not available, use a hand sanitizer that contains 60% alcohol. Clean frequently touched surfaces and objects daily using a regular household detergent and water.
- Notify your workplace as soon as possible if your regular work schedule changes. Ask to work from home or take leave if you or someone in your household gets sick with COVID-19 symptoms, or if your child's school is dismissed temporarily. Learn how businesses and employers can plan for and respond to COVID-19.
- Stay in touch with others by phone or email. If you have a chronic medical condition and live alone, ask family, friends, and health care providers to check on you during an outbreak. Stay in touch with family and friends, especially those at increased risk of developing severe illness, such as older adults and people with severe chronic medical conditions.

How do I prepare my children in case of COVID-19 outbreak in our community?

Outbreaks can be stressful for adults and children. Talk with your children about the outbreak, try to stay calm, and reassure them that they are safe. If appropriate, explain to them that most illness from COVID-19 seems to be mild. Children respond differently to stressful situations than adults.

What steps should parents take to protect children during a community outbreak?

This is a new virus and we are still learning about it, but so far, there does not seem to be a lot of illness in children. Most illness, including serious illness, is happening in adults of working age and older adults. If there cases of COVID-19 that impact your child's school, the school may dismiss students. Keep track of school dismissals in your community. Read or watch local media sources that report school dismissals. If schools are dismissed temporarily, use alternative childcare arrangements, if needed.

If your child/children become sick with COVID-19, notify their childcare facility or school. Talk with teachers about classroom assignments and activities they can do from home to keep up with their schoolwork.

Discourage children and teens from gathering in other public places while school is dismissed to help slow the spread of COVID-19 in the community.

Will schools be dismissed if there is an outbreak in my community?

Depending on the situation, public health officials may recommend community actions to reduce exposures to COVID-19, such as school dismissals. Read or watch local media sources that report school dismissals or and watch for communication from your child's school. If schools are dismissed temporarily, discourage students and staff from gathering or socializing anywhere, like at a friend's house, a favorite restaurant, or the local shopping mall.

Should I go to work if there is an outbreak in my community?

Follow the advice of your local health officials. Stay home if you can. Talk to your employer to discuss working from home, taking leave if you or someone in your household gets sick with COVID-19 symptoms, or if your child's school is dismissed temporarily. Employers should be aware that more employees may need to stay at home to care for sick children or other sick family members than is usual in case of a community outbreak.

Environmental Cleaning and Disinfection Recommendations

Interim Recommendations for US Households with Suspected/Confirmed Coronavirus Disease 2019

Background

There is much to learn about the novel coronavirus that causes coronavirus disease 2019 (COVID-19). Based on what is currently known about the novel coronavirus and similar coronaviruses that cause SARS and MERS, spread from person-to-person with these viruses happens most frequently among close contacts (within about 6 feet). This type of transmission occurs via respiratory droplets. On the other hand, transmission of novel coronavirus to persons from surfaces contaminated with the virus has not been documented. Transmission of coronavirus occurs much more commonly through respiratory droplets than through fomites. Current evidence suggests that novel coronavirus may remain viable for hours to days on surfaces made from a variety of materials. Cleaning of visibly dirty surfaces followed by disinfection is a best practice measure for prevention of COVID-19 and other viral respiratory illnesses in households and community settings.

Purpose

This guidance provides recommendations on the cleaning and disinfection of households where persons under investigation (PUI) or those with confirmed COVID-19 reside or may be in self-isolation. It is aimed at limiting the survival of the virus in the environments. These recommendations will be updated if additional information becomes available.

These guidelines are focused on household settings and are meant for the general public.

- Cleaning refers to the removal of germs, dirt, and impurities from surfaces. Cleaning does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection.
- Disinfecting refers to using chemicals to kill germs on surfaces. This

process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection.

General Recommendations for Routine Cleaning and Disinfection of Households

Community members can practice routine cleaning of frequently touched surfaces (for example: tables, doorknobs, light switches, handles, desks, toilets, faucets, sinks) with household cleaners and EPA-registered disinfectants that are appropriate for the surface, following label instructions. Labels contain instructions for safe and effective use of the cleaning product including precautions you should take when applying the product, such as wearing gloves and making sure you have good ventilation during use of the product.

General Recommendations for Cleaning and Disinfection of Households with People Isolated in Home Care (e.g. Suspected/Confirmed to have COVID-19)

- Household members should educate themselves about COVID-19 symptoms and preventing the spread of COVID-19 in homes.
- Clean and disinfect high-touch surfaces daily in household common areas (e.g. tables, hard-backed chairs, doorknobs, light switches, remotes, handles, desks, toilets, sinks)
 - In the bedroom/bathroom dedicated for an ill person: consider reducing cleaning frequency to as-needed (e.g., soiled items and surfaces) to avoid unnecessary contact with the ill person.
 - As much as possible, an ill person should stay in a specific

room and away from other people in their home, following home care guidance.

- The caregiver can provide personal cleaning supplies for an ill person's room and bathroom, unless the room is occupied by child or another person for whom such supplies would not be appropriate. These supplies include tissues, paper towels, cleaners and EPA-registered disinfectants (examples at this link).
 - If a separate bathroom is not available, the bathroom should be cleaned and disinfected after each use by an ill person. If this is not possible, the caregiver should wait as long as practical after use by an ill person to clean and disinfect the high-touch surfaces.
- Household members should follow home care guidance when interacting with persons with suspected/confirmed COVID-19 and their isolation rooms/bathrooms.

How to clean and disinfect:

Surfaces

- Wear disposable gloves when cleaning and disinfecting surfaces. Gloves should be discarded after each cleaning. If reusable gloves are used, those gloves should be dedicated for cleaning and disinfection of surfaces for COVID-19 and should not be used for other purposes. Consult the manufacturer's instructions for cleaning and disinfection products used. Clean hands immediately after gloves are removed.
- If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.
- For disinfection, diluted household bleach solutions, alcohol solutions with at least 70% alcohol, and most common EPA-

registered household disinfectants should be effective.

- Diluted household bleach solutions can be used if appropriate for the surface. Follow manufacturer's instructions for application and proper ventilation. Check to ensure the product is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Unexpired household bleach will be effective against coronaviruses when properly diluted.
 - Prepare a bleach solution by mixing:
 - 5 tablespoons (1/3rd cup) bleach per gallon of water or
 - 4 teaspoons bleach per quart of water
- Products with EPA-approved emerging viral pathogens claims are expected to be effective against COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.).
- For soft (porous) surfaces such as carpeted floor, rugs, and drapes, remove visible contamination if present and clean with appropriate cleaners indicated for use on these surfaces. After cleaning:
 - Launder items as appropriate in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely, or

Use products with the EPA-approved emerging viral pathogens claims (examples at [this link](#)) that are suitable for porous surfaces.

Clothing, towels, linens and other items that go in the laundry

- Wear disposable gloves when handling dirty laundry from an ill person and then discard after each use. If using reusable gloves, those gloves should be dedicated for cleaning and disinfection of

surfaces for COVID-19 and should not be used for other household purposes. Clean hands immediately after gloves are removed.

- If no gloves are used when handling dirty laundry, be sure to wash hands afterwards.
- If possible, do not shake dirty laundry. This will minimize the possibility of dispersing virus through the air.
- Launder items as appropriate in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely. Dirty laundry from an ill person can be washed with other people's items.
- Clean and disinfect clothes hampers according to guidance above for surfaces. If possible, consider placing a bag liner that is either disposable (can be thrown away) or can be laundered.

Hand hygiene and other preventive measures

- Household members should clean hands often, including immediately after removing gloves and after contact with an ill person, by washing hands with soap and water for 20 seconds. If soap and water are not available and hands are not visibly dirty, an alcohol-based hand sanitizer that contains at least 60% alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water.
- Household members should follow normal preventive actions while at work and home including recommended hand hygiene and avoiding touching eyes, nose, or mouth with unwashed hands.
 - Additional key times to clean hands include:
 - After blowing one's nose, coughing, or sneezing
 - After using the restroom

- Before eating or preparing food
- After contact with animals or pets
- Before and after providing routine care for another person who needs assistance (e.g. a child)

Other considerations

- The ill person should eat/be fed in their room if possible. Non-disposable food service items used should be handled with gloves and washed with hot water or in a dishwasher. Clean hands after handling used food service items.
- If possible, dedicate a lined trash can for the ill person. Use gloves when removing garbage bags, handling, and disposing of trash. Wash hands after handling or disposing of trash.
- Consider consulting with your local health department about trash disposal guidance if available.

Resources for K-12 Schools and Childcare Programs

Interim Guidance for Administrators

Cleaning and Disinfection Recommendations

FAQs for Administrators

Checklist for Teachers, Parents, and Administrators

Talking With Children About Coronavirus Disease 2019

Interim Guidance for Administrators

of US Childcare Programs and K-12 Schools

Older adults and people who have severe underlying chronic medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.

This interim guidance is based on what is currently known about the transmission and severity of coronavirus disease 2019 (COVID-19).

The US Centers for Disease Control and Prevention (CDC) will update this guidance as needed and as additional information becomes available. Please check the following CDC website periodically for updated interim guidance: <https://www.cdc.gov/coronavirus/2019-ncov/index.html>.

Health officials are currently taking steps to prevent the introduction and spread of COVID-19 into US communities. Schools can play an important role in this effort. Through collaboration and coordination with local health departments, schools can take steps to disseminate information about the disease and its potential transmission within their school community. Schools can prepare to take steps to prevent the spread of COVID-19 among their students and staff should local health officials identify such a need.

Schools should continue to collaborate, share information, and review plans with local health officials to help protect the whole school community, including those with special health needs. School plans should be designed to minimize disruption to teaching and

learning and protect students and staff from social stigma and discrimination. Plans can build on everyday practices (e.g., encouraging hand hygiene, monitoring absenteeism, communicating routinely) that include strategies for before, during, and after a possible outbreak.

Who is this guidance for?

This interim guidance is intended to help administrators of public and private childcare programs and K-12 schools prevent the spread of COVID-19 among students and staff. Administrators are individuals who oversee the daily operations of childcare programs and K-12 schools, and may include positions like childcare program directors, school district superintendents, principals, and assistant principals. This guidance is intended for administrators at both the school/facility and district level.

Why is this guidance being issued?

Information provided should help childcare programs, schools, and their partners understand how to help prevent the transmission of COVID-19 within childcare and school communities and facilities. It also aims to help childcare programs, schools, and partners to react quickly should a case be identified. The guidance includes considerations to help administrators plan for the continuity of teaching and learning if there is community spread of COVID-19.

What is the role of schools in responding to

COVID-19?

COVID-19 is a respiratory illness caused by a novel (new) virus, and we are learning more about it every day. There is currently no vaccine to protect against COVID-19. At this point, the best way to prevent infection is to avoid being exposed to the virus that causes it. Stopping transmission (spread) of the virus through everyday practices is the best way to keep people healthy. More information on COVID-19 is available [here](#).

Schools, working together with local health departments, have an important role in slowing the spread of diseases to help ensure students have safe and healthy learning environments. Schools serve students, staff, and visitors from throughout the community. All of these people may have close contact in the school setting, often sharing spaces, equipment, and supplies.

Guidance for schools which do not have COVID-19 identified in their community

To prepare for possible community transmission of COVID-19, the most important thing for schools to do now is plan and prepare. As the global outbreak evolves, schools should prepare for the possibility of community-level outbreaks. Schools want to be ready if COVID-19 does appear in their communities.

Childcare and K-12 school administrators nationwide can take steps to help stop or slow the spread of respiratory infectious diseases, including COVID-19:

- Review, update, and implement emergency operations plans

(EOPs). This should be done in collaboration with local health departments and other relevant partners. Focus on the components, or annexes, of the plans that address infectious disease outbreaks.

- Ensure the plan includes strategies to reduce the spread of a wide variety of infectious diseases (e.g., seasonal influenza). Effective strategies build on everyday school policies and practices.
- Ensure the plan emphasizes common-sense preventive actions for students and staff. For example, emphasize actions such as staying home when sick; appropriately covering coughs and sneezes; cleaning frequently touched surfaces; and washing hands often.
 - CDC has workplace resources such as posters with messages for staff about staying home when sick and how to avoid spreading germs at work.
- Ensure handwashing strategies include washing with soap and water for at least 20 seconds or using a hand sanitizer that contains at least 60% alcohol if soap and water are not available.
 - CDC offers several free handwashing resources that include health promotion materials, information on proper handwashing technique, and tips for families to help children develop good handwashing habits.
- Reference key resources while reviewing, updating, and implementing the EOP:
 - Multiple federal agencies have developed resources on school planning principles and a 6-step process for creating plans to build and continually foster safe and healthy school communities before, during, and after possible emergencies. Key resources include guidance

on developing high-quality school emergency operations plans, and a companion guide on the role of school districts in developing high-quality school emergency operations plans.

- The Readiness and Emergency Management for Schools (REMS) Technical Assistance (TA) Center's website contains free resources, trainings, and TA to schools and their community partners, including many tools and resources on emergency planning and response to infectious disease outbreaks.
- Develop information-sharing systems with partners.
 - Information-sharing systems can be used for day-to-day reporting (on information such as changes in absenteeism) and disease surveillance efforts to detect and respond to an outbreak.
 - Local health officials should be a key partner in information sharing.
- Monitor and plan for absenteeism.
 - Review the usual absenteeism patterns at your school among both students and staff.
 - Alert local health officials about large increases in student and staff absenteeism, particularly if absences appear due to respiratory illnesses (like the common cold or the "flu," which have symptoms similar to symptoms of COVID-19).
 - Review attendance and sick leave policies. Encourage students and staff to stay home when sick. Use flexibility, when possible, to allow staff to stay home to care for sick family members.
 - Discourage the use of perfect attendance awards and incentives.

- Identify critical job functions and positions, and plan for alternative coverage by cross-training staff.
- Determine what level of absenteeism will disrupt continuity of teaching and learning.
- Establish procedures for students and staff who are sick at school.
 - Establish procedures to ensure students and staff who become sick at school or arrive at school sick are sent home as soon as possible.
 - Keep sick students and staff separate from well students and staff until they can leave.
 - Remember that schools are not expected to screen students or staff to identify cases of COVID-19. The majority of respiratory illnesses are not COVID-19. If a community (or more specifically, a school) has cases of COVID-19, local health officials will help identify those individuals and will follow up on next steps.
 - Share resources with the school community to help families understand when to keep children home. This guidance, not specific to COVID-19, from the American Academy of Pediatrics can be helpful for families.
- Perform routine environmental cleaning.
 - Routinely clean frequently touched surfaces (e.g., doorknobs, light switches, countertops) with the cleaners typically used. Use all cleaning products according to the directions on the label.
 - Provide disposable wipes so that commonly used surfaces (e.g., keyboards, desks, remote controls) can be wiped down by students and staff before each use.
- Create communications plans for use with the school

community.

- Include strategies for sharing information with staff, students, and their families.
- Include information about steps being taken by the school or childcare facility to prepare, and how additional information will be shared.
- Review CDC's guidance for businesses and employers.
 - Review this CDC guidance to identify any additional strategies the school can use, given its role as an employer.

Childcare and K-12 administrators can also support their school community by sharing resources with students (if resources are age-appropriate), their families, and staff. Coordinate with local health officials to determine what type of information might be best to share with the school community. Consider sharing the following fact sheets and information sources:

- Information about COVID-19 available through state and local health departments
- General CDC fact sheets to help staff and students' families understand COVID-19 and the steps they can take to protect themselves:
 - What you need to know about coronavirus disease 2019 (COVID-19)
 - What to do if you are sick with coronavirus disease 2019 (COVID-19)
 - Stop the spread of germs – help prevent the spread of respiratory viruses like COVID-19
- CDC Information on COVID-19 and children
- CDC information for staff, students, and their families who

have recently traveled back to the United States from areas where CDC has identified community spread of coronavirus:

- A list of countries where community spread of COVID-19 is occurring can be found on the CDC webpage: Coronavirus Disease 2019 Information for Travel

For questions about students who plan to travel, or have recently traveled, to areas with community spread of COVID-19, refer to CDC's FAQ for travelers. Schools can also consult with state and local health officials. Schools may need to postpone or cancel trips that could expose students and staff to potential community spread of COVID-19. Students returning from travel to areas with community spread of COVID-19 must follow guidance they have received from health officials. COVID-19 information for travel is updated regularly on the CDC website.

Guidance for schools with identified cases of COVID-19 in their community

If local health officials report that there are cases of COVID-19 in the community, schools may need to take additional steps in response to prevent spread in the school. The first step for schools in this situation is to talk with local health officials. The guidance provided here is based on current knowledge of COVID-19. As additional information becomes available about the virus, how it spreads, and how severe it is, this guidance may be updated. Administrators are encouraged to work closely with local health officials to determine a course of action for their childcare programs or schools.

Determine if, when, and for how long childcare programs or schools may need to be dismissed.

Temporarily dismissing childcare programs and K-12 schools is a strategy to stop or slow the further spread of COVID-19 in communities. During school dismissals, childcare programs and schools may stay open for staff members (unless ill) while students stay home. Keeping facilities open a) allows teachers to develop and deliver lessons and materials remotely, thus maintaining continuity of teaching and learning; and b) allows other staff members to continue to provide services and help with additional response efforts.

Childcare and school administrators should work in close collaboration and coordination with local health officials to make dismissal and large event cancellation decisions. Schools are not expected to make decisions about dismissal or canceling events on their own. Schools can seek specific guidance from local health officials to determine if, when, and for how long to take these steps. Large event cancellations or school dismissals may be recommended for 14 days, or possibly longer if advised by local health officials. The nature of these actions (e.g., geographic scope, duration) may change as the local outbreak situation evolves.

If an ill student or staff member attended school prior to being confirmed as a COVID-19 case:

- Local health officials may recommend temporary school dismissals if a student or staff member attended school prior to being confirmed as a COVID-19 case. Local health officials' recommendations for the scope (e.g., a single school, a full district) and duration of school dismissals will be made on a case-by-case basis based on the most up-to-date information about COVID-19 and the specific cases in the impacted community.
- Schools should work with the local health department and other relevant leadership to communicate the possible COVID-

19 exposure. This communication to the school community should align with the communication plan in the school's emergency operations plan. In such a circumstance, it is critical to maintain confidentiality of the student or staff member as required by the Americans with Disabilities Act and the Family Education Rights and Privacy Act.

- If a student or staff member has been identified with COVID-19, school and program administrators should seek guidance from local health officials to determine when students and staff should return to schools and what additional steps are needed for the school community. In addition, students and staff who are well but are taking care of or share a home with someone with a case of COVID-19 should follow instructions from local health officials to determine when to return to school.

If schools are dismissed, schools can consider the following steps:

- Temporarily cancel extracurricular group activities and large events.
 - Cancel or postpone events such as after-school assemblies and pep rallies, field trips, and sporting events.
- Discourage students and staff from gathering or socializing anywhere.
 - Discourage gatherings at places like a friend's house, a favorite restaurant, or the local shopping mall.
- Ensure continuity of education.
 - Review continuity plans, including plans for the continuity of teaching and learning. Implement e-learning plans, including digital and distance learning options as feasible and appropriate.
 - Determine, in consultation with school district officials or other relevant state or local partners:

- If a waiver is needed for state requirements of a minimum number of in-person instructional hours or school days (seat time) as a condition for funding;
- How to convert face-to-face lessons into online lessons and how to train teachers to do so;
- How to triage technical issues if faced with limited IT support and staff;
- How to encourage appropriate adult supervision while children are using distance learning approaches; and
- How to deal with the potential lack of students' access to computers and the Internet at home.
- Ensure continuity of meal programs.
 - Consider ways to distribute food to students.
 - If there is community spread of COVID-19, design strategies to avoid distribution in settings where people might gather in a group or crowd. Consider options such as “grab-and-go” bagged lunches or meal delivery.
- Consider alternatives for providing essential medical and social services for students.
 - Continue providing necessary services for children with special healthcare needs, or work with the state Title V Children and Youth with Special Health Care Needs (CYSHCN) Program.

K-12 Schools and Childcare Programs

FAQs for Administrators

Planning and Preparedness

What actions should school and childcare program administrators take to plan for an outbreak?

Administrators of childcare programs and K-12 schools should take the following actions to plan and prepare for COVID-19:

- Review, update, and implement school emergency operation plans, particularly for infectious disease outbreaks.
- Emphasize actions for students and staff to take such as staying home when sick; appropriately covering coughs and sneezes; and washing hands often.
- Cleaning frequently touched surfaces.
- Monitor and plan for absenteeism.
 - Review the usual absenteeism patterns at your school among both students and staff.
 - Review attendance and sick leave policies. Encourage students and staff to stay home when sick. Use flexibility, when possible, to allow staff to stay home to care for sick family members.
 - Alert local health officials about increases in absences, particularly those that appear due to respiratory illnesses.
- Monitor and plan for addressing fear and bullying related to COVID-19.
- Communicate early and repeatedly with parents directly what the policies and procedures will be to allow parents to assure proper guardianship and care of children.

What actions can staff and students take to prevent the spread of

COVID-19 in my school/childcare program?

Encourage students and staff to take everyday preventive actions to prevent the spread of respiratory illnesses, such as staying home when sick; appropriately covering coughs and sneezes; cleaning frequently touched surfaces; and washing hands often with soap and water. If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol. Always wash hands with soap and water if hands are visibly dirty. Remember to supervise young children when they use hand sanitizer to prevent swallowing alcohol, especially in childcare facilities.

What steps should my school take if a student or staff member shows symptoms of COVID-19?

You should establish procedures to ensure students and staff who become sick at school or who arrive at school sick are sent home as soon as possible. Keep sick students and staff separate from well students and staff until sick students and staff can be sent home.

Should my school screen students for cases of COVID-19?

Schools and childcare programs are not expected to screen children, students, or staff to identify cases of COVID-19. The majority of respiratory illnesses are not COVID-19. If a community or school has cases of COVID-19, local health officials will help identify those individuals and will follow up on next steps.

What environmental cleaning procedures should my school take to keep staff and students healthy?

Perform routine environmental cleaning. Routinely clean frequently touched surfaces (e.g., doorknobs, light switches, countertops) with cleaners that you typically use. Use all cleaning products according to the directions on the label. Provide disposable wipes so that commonly used surfaces (e.g., keyboards, desks, remote controls) can be wiped down by students and staff before each use.

What resources does CDC have available to share with staff, students, and parents?

Share resources with the school community to help them understand COVID-19 and steps they can take to protect themselves:

- CDC's health communication resources
- CDC information on stigma and COVID-19
- CDC information on COVID-19 and children
- CDC offers several free handwashing resources that include health promotion materials, information on proper handwashing technique, and tips for families to help children develop good handwashing habits.
- Other health and education professional organizations may also have helpful resources your school can use or share, such as the American Academy of Pediatrics
- CDC's information on helping children cope with emergencies
- Stigma prevention and facts about COVID-19

Responding to confirmed COVID-19 cases

What actions should my school take if a sick student or staff member attended school before being confirmed as a COVID-19 case?

- Local health officials may recommend temporary school dismissals. Local health officials' recommendations for the scope (e.g., a single school, a full district) and duration of school dismissals will be made on a case-by-case basis based on the most up-to-date information about COVID-19 and the specific cases in the impacted community. Dismissals may be 14 days or longer, depending on the situation in your community.
- Schools should work with the local health department and other relevant leadership to communicate the possible COVID-19

exposure to the school community. This communication to the school community should align with the communication plan in the school's emergency operations plan. In such a circumstance, it is critical to maintain confidentiality of the student or staff member as required by the Americans with Disabilities Act and the Family Education Rights and Privacy Act.

- If a child or staff member has been identified with COVID-19, school and program administrators should seek guidance from local health officials to determine when students and staff should return to schools and what additional steps are needed for the school community. In addition, students and staff who are well but are taking care of or share a home with someone with a case of COVID-19 should follow instructions from local health officials to determine when to return to school.

What should I do if my school experiences increased rates of absenteeism?

If your school notices a substantial increase in the number of students or staff missing school due to illness, report this to your local health officials.

School Dismissals

Should I close our school/childcare program if there's been COVID-19 cases in my school?

You may need to use temporary school dismissals of 14 days, or possibly longer, if a student or staff member attended school before being confirmed as having COVID-19. Any decision about school dismissal or cancellation of school events should be made in coordination with your local health officials. Schools are not expected to make decisions about dismissal and event cancellation independent of their local health officials. Dismissal and event cancellation decisions should be considered on a case-by-case basis using information from health officials about the local conditions.

If our school is dismissed, how long should we dismiss school for?

The length (duration), geographic scope, and public health objective of school dismissals may be reassessed and changed as the local outbreak situation evolves. At this time, the recommendation is for at least 14 days. This recommendation may be updated as the situation evolves.

Are there ways for students to keep learning if we decide to dismiss schools?

Yes, many schools may use e-learning plans and distance learning options for continuity of education, if available. Your school or district's emergency operations plan should have recommended strategies for ensuring continuity of education and may provide guidance on how to proceed during a school dismissal. In addition, you may be able to use and/or scale up approaches used in other situations when students have not been able to attend school (e.g. inclement weather, facility damage, power outages).

If I make the decision for a school dismissal, what else should I consider?

In the event of a school dismissal, extracurricular group activities and large events, such as performances, field trips, and sporting events should also be cancelled. This may require close coordination with other partners and organizations (e.g., high school athletics associations, music associations). In addition, discourage students and staff from gathering or socializing anywhere, like at a friend's house, a favorite restaurant, or the local shopping mall.

Ensure continuity of meal programs for your students. Consider ways to distribute food to students who receive free or reduced cost meals. Check with the US Department of Agriculture – Food and Nutrition Service for additional information: <https://www.fns.usda.gov/disaster/USDAfoodsPandemicSchools>. If there is community spread of COVID-19, design strategies to avoid distribution in settings where people might gather in a group or crowd. Consider options such as “grab-and-go” bagged lunches or meal delivery.

Consider alternatives for providing essential medical and social services for students. Continue providing necessary services for children with special healthcare needs, or work with the state Title V Children and Youth with Special Health Care Needs (CYSHCN) Program.

If we dismiss school, what do we need to consider when re-opening the building to students?

CDC is currently working on additional guidance to help schools determine when and how to re-open their buildings to students. If you need immediate assistance with this, consult local health officials for guidance.

Recent Travel

What should we do if a child, student, or staff member has recently traveled to an area with COVID-19 or has a family member who has traveled to an area with COVID-19?

Review updated CDC information for travelers, including FAQ for travelers, and consult with state and local health officials. Health officials may use CDC's Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease 2019 (COVID-19) Exposure in Travel-associated or Community Settings to make recommendations. Individuals returning from travel to areas with community spread of COVID-19 must follow guidance they have received from health officials.

Schools and Childcare Programs

Checklist for Teachers and Parents

Teachers: Get Your School Ready for Corona Disease 2019

You can protect yourself and your students by practicing and promoting healthy habits during the school year. Use this checklist to plan and take action if a COVID-19 outbreak occurs in your community.

PLAN AND PREPARE

- ✓ Encourage students to stay home if sick

If your student gets sick at school, keep the sick student away from well students until picked up. Encourage your student to stay home if they are sick with any illness.

- ✓ Clean and disinfect frequently touched surfaces and objects in the classroom

Follow CDC's guidance for cleaning and disinfecting community facilities, such as schools.

- ✓ Monitor absenteeism

Let administrators know if you see a large increase in absenteeism.

- ✓ Talk to your administrators about plans for teaching through digital and distance learning

TAKE ACTION AS NEEDED

If your school is dismissed:

- ✓ Implement a plan to continue educating students through digital and distance learning (if applicable)
- ✓ Seek guidance from your school administrator to determine when students and staff should return to schools

Duration of school dismissals will be made on a case-by-case basis based on the most up-to-date information about COVID-19 and the

specific situation in your community. Students and staff should be prepared for durations that could last several days. Administrators should work with their local health authorities to determine duration of dismissals.

Parents: Get Your School Children for Corona Disease 2019

You can help protect your family from COVID-19 by practicing and promoting everyday healthy habits. If an outbreak occurs in your community, your school may dismiss students to prevent further spread of the virus. Use this checklist to plan and take action if a COVID-19 outbreak occurs in your community.

PLAN AND PREPARE

✓ Practice and reinforce good prevention habits with your family

- Avoid close contact with people who are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Wash hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol.

✓ Keep your child at home if sick with any illness

If your child is sick, keep them at home and contact your healthcare provider. Talk with teachers about classroom assignments and activities they can do from home to keep up with their schoolwork.

✓ Be prepared if your child's school or childcare facility is temporarily dismissed

Talk with your employer about sick leave and telework options in case you need to stay home with your child. Consider planning for

alternate childcare arrangements.

IF YOUR SCHOOL/CHILDCARE PROGRAM IS DISMISSED

- ✓ Keep track of school dismissal updates

Read or watch local media sources that report school dismissals or stay in touch with your school.

- ✓ Talk to your school about options for digital and distance learning
- ✓ Discourage children and teens from gathering in other public places while school is dismissed to help slow the spread of COVID-19 in the community
- ✓ Seek guidance from your school administrator to determine when students and staff should return to schools

Duration of school dismissals will be made on a case-by-case basis based on the most up-to-date information about COVID-19 and the specific situation in your community. Students and staff should be prepared for durations that could last several days. Administrators should work with their local health authorities to determine duration of dismissals.

Talking with children about Coronavirus Disease 2019: Messages for parents, school staff, and others working with children

As public conversations around coronavirus disease 2019 (COVID-19)

increase, children may worry about themselves, their family, and friends getting ill with COVID-19. Parents, family members, school staff, and other trusted adults can play an important role in helping children make sense of what they hear in a way that is honest, accurate, and minimizes anxiety or fear. CDC has created guidance to help adults have conversations with children about COVID-19 and ways they can avoid getting and spreading the disease.

General principles for talking to children

Remain calm and reassuring.

- Remember that children will react to both what you say and how you say it. They will pick up cues from the conversations you have with them and with others.

Make yourself available to listen and to talk.

- Make time to talk. Be sure children know they can come to you when they have questions.

Avoid language that might blame others and lead to stigma.

- Remember that viruses can make anyone sick, regardless of a person's race or ethnicity. Avoid making assumptions about who might have COVID-19.

Pay attention to what children see or hear on television, radio, or online.

- Consider reducing the amount of screen time focused on COVID-19. Too much information on one topic can lead to anxiety.

Provide information that is honest and accurate.

- Give children information that is truthful and appropriate for the age and developmental level of the child.
- Talk to children about how some stories on COVID-19 on the Internet and social media may be based on rumors and inaccurate

information.

Teach children everyday actions to reduce the spread of germs.

- Remind children to stay away from people who are coughing or sneezing or sick.
- Remind them to cough or sneeze into a tissue or their elbow, then throw the tissue into the trash.
- Discuss any new actions that may be taken at school to help protect children and school staff.
- (e.g., increased handwashing, cancellation of events or activities)
- Get children into a handwashing habit.
 - Teach them to wash their hands with soap and water for at least 20 seconds, especially after blowing their nose, coughing, or sneezing; going to the bathroom; and before eating or preparing food.
 - If soap and water are not available, teach them to use hand sanitizer. Hand sanitizer should contain at least 60% alcohol. Supervise young children when they use hand sanitizer to prevent swallowing alcohol, especially in schools and childcare facilities.

Facts about COVID-19 for discussions with children

Try to keep information simple and remind them that health and school officials are working hard to keep everyone safe and healthy.

What is COVID-19?

- COVID-19 is the short name for “coronavirus disease 2019.” It is a new virus. Doctors and scientists are still learning about it.
- Recently, this virus has made a lot of people sick. Scientists and

doctors think that most people will be ok, especially kids, but some people might get pretty sick.

- Doctors and health experts are working hard to help people stay healthy.

What can I do so that I don't get COVID-19?

- You can practice healthy habits at home, school, and play to help protect against the spread of COVID-19:
 - Cough or sneeze into a tissue or your elbow. If you sneeze or cough into a tissue, throw it in the trash right away.
 - Keep your hands out of your mouth, nose, and eyes. This will help keep germs out of your body.
 - Wash your hands with soap and water for at least 20 seconds. Follow these five steps—wet, lather (make bubbles), scrub (rub together), rinse and dry. You can sing the “Happy Birthday” song twice.
 - If you don't have soap and water, have an adult help you use a special hand cleaner.
 - Keep things clean. Older children can help adults at home and school clean the things we touch the most, like desks, doorknobs, light switches, and remote controls. (Note for adults: you can find more information about cleaning and disinfecting on CDC's website.)
 - If you feel sick, stay home. Just like you don't want to get other people's germs in your body, other people don't want to get your germs either.

What happens if you get sick with COVID-19?

- COVID-19 can look different in different people. For many people, being sick with COVID-19 would be a little bit like having the flu. People can get a fever, cough, or have a hard time taking deep breaths. Most people who have gotten COVID-19 have not gotten

very sick. Only a small group of people who get it have had more serious problems. From what doctors have seen so far, most children don't seem to get very sick. While a lot of adults get sick, most adults get better.

- If you do get sick, it doesn't mean you have COVID-19. People can get sick from all kinds of germs. What's important to remember is that if you do get sick, the adults at home and school will help get you any help that you need.
- If you suspect your child may have COVID-19, call the healthcare facility to let them know before you bring your child in to see them.

Resources for Institutes of Higher Education

Plan, prepare, and respond to coronavirus disease 2019

Interim Guidance for Administrators

Cleaning and Disinfection Recommendations

Guidance for Student Travel

Checklist for Administrators

FAQs for Administrators

Interim Guidance for Administrators of US Institutions of Higher Education

Plan, Prepare and Respond to Coronavirus Disease 2019

Older adults and people who have severe underlying chronic medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.

Find more information here.

This interim guidance is based on what is currently known about the transmission and severity of coronavirus disease 2019 (COVID-19).

The US Centers for Disease Control and Prevention (CDC) will update this guidance as needed and as additional information becomes available. Please check the following CDC website periodically for updated interim guidance: <https://www.cdc.gov/coronavirus/2019-ncov/index.html>.

Health officials are taking steps to prevent community spread of COVID-19 into US communities. Institutions of higher education (IHE) can play an important role in this effort. Through collaboration and coordination with local health departments, IHE should disseminate information about the disease and its potential transmission to their students, staff, and faculty. IHE should prepare to prevent the spread of COVID-19 among their students, staff, and faculty should local health officials identify such a need.

IHE should continue to collaborate, share information, and review plans with local health officials to help protect their entire IHE community, including those who may be at risk for severe disease with COVID-19. IHE plans should be designed to minimize disruption to teaching and learning and protect students and staff from social stigma and discrimination.

Who is this guidance for?

This interim guidance is intended to help administrators of public and private institutions of higher education (IHE) prevent the spread of COVID-19 among students, staff, and faculty. IHE include a diverse set of American colleges and universities: 2- or 4-year; public, private non-profit, or private for-profit; and comprehensive, research-focused, or special mission. IHE administrators are individuals who make policies and procedures, set educational aims and standards, and direct programming of institutions of higher education. Administrators include a range of higher education leaders and managers, such as department chairs/heads, deans, presidents, and provosts.

Why is this guidance being issued?

Information provided should help IHE and their partners understand how to help prevent the transmission of COVID-19 among students, faculty, and staff. It also aims to help IHE react quickly should a case be identified. The guidance includes considerations to help administrators plan for the continuity of teaching, learning, and research if there is community spread of COVID-19 and address concerns related to COVID-19 associated stigma.

What is the role of IHE in responding to COVID-19?

COVID-19 is a respiratory illness caused by a novel (new) virus, and we are learning more about it every day. There is currently no vaccine to protect against COVID-19. At this point, the best way to

prevent infection is to avoid being exposed to the virus that causes it. Stopping transmission (spread) of the virus through everyday practices is the best way to keep people healthy. Learn more about COVID-19.

IHE, working together with local health departments, have an important role in slowing the spread of disease. IHE's efforts will help ensure students, staff, and faculty have safe and healthy environments in which to learn and work. IHE welcome students, staff, faculty, and visitors from throughout the community. All of these people may have close contact in IHE settings, often sharing spaces, equipment, and supplies.

Some individuals are experiencing stigma and discrimination in the United States related to COVID-19. This includes people of Chinese and Asian descent, as well as some returning travelers and emergency responders who may have been exposed to the virus. It is important for IHE to provide accurate and timely information about COVID-19 to students, staff, and faculty to minimize the potential for stigma on college and university campuses. It is also important to provide mental health support to promote resilience among those groups affected by stigma regarding COVID-19. CDC has information IHE can share to reduce COVID-19 associated fear and stigma.

Guidance for IHE that do not have COVID-19 identified in their community

To prepare for possible community transmission of COVID-19, the most important thing for IHE to do now is plan and prepare. As the global outbreak evolves, IHE should prepare for the possibility of

community-level outbreaks. IHE want to be ready in the event COVID-19 does appear in their communities.

IHE administrators nationwide can take steps now to help stop or slow the spread of respiratory infectious diseases, including COVID-19:

- Review, update, and implement emergency operations plans (EOPs). This should be done in collaboration with local health departments, the IHE's university system, and other relevant partners. Focus on components, or annexes, of the plans that address infectious disease outbreaks.
 - Ensure the plan is updated to include strategies to reduce the spread of a wide variety of infectious diseases. Effective strategies build on everyday policies and practices.
 - Ensure the plan emphasizes preventive actions for students and staff. Emphasize actions individuals can take including, staying home when sick, appropriately covering coughs and sneezes, cleaning frequently touched surfaces, and washing hands often.
 - CDC has workplace resources including guidance posters with messages for staff about staying home when sick and how to avoid spreading germs at work.
 - Ensure handwashing strategies include washing with soap and water for at least 20 seconds or using a hand sanitizer that contains at least 60% alcohol if soap and water are not available.
 - CDC offers several free handwashing resources that include health promotion materials and information on proper handwashing technique.
 - Reference key resources while reviewing, updating, and implementing the EOP.

- Multiple federal agencies have developed resources on school planning principles and a 6-step process for creating plans to build and continually foster safe and healthy school communities before, during, and after possible emergencies. IHE may find this guidance for developing high-quality emergency operations plans helpful.
- Readiness and Emergency Management for Schools (REMS) Technical Assistance (TA) Center's website contains free resources, trainings, and TA for schools, including IHE, and their community partners, including many tools and resources on emergency planning and response to infectious disease outbreaks.
- Develop information-sharing systems with partners.
 - Institutional information systems should be used for day-to-day reporting on information such as absenteeism or changes in student health center traffic to detect and respond to an outbreak.
 - Local health officials should be a key partner in information sharing.
- Monitor and plan for absenteeism.
 - Review attendance and sick leave policies. Students, staff, and faculty should not attend class or work when sick. Allow them to stay home to care for sick household members. Make accommodations (e.g., extended due dates, electronic submission of assignments), as possible, for individuals who may be temporarily unable to attend class due to restrictions placed on them related to possible exposure to the virus that causes COVID-19.
 - Identify critical job functions and positions, and plan for

alternative coverage by cross-training staff and faculty.

- Review the usual absenteeism patterns at your institution and on your campus among students, staff, and faculty. Consider identifying and implementing processes for faculty and IHE leadership to report noticeable changes in absenteeism, even if subjective, to a designated administrator.
- Alert local health officials about large increases in student, staff, and faculty absenteeism or substantial increases in student health center traffic due to respiratory illnesses (like the common cold or the “flu,” which have symptoms similar to symptoms of COVID-19).
- Determine what level of absenteeism will disrupt continuity of teaching, learning, and research.
- Establish procedures for students, staff, and faculty who are sick (with any illness) on campus.
 - Establish procedures to ensure students, staff, and faculty who become sick (with any illness) on campus or arrive on campus sick are sent to their place of residence as soon as possible.
 - Keep sick individuals separate from well individuals until they can leave.
 - Sick residents of on-campus housing in communities with no identified COVID-19 and who are not believed to have been exposed to COVID-19 should avoid contact with well individuals while sick.
- Ensure IHE health clinics prepare for COVID-19.
 - Review CDC guidance to help healthcare facilities prepare for COVID-19. Guidance includes steps to take now and strategies for preparing for community

transmission of COVID-19.

- Perform routine environmental cleaning.
 - Routinely clean frequently touched surfaces (e.g., doorknobs, light switches, countertops) with the cleaners typically used. Use all cleaning products according to the directions on the label.
 - Provide disposable wipes so that commonly used surfaces (e.g., keyboards, desks, remote controls) can be wiped down by students, staff, and faculty before each use.
- Create plans to communicate accurate and timely information to the IHE community.
 - Include strategies for sharing information with staff, students, and faculty without increasing fear and stigma. Keeping the community informed with accurate information can counter the spread of misinformation and reduce the potential for fear and stigma.
 - Include strategies to communicate steps being taken by the IHE to prepare and how additional information will be shared.
 - Include strategies to communicate changes to usual campus schedules or functions.
 - Include strategies to communicate information IHE community members can use to protect themselves from infectious disease, including COVID-19.
- Review CDC's guidance for businesses and employers.
 - Review this CDC guidance to identify any additional strategies the IHE can use, given its role as an employer.

IHE administrators can also support their IHE community by sharing

COVID-19 informational resources with students, staff, and faculty. Coordinate with local health officials to determine what type of information is best to share with the IHE community. Consider sharing the following fact sheets and information sources:

- Information about COVID-19 available through state and local health departments
- General fact sheets to help students, staff, faculty, and their families understand COVID-19 and the steps they can take to protect themselves:
 - What you need to know about coronavirus disease 2019 (COVID-19)
 - What to do if you are sick with coronavirus disease 2019 (COVID-19)
 - Stop the spread of germs – help prevent the spread of respiratory viruses like COVID-19
 - Share facts about COVID-19 to help prevent stigma
- CDC information for students, staff, and faculty who have recently traveled back to the United States from areas where CDC has identified community spread of coronavirus:
 - A list of countries where community spread of COVID-19 is occurring can be found on the CDC webpage: [Coronavirus Disease 2019 Information for Travel](#)

For guidance for students, staff, or faculty who plan to travel, or have recently traveled, to areas with community spread of COVID-19, refer to CDC's FAQ for travelers and COVID-19 travel website. For specific guidance on foreign exchange and study abroad programs, see CDC's guidance on student foreign travel for IHE.

Guidance for IHE with identified cases of COVID-19 in their community

If local health officials report that there are cases of COVID-19 in the community, IHE need to take additional steps in response to prevent further spread of the disease. The first step for IHE in this situation is to talk with local health officials.

Determine if, when, and for how long the IHE may need to suspend classes and postpone or cancel events and activities.

Temporarily suspending classes is a strategy to stop or slow the further spread of COVID-19 in communities. When classes are suspended, IHE may stay open for staff or faculty (unless ill) while students temporarily stop attending in-person classes. Keeping the IHE facilities open a) allows faculty to develop and deliver lessons and materials electronically, thus maintaining continuity of teaching and learning; and b) allows other staff members to continue to provide services and help with additional response efforts.

IHE administrators should work in close collaboration with local health officials and the IHE's university system to make class suspension and event and activity cancellation decisions. IHE are not expected to make decisions about suspending classes or canceling events on their own. IHE can seek specific guidance from local health officials to determine if, when, and for how long to take these steps. Class suspension and event and activity (e.g., on-campus sporting, theater, and music events) cancellation may be recommended for at least 14 days, or possibly longer if advised by local health officials. The nature of these actions (e.g., geographic scope, duration) may change as the local outbreak situation evolves.

If a student, staff, or faculty member attended class or was active on campus prior to being confirmed as a COVID-19 case:

- Local health officials may recommend temporary class suspension and event or activity cancellation. Individuals may be considered active on campus if they had attended class, work, work-study, or some other type of gathering or event (e.g., student meetings, recreational activities) on campus. Local health officials' recommendations for the scope (e.g., all campuses in a university system or only select campuses) and duration of school dismissals will be made on a case-by-case basis using the most up-to-date information about COVID-19 and the specific cases in the impacted community.
- IHE should work with the local health department and other relevant leadership to communicate the possible COVID-19 exposure. This communication to the IHE community should align with the communication plan in the IHE's emergency operations plan. In such a circumstance, it is critical to maintain confidentiality of the student, staff member, or faculty member as required by the Americans with Disabilities Act and the Family Education Rights and Privacy Act.
- IHE administrators should seek guidance from local health officials to determine when students, staff, and faculty should return to campus and what additional steps are needed for the IHE community. In addition, students, staff, and faculty who are well but are taking care of or share a home with someone with a case of COVID-19 should follow instructions from local health officials to determine when to return to campus.

If classes are suspended, IHE can consider the following steps:

- Temporarily cancel extracurricular group activities and large events.
 - Cancel or postpone events such as club meetings, performances, social events, athletic team practices, and

sporting events.

- Discourage students, staff, and faculty from gathering or socializing anywhere.
 - Discourage gatherings at places like at a friend's house, a favorite restaurant, or a local coffee shop.
- Ensure continuity of education and research.
 - Review continuity plans, including plans for the continuity of teaching, learning, and research. Implement e-learning plans and distance learning options as feasible and appropriate.
 - Ensure continuity plans address how to temporarily postpone, limit, or adapt research-related activities (e.g., study recruitment or participation, access to labs) in a manner that protects the safety of researchers, participants, facilities, and equipment.
 - Consider the following approaches:
 - Use of existing infrastructure and services (e.g., Blackboard, Skype, Zoom) to support efficient transition of classes from in-person to distance-based formats. This may include using strategies such as faculty check-ins, recorded class meetings or lectures, and live class meetings.
 - Other student support services such as online library services, print materials available online, phone- or internet-based counseling support, or study groups enabled through digital media.
 - IHE will need to determine, in consultation with their university system:
 - How to convert face-to-face lessons into online lessons and how to train faculty to do so.

- How to triage technical issues if faced with limited IT support and staff
- How to deal with the potential lack of students' access to computers and the Internet at home or in temporary housing.
- Ensure continuity of safe housing.
 - Work in close collaboration with local health officials to make all decisions related to on-campus housing.
 - If cases of COVID-19 have not been identified among residents of on-campus community housing, students may be allowed to remain in on-campus housing. In this situation, educate housing residents on the precautions they should take to help protect themselves when there is community spread of COVID-19. Residents should follow any more specific recommendations provided by local health officials.
 - If cases of COVID-19 have been identified among residents of on-campus community housing, work with local health officials to take additional precautions. Individuals with COVID-19 may need to be moved to temporary housing locations. These individuals will need to self-isolate and monitor for worsening symptoms according to the guidance of local health officials. Close contacts of the individuals with COVID-19 may also need temporary housing so that they can self-quarantine and monitor for symptoms. Consult with local health officials to determine when, how, and where to move ill residents. Information on providing home care to individuals with COVID-19 who do not require hospitalization is available on CDC's website.
 - Residents identified with COVID-19 or identified as contacts of individuals with COVID-19 should not

necessarily be sent to their permanent homes off-campus. Sending sick residents to their permanent homes could be unfeasible, pose logistical challenges, or pose risk of transmission to others either on the way to the home or once there. IHEs should work with local health officials to determine appropriate housing for the period in which they need to self-isolate and monitor for symptoms or worsening symptoms.

- Remember to consider all types of IHE-affiliated housing when making response plans. Distinct housing types (e.g., residence halls, apartments, fraternity and sorority houses) and situations (e.g., housing owned and run by the IHE, housing on the IHE campus but not run by the IHE) may require tailored approaches.
- Ensure any staff remaining to support students in on-campus housing receive necessary training to protect themselves and residents from spread of COVID-19. Staff should also be trained on how to respond if a resident becomes ill.
- Ensure continuity of meal programs.
 - Consult with local health officials to determine strategies for modifying food service offerings to the IHE community.
 - Consider ways to distribute food to students, particularly those who may remain on campus, while classes or other events and activities are dismissed.
 - If there is community spread of COVID-19, design strategies to avoid food distribution in settings where people might gather in a group or crowd. Consider options such as “grab-and-go” bagged lunches or meal delivery.

- Consider if and how existing dining services should be scaled back or adapted. For example, an IHE may close some of or all its cafeterias/cafes to discourage students, staff, and faculty from gathering in group settings.
- If on-campus housing residents have been relocated to temporary alternative housing, consider how meals can be provided to these students. Work with local health officials to determine strategies for providing meals to residents with COVID-19 or who are being monitored because of contact with persons with COVID-19.
- Ensure any staff remaining on campus to support food services receive necessary training to protect themselves and those they serve from spread of COVID-19.
- Consider if and when to stop, scale back, or modify other support services on campus.
 - Consider alternatives for providing students with essential medical and social services. Identify ways to ensure these services are provided while classes are dismissed or students are in temporary housing.
 - Identify other types of services provided to students, staff, and faculty (e.g., library services, cleaning services). Consider ways to adapt these to minimize risk of COVID-19 transmission while maintaining services deemed necessary.
 - Help counter stigma and promote resilience on campus.
 - Share facts about COVID-19 through trusted dissemination channels to counter the spread of

misinformation and mitigate fear.

- Speak out against negative behaviors, including negative statements on social media about groups of people.
- Develop plans to support students, staff, and faculty who may feel overwhelmed by COVID-19 and associated events on campus.
 - Ensure continuity of mental health services, such as offering remote counseling. Encourage students to call 911 or the National Suicide Prevention Lifeline at 1-800-273-TALK (1-800-273-8255) if they are feeling overwhelmed with emotions such as sadness, depression, anxiety, or feel like wanting to harm themselves or others

Guidance for Institutions of Higher Education with Students Participating in International Travel or Study Abroad Programs

This guidance is for Institutes of Higher Education with students participating in international travel or study abroad programs.

Consider postponing or canceling student international travel programs

Given the global outbreak of novel coronavirus (COVID-19) institutes of higher education (IHE) should consider postponing or canceling upcoming student international travel programs. IHE should consider asking current program participants to return to their home country. Those overseeing student international travel programs should be aware

that students may face unpredictable circumstances, travel restrictions, challenges in returning home or accessing health care while abroad.

IHEs should consider asking students participating in study abroad programs to return to the United States. IHEs should work with state and local public health officials to determine the best approach for when and how (for example, chartered transportation for countries or areas assessed as high-risk for exposure) their study abroad students might return. All plans for returning study abroad students should be designed to protect participants from stigma and discrimination.

The COVID-19 situation is dynamic. Given the speed of spread and the number of countries experiencing community transmission, IHEs should evaluate the risks associated with choosing to maintain programs abroad and take the appropriate proactive measures. IHEs that continue to maintain programs abroad should monitor www.cdc.gov/COVID-19 for additional information.

Resources for Businesses and Employers

Plan, prepare, and respond to coronavirus disease 2019

Interim Guidance for Businesses and Employers

Cleaning and Disinfection Recommendations

Interim Guidance for Businesses and Employers

Plan, Prepare and Respond to Coronavirus Disease 2019

Older adults and people who have severe underlying chronic medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.

[Find more information here.](#)

This interim guidance is based on what is currently known about the coronavirus disease 2019 (COVID-19). The Centers for Disease Control and Prevention (CDC) will update this interim guidance as needed and as additional information becomes available.

CDC is working across the Department of Health and Human Services and across the U.S. government in the public health response to COVID-19. Much is unknown about how the virus that causes COVID-19 spreads. Current knowledge is largely based on what is known about similar coronaviruses.

Coronaviruses are a large family of viruses that are common in humans and many different species of animals, including camels, cattle, cats, and bats. Rarely, animal coronaviruses can infect people and then spread between people, such as with MERS-CoV and SARS-CoV. The virus that causes COVID-19 is spreading from person-to-person in China and some limited person-to-person transmission has been reported in countries outside China, including the United States. However, respiratory illnesses like seasonal influenza, are currently widespread in many US communities.

CDC Industry Guidance

- [Resources for Airlines](#)

- Resources for the Ship Industry

OSHA/HHS Guidance

- Guidance on Preparing Workplaces for COVID-19

CDC Public and Private Partner Call for COVID-19 — March 4, 2020



Dr. Jay Butler, CDC's Deputy Director for Infectious Diseases and Senior Response Official for the COVID-19 response provided a situational update for CDC partners, including members of the private sector, public health organizations, universities, and clinical societies.

The following interim guidance may help prevent workplace exposures to acute respiratory illnesses, including COVID-19, in non-healthcare settings. The guidance also provides planning considerations if there are more widespread, community outbreaks of COVID-19.

To prevent stigma and discrimination in the workplace, use only the guidance described below to determine risk of COVID-19. Do not make

determinations of risk based on race or country of origin, and be sure to maintain confidentiality of people with confirmed COVID-19. There is much more to learn about the transmissibility, severity, and other features of COVID-19 and investigations are ongoing. Updates are available on CDC's web page at www.cdc.gov/coronavirus/covid19.

Recommended strategies for employers to use now:

- Actively encourage sick employees to stay home:
 - Employees who have symptoms of acute respiratory illness are recommended to stay home and not come to work until they are free of fever (100.4° F [37.8° C] or greater using an oral thermometer), signs of a fever, and any other symptoms for at least 24 hours, without the use of fever-reducing or other symptom-altering medicines (e.g. cough suppressants). Employees should notify their supervisor and stay home if they are sick.
 - Ensure that your sick leave policies are flexible and consistent with public health guidance and that employees are aware of these policies.
 - Talk with companies that provide your business with contract or temporary employees about the importance of sick employees staying home and encourage them to develop non-punitive leave policies.
 - Do not require a healthcare provider's note for employees who are sick with acute respiratory illness to validate their illness or to return to work, as healthcare provider offices and medical facilities may be extremely busy and not able to provide such documentation in a timely way.
 - Employers should maintain flexible policies that permit employees to stay home to care for a sick family member.

Employers should be aware that more employees may need to stay at home to care for sick children or other sick family members than is usual.

- Separate sick employees:
 - CDC recommends that employees who appear to have acute respiratory illness symptoms (i.e. cough, shortness of breath) upon arrival to work or become sick during the day should be separated from other employees and be sent home immediately. Sick employees should cover their noses and mouths with a tissue when coughing or sneezing (or an elbow or shoulder if no tissue is available).
- Emphasize staying home when sick, respiratory etiquette and hand hygiene by all employees:
 - Place posters that encourage staying home when sick, cough and sneeze etiquette, and hand hygiene at the entrance to your workplace and in other workplace areas where they are likely to be seen.
 - Provide tissues and no-touch disposal receptacles for use by employees.
 - Instruct employees to clean their hands often with an alcohol-based hand sanitizer that contains at least 60-95% alcohol, or wash their hands with soap and water for at least 20 seconds. Soap and water should be used preferentially if hands are visibly dirty.
 - Provide soap and water and alcohol-based hand rubs in the workplace. Ensure that adequate supplies are maintained. Place hand rubs in multiple locations or in conference rooms to encourage hand hygiene.
 - Visit the coughing and sneezing etiquette and clean hands webpage for more information.
- Perform routine environmental cleaning:

- Routinely clean all frequently touched surfaces in the workplace, such as workstations, countertops, and doorknobs. Use the cleaning agents that are usually used in these areas and follow the directions on the label.
- No additional disinfection beyond routine cleaning is recommended at this time.
- Provide disposable wipes so that commonly used surfaces (for example, doorknobs, keyboards, remote controls, desks) can be wiped down by employees before each use.
- Advise employees before traveling to take certain steps:
 - Check the CDC's Traveler's Health Notices for the latest guidance and recommendations for each country to which you will travel. Specific travel information for travelers going to and returning from China, and information for aircrew, can be found at on the CDC website.
 - Advise employees to check themselves for symptoms of acute respiratory illness before starting travel and notify their supervisor and stay home if they are sick.
 - Ensure employees who become sick while traveling or on temporary assignment understand that they should notify their supervisor and should promptly call a healthcare provider for advice if needed.
 - If outside the United States, sick employees should follow your company's policy for obtaining medical care or contact a healthcare provider or overseas medical assistance company to assist them with finding an appropriate healthcare provider in that country. A U.S. consular officer can help locate healthcare services. However, U.S. embassies, consulates, and military facilities do not have the legal authority, capability, and resources to evacuate or give medicines, vaccines, or medical care to private U.S. citizens overseas.

- Additional Measures in Response to Currently Occurring Sporadic Importations of the COVID-19:
 - Employees who are well but who have a sick family member at home with COVID-19 should notify their supervisor and refer to CDC guidance for how to conduct a risk assessment of their potential exposure.
 - If an employee is confirmed to have COVID-19, employers should inform fellow employees of their possible exposure to COVID-19 in the workplace but maintain confidentiality as required by the Americans with Disabilities Act (ADA). Employees exposed to a co-worker with confirmed COVID-19 should refer to CDC guidance for how to conduct a risk assessment of their potential exposure.

Planning for a Possible COVID-19 Outbreak in the US

The severity of illness or how many people will fall ill from COVID-19 is unknown at this time. If there is evidence of a COVID-19 outbreak in the U.S., employers should plan to be able to respond in a flexible way to varying levels of severity and be prepared to refine their business response plans as needed. For the general American public, such as workers in non-healthcare settings and where it is unlikely that work tasks create an increased risk of exposures to COVID-19, the immediate health risk from COVID-19 is considered low. The CDC and its partners will continue to monitor national and international data on the severity of illness caused by COVID-19, will disseminate the results of these ongoing surveillance assessments, and will make additional recommendations as needed.

Planning Considerations

All employers need to consider how best to decrease the spread of acute

respiratory illness and lower the impact of COVID-19 in their workplace in the event of an outbreak in the US. They should identify and communicate their objectives, which may include one or more of the following: (a) reducing transmission among staff, (b) protecting people who are at higher risk for adverse health complications, (c) maintaining business operations, and (d) minimizing adverse effects on other entities in their supply chains. Some of the key considerations when making decisions on appropriate responses are:

- Disease severity (i.e., number of people who are sick, hospitalization and death rates) in the community where the business is located;
- Impact of disease on employees that are vulnerable and may be at higher risk for COVID-19 adverse health complications. Inform employees that some people may be at higher risk for severe illness, such as older adults and those with chronic medical conditions.
- Prepare for possible increased numbers of employee absences due to illness in employees and their family members, dismissals of early childhood programs and K-12 schools due to high levels of absenteeism or illness:
 - Employers should plan to monitor and respond to absenteeism at the workplace. Implement plans to continue your essential business functions in case you experience higher than usual absenteeism.
 - Cross-train personnel to perform essential functions so that the workplace is able to operate even if key staff members are absent.
 - Assess your essential functions and the reliance that others and the community have on your services or products. Be prepared to change your business practices if needed to maintain critical operations (e.g., identify alternative suppliers, prioritize customers, or temporarily suspend some of your

operations if needed).

- Employers with more than one business location are encouraged to provide local managers with the authority to take appropriate actions outlined in their business infectious disease outbreak response plan based on the condition in each locality.
- Coordination with state and local health officials is strongly encouraged for all businesses so that timely and accurate information can guide appropriate responses in each location where their operations reside. Since the intensity of an outbreak may differ according to geographic location, local health officials will be issuing guidance specific to their communities.

Important Considerations for Creating an Infectious Disease Outbreak Response Plan

All employers should be ready to implement strategies to protect their workforce from COVID-19 while ensuring continuity of operations. During a COVID-19 outbreak, all sick employees should stay home and away from the workplace, respiratory etiquette and hand hygiene should be encouraged, and routine cleaning of commonly touched surfaces should be performed regularly.

Employers should:

- Ensure the plan is flexible and involve your employees in developing and reviewing your plan.
- Conduct a focused discussion or exercise using your plan, to find out ahead of time whether the plan has gaps or problems that need to be corrected.
- Share your plan with employees and explain what human resources policies, workplace and leave flexibilities, and pay and benefits will be available to them.

- Share best practices with other businesses in your communities (especially those in your supply chain), chambers of commerce, and associations to improve community response efforts.

Recommendations for an Infectious Disease Outbreak Response Plan:

- Identify possible work-related exposure and health risks to your employees. OSHA has more information on how to protect workers from potential exposures to COVID-19.
- Review human resources policies to make sure that policies and practices are consistent with public health recommendations and are consistent with existing state and federal workplace laws (for more information on employer responsibilities, visit the Department of Labor's and the Equal Employment Opportunity Commission's websites).
- Explore whether you can establish policies and practices, such as flexible worksites (e.g., telecommuting) and flexible work hours (e.g., staggered shifts), to increase the physical distance among employees and between employees and others if state and local health authorities recommend the use of social distancing strategies. For employees who are able to telework, supervisors should encourage employees to telework instead of coming into the workplace until symptoms are completely resolved. Ensure that you have the information technology and infrastructure needed to support multiple employees who may be able to work from home.
- Identify essential business functions, essential jobs or roles, and critical elements within your supply chains (e.g., raw materials, suppliers, subcontractor services/products, and logistics) required to maintain business operations. Plan for how your business will operate if there is increasing absenteeism or these supply chains are interrupted.
- Set up authorities, triggers, and procedures for activating and

terminating the company's infectious disease outbreak response plan, altering business operations (e.g., possibly changing or closing operations in affected areas), and transferring business knowledge to key employees. Work closely with your local health officials to identify these triggers.

- Plan to minimize exposure between employees and also between employees and the public, if public health officials call for social distancing.
- Establish a process to communicate information to employees and business partners on your infectious disease outbreak response plans and latest COVID-19 information. Anticipate employee fear, anxiety, rumors, and misinformation, and plan communications accordingly.
- In some communities, early childhood programs and K-12 schools may be dismissed, particularly if COVID-19 worsens. Determine how you will operate if absenteeism spikes from increases in sick employees, those who stay home to care for sick family members, and those who must stay home to watch their children if dismissed from school. Businesses and other employers should prepare to institute flexible workplace and leave policies for these employees.
- Local conditions will influence the decisions that public health officials make regarding community-level strategies; employers should take the time now to learn about plans in place in each community where they have a business.
- If there is evidence of a COVID-19 outbreak in the US, consider canceling non-essential business travel to additional countries per travel guidance on the CDC website.
 - Travel restrictions may be enacted by other countries which may limit the ability of employees to return home if they become sick while on travel status.
 - Consider cancelling large work-related meetings or events.

- Engage state and local health departments to confirm channels of communication and methods for dissemination of local outbreak information. When working with your local health department check their available hours.

Resources for Community- and Faith-Based Leaders

Plan, prepare, and respond to coronavirus disease 2019

Interim Guidance for Community and Faith Leaders

Cleaning and Disinfection Recommendations

Checklist for Community and Faith Leaders

Get Your Community- and Faith-Based Organizations Ready for Coronavirus Disease 2019

Interim Guidance

Older adults and people who have severe underlying chronic medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.

People who are at higher risk are encouraged to avoid crowds as much as possible. Find more information [here](#).

This interim guidance is based on what is currently known about the Coronavirus Disease 2019 (COVID-19). The Centers for Disease Control and Prevention (CDC) will update this interim guidance as needed and as additional information becomes available.

This interim guidance is to help community- and faith-based organizations (CFBOs), whose members may include vulnerable populations, plan for community transmission of coronavirus disease (COVID-19) in the United States. The Centers for Disease Control and Prevention (CDC) encourages CFBOs to prepare for the possibility of a COVID-19 outbreak in their local communities.

COVID-19 is caused by a new virus. There is much to learn about its transmissibility, severity, and other features of the disease. The Before, During, and After sections of this guidance offer suggested strategies to help CFBOs plan, prepare, and respond to this emerging public health threat.

Before a COVID-19 outbreak occurs in your community: Plan

A COVID-19 outbreak could last for weeks or even months in your community. Depending on the severity of the outbreak, public health officials may recommend community actions to reduce spread of COVID-19. Local public health officials may make recommendations appropriate to your local situation, such as flexible sick-leave and telework policies and temporary school dismissals.

Establish ongoing communication with your local public health

department to facilitate access to relevant information before and during an outbreak.

Having a good contingency plan in place and developing flexible policies and procedures to accommodate public health recommendations can help reduce infection. During your planning process, remember to engage key partners across both public and private sectors, such as local businesses, schools, other community- and faith-based organizations, and community leaders. Also, the specific details of your plan should be based on the extent of the outbreak and the size of your organization and workforce, complexity of your day-to-day operations, and type of on-site and off-site services your organization provides to vulnerable populations.

Connect to community-wide planning.

Find out if your local government has a private-public emergency planning group that meets regularly. Building strong alliances before an outbreak may provide your organization with the support and resources needed to respond effectively. Also, in recognition of the “whole community” approach to emergency planning and management, your input as community leaders and stakeholders helps ensure the completeness and representativeness of your local government’s emergency operations plan.

Update your existing emergency operations plan.

- ✓ Meet with your emergency operations coordinator or planning team to update your emergency operations plan. If your organization does not have a person or team in place, determine who will be responsible for coordinating your organization’s emergency operations plan. Review all aspects of your organization, such as personnel, systems, services, and other resources. Prepare for key prevention strategies outlined in this guidance. Update your plan

based on various scenarios your organization may face during a COVID-19 outbreak in your community.

- ✓ Consider the needs of older adults, persons with disabilities, and other individuals with access and functional needs in your response plan. Helpful resources are available online, such as the Capacity-Building Toolkit for Including Aging and Disability Networks in Emergency Planning.
- ✓ Establish relationships with key community partners and stakeholders. When forming key relationships, include the local public health department, other community and faith leaders, local businesses, and educational institutions. Collaborate and coordinate with them on broader planning efforts. Clearly identify each partner's role, responsibilities, and decision-making authority. Review the COVID-19 plan for your community and participate in community-wide emergency preparedness activities.
- ✓ Identify services which might be limited or temporarily discontinued during an outbreak. Find alternative solutions that will ensure continuity for your community, especially for vulnerable populations served by your organization.

Address key prevention strategies in your emergency operations plan.

- ✓ Promote the practice of everyday preventive actions. Use health messages and materials developed by credible public health sources, such as your local and state public health departments or the Centers for Disease Control and Prevention (CDC). Read more about everyday preventive actions.
- ✓ Provide COVID-19 prevention supplies at your organization. Have supplies on hand for staff, volunteers, and those you serve, such as soap, hand sanitizer that contains at least 60% alcohol, tissues, trash baskets, and disposable facemasks. Plan to have extra supplies on hand during a COVID-19 outbreak.

Note: Disposable facemasks should be kept on-site and used only when someone becomes sick at your organization. Those who become sick should be immediately isolated from those who are not sick and given a clean disposable facemask to wear until they can leave.

- ✓ Plan for staff absences. Develop flexible attendance and sick-leave policies. Staff (and volunteers) may need to stay home when they are sick, caring for a sick household member, or caring for their children in the event of school dismissals. Identify critical job functions and positions, and plan for alternative coverage by cross-training staff members.

Note: Use a process similar to when you cover for and staff workers during the holidays.

- ✓ Develop a method for monitoring and tracking COVID-19-related staff absences. Understand the usual absenteeism patterns at your organization. Determine what level of absenteeism will disrupt day-to-day operations. If staff absenteeism increases to disruptive levels, some organizations may need to consider temporarily reducing on-site operations and services.
- ✓ Identify space that can be used to separate sick people (if possible). Designate a space for people who may become sick while at work and cannot leave immediately. If possible, designate a nearby separate bathroom just for sick people. Develop a plan for cleaning the room daily.
- ✓ Plan ways to limit face-to-face contact between people at your organization. Several ways to do this include offering workers the option to telework, replacing in-person meetings in the workplace with video or telephone conferences, and postponing non-essential meetings and travel.
- ✓ Review your process for planning events, programs, and services. Identify actions to take if you need to temporarily postpone or cancel events, programs, and services. Consider limiting access to your organization by non-essential visitors.

- ✓ Plan ways to continue essential services if on-site operations are scaled back temporarily. Provide web- and mobile-based communications and services, if possible. Increase the use of email, conference calls, video conferencing, and web-based seminars.

Communicate about COVID-19 and everyday preventive actions.

- ✓ Update your emergency communication plan for distributing timely and accurate information. Identify everyone in your chain of communication (for example, staff, volunteers, and key community partners and stakeholders) and establish systems for sharing information with them. Maintain up-to-date contact information for everyone in the chain of communication. Identify platforms, such as a hotline, automated text messaging, and a website to help disseminate information to those inside and outside your organization.
- ✓ Identify and address potential language, cultural, and disability barriers associated with communicating COVID-19 information to workers and those you serve. Learn more about reaching people of diverse languages and cultures. You also can learn more about communicating to workers in a crisis.
- ✓ Help counter stigma and discrimination in your community. Engage with stigmatized groups and speak out against negative behaviors.

Get input and support for your emergency operations and communication plans.

- ✓ Share your plans with staff, volunteers, and key community partners and stakeholders. Develop training and educational materials about the plans for staff and volunteers.

During a COVID-19 outbreak in your community: Act

Establish a “buddy” system to ensure vulnerable and hard-to-reach community members stay connected to COVID-19-related news and services.

It is important that your emergency operations planning team meets regularly (even if by video or telephone conferencing, rather than in-person) during an outbreak to accurately assess, manage, and communicate possible risks. Special consideration should be given to communicating risk to vulnerable populations in your community, including older adults and others with access and functional needs. Encourage those you serve to seek out a “buddy” who will check on and help care for them if they get sick. Early action to slow the spread of COVID-19 will help keep staff and volunteers healthy and help your organization maintain normal operations.

Put your emergency operations and communication plans into action.

- ✓ Stay informed about the local COVID-19 situation. Get up-to-date information about local COVID-19 activity from public health officials. Be aware of temporary school dismissals in your area because these may affect your staff and volunteers.

Note: Early in the outbreak, local public health officials may recommend schools be dismissed temporarily to allow time to gather information about how fast and severe COVID-19 is spreading in your community. Temporarily dismissing schools also can help slow the spread of COVID-19.

- ✓ Communicate frequently with those in your communication chain. Update key community partners and stakeholders regularly. Share

information about how your organization is responding to the outbreak.

- ✓ Provide information that explains why and when on-site operations and services may be temporarily scaled back or your organization may be closed to non-essential visitors. Some CFBO administrators and leaders may choose to alter normal operations due to high staff absenteeism. Meet with your emergency operations coordinator or planning team to discuss plans for modifying, scaling back, postponing, or canceling large group activities and events (e.g., religious services and community outreach programs), especially for high-risk groups like the elderly. Discuss how these actions will impact your organization and those you serve.
- ✓ Distribute health messages and materials to staff, volunteers, and the community. Continue to promote everyday preventive actions (e.g., stay home when sick, cover coughs and sneezes, and wash hands often). Offer resources that provide reliable COVID-19 information. Address the potential fear and anxiety that may result from rumors or misinformation.

Note: Messages, materials, and resources should be culturally appropriate.

- ✓ Provide COVID-prevention supplies to staff, volunteers, and those you serve. Ensure that your organization has supplies, such as hand sanitizer that contains at least 60% alcohol, tissues, trash baskets, and disposable facemasks for staff, volunteers, and those you serve. Clean frequently touched surfaces and objects daily (e.g., tables, countertops, light switches, doorknobs, and cabinet handles) using a regular detergent and water.
 - If surfaces are dirty, they should be cleaned using a detergent and water prior to disinfection. For disinfection, a list of products with Environmental Protection Agency (EPA)-approved emerging viral pathogens claims, maintained by the American Chemistry Council Center for Biocide Chemistries

(CBC), is available at Novel Coronavirus (COVID-19) Fighting Products. Always follow the manufacturer's instructions for all cleaning and disinfection products.

- ✓ Educate staff and volunteers about how to keep themselves healthy when accompanying someone to a destination away from your facility. For example, teach staff and volunteers how to keep themselves healthy while traveling with a client to a medical appointment, worship service, or government office by having tissues and alcohol-based hand sanitizer on hand.
- ✓ Track staff absenteeism related to COVID-19 symptoms. Work with local public health officials to determine when to begin tracking and reporting COVID-19-related absenteeism. They may ask you to notify them if absenteeism is higher than normal for your organization. Learn more about COVID-19 symptoms.
- ✓ Address the concerns of staff and volunteers who are at high risk for COVID-19 complications. Encourage staff and volunteers to consult with their healthcare provider about how to protect their health if they are at high risk for COVID-19 complications. Be prepared to address the health concerns and needs of those who are at high risk, such as older adults and those with underlying health conditions (for example, by allowing them to telework, if possible).
- ✓ Implement flexible attendance and sick-leave policies (if possible) due to COVID-19. Ask staff (and volunteers) to stay home if they are sick to lower their chances of spreading illness to others, or if caring for a sick household member. Provide instructions about how and when to safely return to work.
- ✓ Separate those who become sick at your organization from those who are well. Send sick staff members and volunteers home immediately. If someone you serve becomes sick at your organization, separate them from others (particularly from those who are at high risk for COVID-19 complications) as soon as

possible. Provide them with clean disposable facemasks to wear until they can leave. Work with the local public health department and nearby hospitals to care for those who become sick. If needed, arrange transportation for staff and others who need emergency care. Read more about caring for those sick with COVID-19.

Note: Providing those who are sick with disposable facemasks does not replace the need to ask them to go home and stay home when they are sick. Facemasks may be in short supply during a COVID-19 outbreak.

After a COVID-19 outbreak has ended in your community: Follow Up

Establish criteria and procedures for when and how response actions will be phased out.

Remember, a COVID-19 outbreak can last for a long time. When public health officials determine that the outbreak has ended, work with them to identify criteria for phasing out and ending your organization's COVID-19 actions. The criteria should be based on reduced severity or a slowing of the outbreak in your local area.

Evaluate the effectiveness of your emergency operations and communication plans.

- ✓ Discuss and note lessons learned. Gather feedback from staff, volunteers, those you serve, and key community partners and stakeholders to improve your plans. Identify any gaps in your plans and any needs you may have for additional resources.
- ✓ Maintain and expand your emergency planning team. Look for ways to expand community partnerships. Identify agencies or partners needed to help you prepare for other emergencies in the

future and make an effort to add them to your planning team.

An infectious disease outbreak can occur at any time and having a plan in place is essential. Your contingency or emergency operations plan for COVID-19 will help protect the health and safety of your staff, volunteers, and those you serve, while preserving normal operations. Continue to coordinate your planning activities with local public health officials and key community partners and stakeholders to help maintain essential services.

Checklist for Community and Faith Leaders

Community- and faith-based organizations are encouraged to prepare for the possibility of a coronavirus disease 2019 (COVID-19) outbreak in their communities. Use this checklist to protect the health of those you serve and staff in your care.

Plan and Prepare

- ✓ Update your emergency operations plan with the help of your local public health department, emergency operations coordinator or planning team, and other relevant partners to include COVID-19 planning.
- ✓ Identify space that can be used to separate sick people if needed.
- ✓ Develop an emergency communication plan for distributing timely and accurate information to workers and those you serve.
- ✓ Identify actions to take if you need to temporarily postpone or cancel events, programs, and services, especially for groups at greater risk such as older adults or people with chronic health

conditions.

- ✓ Promote the practice of everyday preventative actions.
 - Frequently wash hands with soap and water for at least 20 seconds. If soap and water are not readily available use hand sanitizer with at least 60% alcohol.
 - Cover coughs and sneezes with a tissue or use the inside of your elbow.
 - Clean frequently touched objects and surfaces.
 - Stay home when sick.
- ✓ Provide COVID-19 prevention supplies at your organization (e.g., soap, hand sanitizer that contains at least 60% alcohol, tissues, trash baskets, and a couple of disposable facemasks, just in case someone becomes sick during an event).
- ✓ Plan for staff absences by developing flexible attendance and sick-leave policies, plan for alternative coverage, and monitor and track COVID-19 related staff absences.
- ✓ Engage with stigmatized groups and speak out against negative behaviors to help counter stigma and discrimination.

Take Action

If there is COVID-19 in your community:

- ✓ Stay informed about local COVID-19 information and updates.
- ✓ Put your emergency operations and communication plans into action.
- ✓ Communicate with your community members if events and services are changed, postponed, or cancelled.

- ✓ Emphasize everyday preventive actions through intensified communications with employees and visitors to your organization.
 - Stay home when sick.
 - Cover coughs and sneezes with a tissue or use the inside of your elbow.
 - Wash hands often.
 - Limit close contact with others as much as possible (about 6 feet).
- ✓ During an event, if someone becomes sick separate them into an isolated room and ask them to leave as soon as possible.

Environmental Cleaning and Disinfection Recommendations

Interim Recommendations for US Community Facilities with Suspected/Confirmed Coronavirus Disease 2019

Background

There is much to learn about the novel coronavirus that causes coronavirus disease 2019 (COVID-19). Based on what is currently known about the virus, spread from person-to-person happens most frequently among close contacts (within about 6 feet). This type of transmission occurs via respiratory droplets. Transmission of novel coronavirus to persons from surfaces contaminated with the virus has not been documented. Transmission of coronavirus in general occurs much more commonly through respiratory droplets than through fomites. Current evidence suggests that novel coronavirus may remain viable for hours to days on surfaces made from a variety of materials. Cleaning of visibly

dirty surfaces followed by disinfection is a best practice measure for prevention of COVID-19 and other viral respiratory illnesses in community settings.

Purpose

This guidance provides recommendations on the cleaning and disinfection of rooms or areas of those with suspected or with confirmed COVID-19 have visited. It is aimed at limiting the survival of novel coronavirus in key environments. These recommendations will be updated if additional information becomes available.

These guidelines are focused on community, non-healthcare facilities (e.g., schools, institutions of higher education, offices, daycare centers, businesses, community centers) that do and do not house persons overnight. These guidelines are not meant for cleaning staff in healthcare facilities or repatriation sites, households, or for others for whom specific guidance already exists.

Definitions

- Community facilities (e.g., schools, daycares centers, businesses) comprise most non-healthcare settings that are visited by the general public outside of a household.
- Cleaning refers to the removal of dirt and impurities, including germs, from surfaces. Cleaning alone does not kill germs. But by removing the germs, it decreases their number and therefore any risk of spreading infection.
- Disinfecting works by using chemicals to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs. But killing germs remaining on a surface after cleaning further reduces any risk of spreading infection.

Cleaning and Disinfection After Persons Suspected/Confirmed to Have COVID-19 Have Been in the Facility

Timing and location of cleaning and disinfection of surfaces

- At a school, daycare center, office, or other facility that does not house people overnight:
 - It is recommended to close off areas used by the ill persons and 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.
 - Cleaning staff should clean and disinfect all areas (e.g., offices, bathrooms, and common areas) used by the ill persons, focusing especially on frequently touched surfaces.
- At a facility that does house people overnight:
 - Follow Interim Guidance for US Institutions of Higher Education on working with state and local health officials to isolate ill persons and provide temporary housing as needed.
 - It is recommended to close off areas used by the ill persons and 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.
 - In areas where ill persons are being housed in isolation, follow Interim Guidance for Environmental Cleaning and Disinfection for U.S. Households with Suspected or Confirmed Coronavirus Disease 2019. This includes focusing on

cleaning and disinfecting common areas where staff/others providing services may come into contact with ill persons, but reducing cleaning and disinfection of bedrooms/bathrooms used by ill persons to as needed.

- In areas where ill persons have visited or used, continue routine cleaning and disinfection as in this guidance.

How to Clean and Disinfect

Surfaces

- If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.
- For disinfection, diluted household bleach solutions, alcohol solutions with at least 70% alcohol, and most common EPA-registered household disinfectants should be effective.
 - Diluted household bleach solutions can be used if appropriate for the surface. Follow manufacturer's instructions for application and proper ventilation. Check to ensure the product is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Unexpired household bleach will be effective against coronaviruses when properly diluted.
- Prepare a bleach solution by mixing:
 - 5 tablespoons (1/3rd cup) bleach per gallon of water or
 - 4 teaspoons bleach per quart of water
 - Products with EPA-approved emerging viral pathogens claims are expected to be effective against COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.).

- For soft (porous) surfaces such as carpeted floor, rugs, and
- drapes, remove visible contamination if present and clean with appropriate cleaners indicated for use on these surfaces. After cleaning:
 - If the items can be laundered, launder items in accordance with the manufacturer's instructions using the warmest appropriate water setting for the items and then dry items completely.
 - Otherwise, use products with the EPA-approved emerging viral pathogens claims (examples at [this link](#)) that are suitable for porous surfaces

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.
- Wash items as appropriate in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely. Dirty laundry that has been in contact with an ill person can be washed with other people's items.
- Clean and disinfect hampers or other carts for transporting laundry according to guidance above for hard or soft surfaces.

Personal Protective Equipment (PPE) and Hand Hygiene:

- Cleaning staff should wear disposable gloves and gowns for all tasks in the cleaning process, including handling trash.
 - Gloves and gowns should be compatible with the disinfectant products being used.
 - Additional PPE might be required based on the

cleaning/disinfectant products being used and whether there is a risk of splash.

- Gloves and gowns should be removed carefully to avoid contamination of the wearer and the surrounding area. Be sure to clean hands after removing gloves.
- Gloves should be removed after cleaning a room or area occupied by ill persons. Clean hands immediately after gloves are removed.
- Cleaning staff should immediately report breaches in PPE (e.g., tear in gloves) or any potential exposures to their supervisor.
- Cleaning staff and others should clean hands often, including immediately after removing gloves and after contact with an ill person, by washing hands with soap and water for 20 seconds. If soap and water are not available and hands are not visibly dirty, an alcohol-based hand sanitizer that contains 60%-95% alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water.
- Follow normal preventive actions while at work and home, including cleaning hands and avoiding touching eyes, nose, or mouth with unwashed hands.
 - Additional key times to clean hands include:
 - After blowing one's nose, coughing, or sneezing
 - After using the restroom
 - Before eating or preparing food
 - After contact with animals or pets
 - Before and after providing routine care for another person who needs assistance (e.g., a child)

Additional Considerations for Employers:

- 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.

- Employers should educate staff and workers performing cleaning, laundry, and trash pick-up activities to recognize the symptoms of COVID-19 and provide instructions on what to do if they develop symptoms within 14 days after their last possible exposure to the virus. At a minimum, any staff should immediately notify their supervisor and the local health department if they develop symptoms of COVID-19. The health department will provide guidance on what actions need to be taken. When working with your local health department check their available hours.
- Employers should develop policies for worker protection and provide training to all cleaning staff on site prior to providing cleaning tasks. Training should include when to use PPE, what PPE is necessary, how to properly don (put on), use, and doff (take off) PPE, and how to properly dispose of PPE.
- Employers must ensure workers are trained on the hazards of the cleaning chemicals used in the workplace in accordance with OSHA's Hazard Communication standard (29 CFR 1910.1200).
- Employers must comply with OSHA's standards on Bloodborne Pathogens (29 CFR 1910.1030), including proper disposal of regulated waste, and PPE (29 CFR 1910.132).

Resources for Large Community Events & Mass Gatherings

Plan, prepare, and respond to coronavirus disease 2019

Interim Guidance for event planners

Cleaning and Disinfection Recommendations

Recommendations for Election Polling Locations

Get Your Mass Gatherings or Large Community Events Ready for Coronavirus Disease 2019

Older adults and people who have severe underlying chronic medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.

People who are at higher risk are encouraged to avoid crowds as much as possible. Find more information [here](#).

Interim Guidance

This interim guidance is based on what is currently known about the Coronavirus Disease 2019 (COVID-19). The Centers for Disease Control and Prevention (CDC) will update this interim guidance as needed and as additional information becomes available.

This interim guidance is intended for organizers and staff responsible for planning mass gatherings or large community events

in the United States. A mass gathering is a planned or spontaneous event with a large number of people in attendance that could strain the planning and response resources of the community hosting the event, such as concerts, festivals, conferences, worship services, and sporting events.

COVID-19 is an emerging respiratory disease and there is more to learn about its transmission, clinical course, and populations at increased risk of disease and complications (see How COVID-19 Spreads). Everyone can do their part to help plan, prepare, and respond to this emerging public health threat.

As the COVID-19 outbreak evolves, CDC strongly encourages event organizers and staff to prepare for the possibility of outbreaks in their communities. Creating an emergency plan for mass gatherings and large community events can help protect you and the health of your event participants and local community.

CDC has developed recommended actions for preventing the spread of COVID-19 at mass gatherings and large community events. The Before, During, and After sections of this guidance offer suggested strategies to help you plan for and implement these recommendations.

Before a COVID-19 outbreak occurs in your community: Plan

A COVID-19 outbreak could last for a long time. Depending on the severity of the outbreak, public health officials may recommend community actions designed to limit exposure to COVID-19. Officials may ask you to modify, postpone, or cancel large events for the safety and well-being of your event staff, participants, and the community. The details of your emergency operations plan should

be based on the size and duration of your events, demographics of the participants, complexity of your event operations, and type of on-site services and activities your event may offer.

Review the existing emergency operations plans for your venues

- ✓ Meet with the emergency operations coordinator or planning team at your venues. Discuss the emergency operations plans and determine how they may impact aspects of your events, such as personnel, security, services and activities, functions, and resources. Work with the emergency operations coordinator or planning team to prepare for the key prevention strategies outlined in this guidance. Develop a contingency plan that addresses various scenarios described below which you may encounter during a COVID-19 outbreak.
- ✓ Establish relationships with key community partners and stakeholders. When forming key relationships for your events, include relevant partners such as the local public health department, community leaders, faith-based organizations, vendors, suppliers, hospitals, hotels, airlines, transportation companies, and law enforcement. Collaborate and coordinate with them on broader planning efforts. Clearly identify each partner's role, responsibilities, and decision-making authority. Contact your local public health department for a copy of their outbreak response and mitigation plan for your community. Participate in community-wide emergency preparedness activities.

Address key prevention strategies in your emergency operations plan

- ✓ Promote the daily practice of everyday preventive actions. Use health messages and materials developed by credible public health sources such as your local public health department or CDC to

encourage your event staff and participants to practice good personal health habits. Promote everyday preventive actions to help prevent the spread of COVID-19, which include:

- Stay home when you are sick, except to get medical care.
 - Cover your coughs and sneezes with a tissue, then throw the tissue in the trash.
 - Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing.
 - Avoid touching your eyes, nose, and mouth with unwashed hands.
 - Clean frequently touched surfaces and objects daily.
- ✓ Provide COVID-19 prevention supplies at your events. Plan to have extra supplies on hand for event staff and participants, including sinks with soap, hand sanitizers, tissues, and disposable facemasks (for persons who start having symptoms).

Note: Disposable facemasks should be kept on-site and used only if someone (worker or attendee) becomes sick at your event. Those who become sick should be immediately isolated from staff and participants who are not sick and given a clean disposable facemask to wear.

- ✓ Plan for staff absences. Develop flexible attendance and sick-leave policies. Event staff need to stay home when they are sick, or they may need to stay home to care for a sick household member or care for their children in the event of school dismissals. Identify critical job functions and positions and plan for alternative coverage by cross-training staff (similar to planning for holiday staffing).
- ✓ Promote messages that discourage people who are sick from attending events. This should include messages requesting that people leave events if they begin to have symptoms of COVID-19, which include fever, cough, and shortness of breath. They should seek medical advice promptly by calling ahead to a doctor's office

or emergency room to get guidance. See CDC guidance on what to do when sick with COVID-19.

- ✓ If possible, identify a space that can be used to isolate staff or participants who become ill at the event. Designate a space for staff and participants who may become sick and cannot leave the event immediately. Work with partners, such as local hospitals, to create a plan for treating staff and participants who do not live nearby. Include a plan for separating and caring for vulnerable populations.
- ✓ Plan ways to limit in-person contact for staff supporting your events. Several ways to do this include offering staff the option to telework if they can perform their job duties off-site, using email, and conducting meetings by phone or video conferencing. Reduce the number of staff needed such as staggering shifts for staff who support essential functions and services during events.
- ✓ Develop flexible refund policies for participants. Create refund policies that permit participants the flexibility to stay home when they are sick, need to care for sick household members, or are at high risk for complications from COVID-19.
- ✓ Identify actions to take if you need to postpone or cancel events. Work closely with local public health officials to assess local capacities in the area. During a COVID-19 outbreak, resource limitations among local healthcare systems and/or law enforcement can influence the decision to postpone or cancel your events. If possible, plan alternative ways for participants to enjoy the events by television, radio, or online.

Communicate about COVID-19

- ✓ Update and distribute timely and accurate emergency communication information. Identify everyone in your chain of communication (for example, event staff, participants, suppliers, vendors, and key community partners and stakeholders) and establish systems for sharing information with them. Maintain up-to-

date contact information for everyone in the chain of communication. Identify platforms, such as a hotline, automated text messaging, and a website to help disseminate information.

- ✓ Identify and address potential language, cultural, and disability barriers associated with communicating COVID-19 information to event staff and participants. Information you share should be easily understood by everyone attending the events. Learn more about reaching people of diverse languages and cultures by visiting: Know Your Audience. You also can learn more about communicating to staff in a crisis at: Crisis Communications Plan.

During a COVID-19 Outbreak: Act

During an outbreak in your community, public health officials may provide event organizers with guidance intended to help slow the spread of COVID-19. Meet regularly with the emergency operations coordinator or planning team at the venue. They are positioned to accurately assess, manage, and communicate possible risks. Early action to slow the spread of COVID-19 will help keep event staff, participants, and the community healthy.

Put your emergency operations and communication plans into action

- ✓ Stay informed about the local COVID-19 situation. Get up-to-date information about local COVID-19 activity from public health officials. Be aware of temporary school dismissals in your area because these may affect event staff.

Note: Early in the outbreak, local public health officials may recommend schools dismiss temporarily.

- ✓ Communicate frequently with those in your communication chain.

Update key community partners and stakeholders regularly. Share information about how you and the emergency operations coordinator or planning team for the venues are responding to the outbreak.

- ✓ Distribute health messages about COVID-19 to event staff and participants. Continue to promote everyday preventive actions. Offer resources to event staff and participants that provide reliable COVID-19 information. Address the potential fear and anxiety that may result from rumors or misinformation.

Note: Use culturally appropriate messages, materials, and resources.

- ✓ Provide COVID-19 prevention supplies to event staff and participants. Ensure that your events have supplies for event staff and participants, such as hand sanitizer that contains at least 60% alcohol, tissues, trash baskets, disposable facemasks, and cleaners and disinfectants. Clean frequently touched surfaces and objects with detergent and water prior to disinfection, especially surfaces that are visibly dirty.
- For disinfection, review this list of products with EPA-approved emerging viral pathogens claims, maintained by the American Chemistry Council Center for Biocide Chemistries (CBC). Follow the manufacturer's instructions for all cleaning and disinfection products.
- ✓ Consider alternatives for event staff and participants who are at high risk for complications from COVID-19. Currently, older adults and persons with underlying health conditions are considered to be at increased risk for severe illness and complications from COVID-19. Event organizers can consider reassigning duties for high-risk staff to have minimal contact with other persons. People in high-risk groups should consult with their healthcare provider about attending large events. Consider providing refunds to event participants who are unable to attend because they are at high risk and/or provide information on alternative viewing options.

- ✓ Implement flexible staff attendance and sick-leave policies (if possible). Require staff to stay home if they are sick or caring for a sick household member. Allow staff to work from home when possible. Notify staff when you plan to implement COVID-19 leave policies. Provide instructions about how and when to safely return to work.

Note: Consider asking staff who get sick with COVID-19 symptoms to avoid contact with others and to seek medical advice.

- ✓ Separate those who become sick at your event from those who are well. Establish procedures to help sick staff or participants leave the event as soon as possible. If any staff member or participant becomes sick at your event, separate them from others as soon as possible. Provide them with clean, disposable facemasks to wear, if available. Work with the local public health department and nearby hospitals to care for those who become sick. If needed, contact emergency services for those who need emergency care. Public transportation, shared rides, and taxis should be avoided for sick persons, and disposable facemasks should be worn by persons who are sick at all times when in a vehicle. Read more about preventing the spread of COVID-19 if someone is sick.

Note: Providing a sick staff member or event participant with a disposable facemask to wear does not replace the need for that person to leave as soon as possible, stay home, and seek medical advice. Wearing a disposable facemask in the workplace or while participating in a large event is not a sufficient infection control measure.

Determine the need to postpone or cancel your events

- ✓ Put into action strategies for postponing or canceling your events. Work closely with the emergency operations coordinator or planning team for your venues and with local public health officials to discuss the criteria you will use to postpone or cancel your

event(s). Immediately alert event staff and participants if your event(s) has been postponed or canceled and inform them of your COVID-19 outbreak (or emergency) refund policy and re-ticketing options.

- ✓ Update everyone in your communication chain about when your events will occur if postponed or canceled. Let event participants know whether new tickets can be obtained and when.

After a COVID-19 outbreak has ended in your community: Follow Up

Remember, a COVID-19 outbreak could last for a long time. When public health officials determine that the outbreak has ended in your local community, work with them to identify criteria for scaling back COVID-19 prevention actions at your events. Base the criteria on slowing of the outbreak in your local area. If your events were cancelled, work with your venues to reschedule your events.

Evaluate the effectiveness your emergency operations and communication plans

- ✓ Meet with the emergency operations coordinator or planning team for your venues to discuss and note lessons learned. Gather feedback from event staff, participants (if possible), community partners, and stakeholders to improve plans. Identify any gaps in the plans and any needs you may have for additional resources.
- ✓ Maintain and expand your planning team. Look for ways to expand community partnerships. Identify agencies or partners needed to help you prepare for infectious disease outbreaks in the future and try to add them to your planning team.
- ✓ Participate in community-wide emergency preparedness activities.

Recommendations for Election Polling Locations

Interim guidance to prevent spread of coronavirus disease 2019

Guidance updated March 9, 2020 to include the following information:

- Social distancing measures
- Handling mail in ballots
- Updated guidance on disinfecting voting machines

Background

There is much to learn about the novel coronavirus that causes coronavirus disease 2019 (COVID-19). Based on what is currently known about this virus and similar coronaviruses, spread from person-to-person happens most frequently among close contacts (within about 6 feet). This type of transmission occurs via respiratory droplets. Transmission of novel coronavirus to persons from surfaces contaminated with the virus has not been documented. Transmission of coronavirus in general occurs much more commonly through respiratory droplets than through contact with contaminated surfaces. Current evidence suggests that novel coronavirus may remain viable for hours to days on surfaces made from a variety of materials. Cleaning of visibly dirty surfaces followed by disinfection is a best practice measure for prevention of COVID-19 and other viral respiratory illnesses in election polling locations.

Purpose

This guidance provides recommendations on the routine cleaning and

disinfection of polling location areas and associated voting equipment (e.g., pens, voting machines, computers). It suggests actions that polling station workers can take to reduce the risk of exposure to COVID-19 by limiting the survival of the virus in the environment. This guidance will be updated if additional information becomes available.

Definitions:

- Community settings (e.g. polling locations, households, schools, daycares, businesses) encompass most non-healthcare settings and are visited by the general public.
- Cleaning refers to the removal of dirt and impurities including germs from surfaces. Cleaning alone does not kill germs. But by removing them, it decreases the number of germs and therefore any risk of spreading infection.
- Disinfecting kills germs on surfaces. Disinfecting works by using chemicals to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs. But killing germs remaining on a surface after cleaning further reduce any risk of spreading infection.

Actions for elections officials in advance of election day

- Encourage voters to use voting methods that minimize direct contact with other people and reduce crowd size at polling stations.
 - Encourage mail-in methods of voting if allowed in the jurisdiction.
 - Encourage early voting, where voter crowds may be smaller throughout the day. This minimizes the number of individuals a voter may come in contact with.

- Encourage drive-up voting for eligible voters if allowed in the jurisdiction.
- Encourage voters planning to vote in-person on election day to arrive at off-peak times. For example, if voter crowds are lighter mid-morning, advertise that in advance to the community.

Preventive actions polling workers can take

- Stay at home if you have fever, respiratory symptoms, or believe you are sick.
- Practice hand hygiene frequently: wash hands often with soap and water for at least 20 seconds. If soap and water are not readily available, use an alcohol-based hand sanitizer that contains at least 60% alcohol.
- Practice routine cleaning of frequently touched surfaces with household cleaning spray or wipe: including tables, doorknobs, light switches, handles, desks, toilets, faucets, sinks, etc.
- Disinfect surfaces that may be contaminated with germs after cleaning: A list of products with EPA-approved emerging viral pathogens claims is available at https://www.epa.gov/sites/production/files/2020-03/documents/sars-cov-2-list_03-03-2020.pdf. Products with EPA-approved emerging viral pathogens claims are expected to be effective against the virus that causes COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, use of personal protective equipment).
- Clean and disinfect voting-associated equipment (e.g., voting machines, laptops, tablets, keyboards) routinely. Follow the

manufacturer's instructions for all cleaning and disinfection products.

- Consult with the voting machine manufacturer for guidance on appropriate disinfection products for voting machines and associated electronics.
- Consider use of wipeable covers for electronics.
- If no manufacturer guidance is available, consider the use of alcohol-based wipes or spray containing at least 70% alcohol to clean voting machine buttons and touch screens. Dry surfaces thoroughly to avoid pooling of liquids.

Preventive action polling stations workers can take for themselves and the general public

Based on available data, the most important measures to prevent transmission of viruses in crowded public areas include careful and consistent cleaning of one's hands. Therefore:

- Ensure bathrooms at the polling station are supplied adequately with soap, water, and drying materials so visitors and staff can wash their hands.
- Provide an alcohol-based hand sanitizer with at least 60% alcohol for use before and after using the voting machine or the final step in the voting process. Consider placing the alcohol-based hand sanitizer in visible, frequently used locations such as registration desks and exits.
- Incorporate social distancing strategies, as feasible. Social distancing strategies increase the space between individuals and decrease the frequency of contact among individuals to reduce the risk of spreading a disease. Keeping individuals at

least 6 feet apart is ideal based on what is known about COVID-19. If this is not feasible, efforts should be made to keep individuals as far apart as is practical. Feasibility of strategies will depend on the space available in the polling station and the number of voters who arrive at one time. Polling station workers can:

- Increase distance between voting booths.
- Limit nonessential visitors. For example, poll workers should be encouraged not to bring children, grandchildren, etc. with them as they work the polls.
- Remind voters upon arrival to try to leave space between themselves and others. Encourage voters to stay 6 feet apart if feasible. Polling places may provide signs to help voters and workers remember this.
- Discourage voters and workers from greeting others with physical contact (e.g., handshakes). Include this reminder on signs about social distancing.

Recommendations for processing mail-in ballots

- Workers handling mail in ballots should practice hand hygiene frequently
- No additional precautions are recommended for storage of ballots

Resources for Homeless Shelters

Plan, prepare, and respond to coronavirus disease 2019

Interim Guidance for Homeless Shelters

Cleaning and Disinfection Recommendations

Resources for First Responders and Law Enforcement

Interim Guidance for Emergency Medical Services Systems

Information for Law Enforcement Personnel

Interim Guidance: Public Health Communicators Get Your Community Ready for Coronavirus Disease 2019 (COVID-19)

This interim guidance is based on what is currently known about the Coronavirus Disease 2019 (COVID-19). The Centers for Disease Control and Prevention (CDC) will update this interim guidance as needed and as additional information becomes available.

In this guide

Before a COVID-19 outbreak occurs: Plan

During a COVID-19 outbreak: Act

After a COVID-19 outbreak has ended: Follow Up]

Readiness Resources

This interim guidance is intended for state and local public health information officers, health communication specialists, health educators, and other public health professionals responsible for planning communication strategies before, during, and after an outbreak of coronavirus disease (COVID-19).

This guidance provides information about nonpharmaceutical interventions (NPIs) and their use during a COVID-19 outbreak. NPIs are actions, apart from getting vaccinated and taking antiviral medications, that people and communities can take to help slow the spread of respiratory illnesses like COVID-19.

COVID-19 is an emerging disease and there is more to learn about its transmission, severity, and how it will take shape in the United States. Everyone can do their part to help plan, prepare, and respond to this emerging public health threat.

CDC has developed recommendations for how to communicate with people in your community about a COVID-19 outbreak. The Before, During, and After sections of this guide offer suggested strategies to help you plan for and implement these recommendations.

This interim guidance is intended for state and local public health information officers, health communication specialists, health educators, and other public health professionals responsible for planning communication strategies before, during, and after an outbreak of coronavirus disease (COVID-19).

This guidance provides information about nonpharmaceutical interventions (NPIs) and their use during a COVID-19 outbreak. NPIs are

actions, apart from getting vaccinated and taking antiviral medications, that people and communities can take to help slow the spread of respiratory illnesses like COVID-19.

COVID-19 is an emerging disease and there is more to learn about its transmission, severity, and how it will take shape in the United States. Everyone can do their part to help plan, prepare, and respond to this emerging public health threat.

CDC has developed recommendations for how to communicate with people in your community about a COVID-19 outbreak. The Before, During, and After sections of this guide offer suggested strategies to help you plan for and implement these recommendations.

Before a COVID-19 outbreak occurs in your community: Plan

Preparedness should focus on strengthening the systems and structures that support effective and well-coordinated communication, and not solely on the development of communication messages.

A good emergency communication plan encourages community leaders and stakeholders to plan now for a COVID-19 outbreak and other types of emergencies. Before an outbreak occurs, focus on raising awareness and educating audiences about nonpharmaceutical interventions (NPIs) and other public health respiratory infection-prevention strategies. Identify key community relationships and leverage them to help educate and prepare audiences. It takes time to build relationships. Engage internal and external partners and stakeholders early in your planning process. Coordinating your planning efforts with them can help establish strong lines of communication and ensure that information is consistent before and during a COVID-19 outbreak in your

community.

Become familiar with key COVID-19 prevention messages and NPI recommendations

- ✓ Read and understand “Everyday Preventive Actions”. This list identifies personal health habits that people should use all the time, including to help protect themselves and their families against COVID-19 and other respiratory illnesses.
- ✓ Read and understand CDC’s audience-specific COVID-19 NPI guidance documents and communication materials. Tailored guidance and resources addressing COVID-19 planning are available for individuals and communities.
- ✓ Take CDC’s NPI 101 Web-based training. State, tribal, local, and territorial public health officials can complete an interactive course (developed by CDC for pandemic influenza preparedness) to increase their understanding of NPIs and how to plan for the use of NPIs before, during, and after a pandemic to help slow spread of disease. The NPI training is applicable to COVID-19. Register for “NPI 101” External on CDC TRAIN. The following free CE credits are provided: 0.2 CEU/CE, 1.5 CHES, 1.75 CME, 1.5 CNE Contact Hours, and 2 CPHCE.

Update your existing emergency communication plan

- ✓ Meet with your existing emergency planning and operations team to update the emergency communication plan for your state or local community.
 - Review all aspects of your plan, such as staffing, communication strategies, trainings, tools, policies, equipment, systems and procedures for clearing and approving information, and other resources.

- Develop or update your plan based on various scenarios your state or local community may face during a COVID-19 outbreak.
- ✓ Establish systems for sharing information with key partners and stakeholders.
 - Identify everyone in your chain of communication (e.g., new and existing partners and stakeholders, others in your own agency, and other health departments), and create or update a comprehensive contact list.
 - Maintain up-to-date primary and secondary contact information for everyone in the chain.
 - Determine when and what type of information to share with those in your communication chain.
 - Identify platforms, such as a hotline, automated text messaging, email, social media, and a website, to help disseminate information to internal and external partners and audiences.

Help community members prepare for COVID-19

- ✓ Encourage community members to plan for COVID-19.
 - Promote the practice of everyday preventive actions before an outbreak occurs (e.g., staying home when sick, covering coughs and sneezes with a tissue, washing hands often, and cleaning frequently touched surfaces). Identify up-to-date resources and tools to household members plan and prepare for COVID-19.
- ✓ Create a COVID-19 communication workgroup with representatives from key partners and stakeholders.
 - Include communication, marketing, and public relations professionals who work in various community settings, such as childcare programs, healthcare facilities, pharmacies,

schools, workplaces, community- and faith-based organizations, and public and private organizations.

- Discuss with the workgroup the emergency communication plan for your state or local community.
- Determine how to coordinate COVID-19 outbreak communication between workgroup members. Encourage their participation in other community-wide COVID-19 readiness activities.

Note: Inform workgroup members about workshops, programs, and other activities they can implement within their organizations to inspire the public to consistently practice good personal health habits and prepare for emergencies.

✓ Engage communities in a dialogue about COVID-19 readiness.

- Conduct needs assessments or focus groups with community members to gather information about their knowledge, attitudes, beliefs, and challenges related to NPIs and COVID-19. Use their feedback to improve your communication strategies, messages, and materials.

Note: Work closely with workgroup members and key partners and stakeholders to address COVID-19 readiness challenges and barriers identified by audiences in your community. Identifying solutions to help audiences move past barriers may help people change habits and better adapt to changing circumstances during an outbreak.

Update information needs and community resources

- ✓ Identify target audiences and communication channels. Work with workgroup members and key partners and stakeholders to define audiences and develop strategies to reach every member of the community. Additional strategies may be needed to reach high-risk and vulnerable populations, such as:

- Women, infants, and children
- Older adults
- Persons with disabilities
- Persons with access and functional needs

Note: Some NPI actions may draw public attention and can have negative psychosocial and economic consequences on groups and individuals to which they are applied during an outbreak, especially to high-risk and vulnerable populations. Include in your communication plan strategies and messages that address fear, stigmatization, and discrimination.

- ✓ Address any gaps in communication resources, materials, or processes.
- ✓ Identify the training needs of workgroup members and key partners and stakeholders.
 - Identify existing trainings or develop new trainings about NPIs, decision-making, and risk communication.
 - Ensure communicators across sectors have the necessary skills and understanding to develop emergency communication plans and promote COVID-19 readiness within their organizations.
- ✓ Become a resource for COVID-19 information.
 - Tailor ready-to-use messages and materials (fact sheets, checklists, and frequently asked questions) for each audience.
 - Prepare resources that educate people about the importance of adopting NPI measures (like staying home when sick).
 - Use plain language and include examples and pictures in your materials to improve understanding.
 - Visit CDC's website for messages and materials about NPIs

and COVID-19. Visit CDC's Health Literacy page for more information about plain language.

Assess procedures and technology resources needed for timely communication during a COVID-19 outbreak

✓ Review, exercise, and update communication policies, procedures, and systems for updating, clearing, approving, and disseminating information (both internally and externally).

- Make sure information is accurate and consistent during an emergency and flows promptly and frequently to the correct audiences.
- Review your system for tracking and responding to inquiries received from the public, partners, and stakeholders.

Note: Communication after-action reports and improvement plans (AARs/IPs) from recent public health emergency responses can offer practical and helpful insights.

✓ Identify existing and needed technology resources.

- Assess and update the availability of technology and equipment, such as mobile phones, computers, internet access, and wireless devices, so they are ready for immediate use.
- If needed resources do not exist inside your organization, create a plan for acquiring them or identify sources from which you can access technology during a COVID-19 outbreak.

Plan for the dissemination of COVID-19 information

✓ Create a plan for interacting with news media.

- The media can serve as a vital link in providing up-to-date

information and helping to deliver key messages to the public.

- Develop a strategy for communicating directly with the public, working with the media, and responding to inquiries.

✓ Identify multiple spokespersons or subject matter experts.

- Experts who will serve as spokespersons should be experienced in public health emergencies and COVID-19. Include representatives from limited English-speaking communities.
- Provide training, as needed, so they are comfortable speaking to news media and able to answer challenging questions using plain language (clear communication). See Crisis and Emergency Risk Communication: By Leaders for Leaders to learn more about the role of a spokesperson.

✓ Develop a plan for using current social media.

- Plan ways to incorporate popular or topical social media platforms that can help you promote key messages and quickly update people with new information. Social media platforms also provide direct access to your target audiences, giving you opportunities to engage in real-time discussions for information gathering and evaluation purposes.
- Use best practices and principles of effective risk communication; you may want to localize and redistribute CDC messaging on social media.

✓ Develop a communication evaluation plan. Use these questions to help you measure the effectiveness of your emergency communication plan:

- Can your audiences find, understand, and use your information?
- Are your key messages culturally appropriate and in plain language?

- Are you successfully increasing awareness by disseminating resources and materials?
- Are communication activities being successfully coordinated with internal and external partners and stakeholders?
- Can you confirm that timely information is being provided throughout the duration of the COVID-19 outbreak?
- Is misinformation being spread on social media, or elsewhere? If so, how are you counteracting it?

✓ Test and update your emergency communication plan.

- Practice the actions outlined in your plan.
- Ensure systems and procedures support communication activities needed during a COVID-19 outbreak.
- Refine messages, materials, and tools.
- Encourage workgroup members to test the emergency communication plans for their organizations.

During a COVID-19 outbreak in your community: Act

Maintain ongoing communication with your workgroup members, partners, and stakeholders once COVID-19 is in your local community. Coordinate COVID-19 communication activities with news media and other channels to ensure consistent messaging. If you must use technical terminology and concepts, be sure to define them and include examples to help improve understanding. For example, create messages that clearly explain COVID-19 and NPIs.

Your communication should be early, empathetic, accurate, and effective. Early communication of COVID-19 information helps limit misinformation and rumors that could contribute to confusion and

fear. Empathetic communication conveys concern and reassurance, empowers people, and reduces emotional turmoil. Accurate communication provides the facts about a situation and what is being done to resolve it. Effective communication helps build understanding and guide the public, media, healthcare providers, and other groups in responding to COVID-19 and complying with public health recommendations.

Put your emergency plan into action

✓ Stay informed about the COVID-19 situation.

- Visit the CDC website to get up-to-date information about COVID-19.

✓ Provide instructions for NPI implementation.

- Explain why NPIs are necessary and effective when implemented early and practiced throughout an outbreak. Give details about what, how, when, and where NPIs will be implemented in the community.
 - To learn more about NPIs as an important community mitigation measure, visit Community Mitigation Guidelines to Prevent Pandemic Influenza — United States, 2017. Visit CDC's Crisis and Emergency Risk Communication (CERC) website for more information about communicating during an emergency.

✓ Continue to promote the daily practice of everyday preventive actions.

- Provide frequent updates to the public to ensure they understand their risk for getting and spreading COVID-19 and how to reduce their risk.
- Encourage people to stay home and away from others when they are sick, to practice good health habits, and to comply

with CDC or local public health recommendations to help prevent the spread of COVID-19.

Communicate frequently with those in your communication chain

✓ Always give simple, credible, accurate, consistent, and timely information.

- Be transparent and share what is known and unknown about the COVID-19 situation in your state or local community.
- Use a variety of communication channels to distribute audience-specific health messages and materials.
- Provide additional resources and web links where the public can find reliable NPI and COVID-19 information. See Crisis and Emergency Risk Communication: Spokesperson to learn more about the role of a spokesperson.

✓ Update everyone in your communication chain regularly.

- Share updated information with your workgroup members, partners, and stakeholders to help them make decisions.

✓ Communicate COVID-19 prevention information to those who are vulnerable and at high risk for complications.

- Work with partners to implement communication strategies for reaching high-risk and vulnerable populations in your community (for example, people who are homeless or have limited English-language skills).
- Learn how community- and faith-based organizations can help vulnerable populations during an outbreak.

Monitor and evaluate your efforts, and change communications as needed

✓ Monitor all media sources.

- Use a variety of media channels to address misinformation and gather feedback about the response.

✓ Implement actions outlined in your evaluation plan.

- Document communication activities that have and have not happened. Explain why activities did not occur or were changed during implementation.

After a COVID-19 outbreak has ended in your community: Follow Up

Health communicators can distribute well-designed information that achieves behavior change

Work with workgroup members to identify criteria for phasing out and ending COVID-19 prevention communication activities. Maintain an attitude of preparedness by continuing to collaborate with workgroup members, partners, and stakeholders to enhance their communication skills on COVID-19 readiness and other public health issues. Use data from the response to identify new communication strategies and campaigns to facilitate long-term behavior change.

Evaluate the effectiveness your emergency communication plan

✓ Discuss and note lessons learned.

- Gather feedback from the public, workgroup members, partners, and stakeholders to improve your plan.
- Discuss which communication channels, materials, tools, and messages were successful, which were unsuccessful, and which were missing from your plan.

- Determine whether target audiences were reached.
- Identify additional resource needs.
- ✓ Maintain and expand your COVID-19 communication workgroup.
 - Look for ways to expand community partnerships.
 - Identify trusted representatives from the community and federal, state, or local agencies or organizations needed to help you prepare for COVID-19.

The timing of a COVID-19 outbreak cannot be predicted but having a plan in place is very important. Communication is an essential part of any successful public health response. Coordinate your planning activities with internal and external partners and stakeholders to help prepare your community for COVID-19 and achieve your emergency communication goals and objectives.

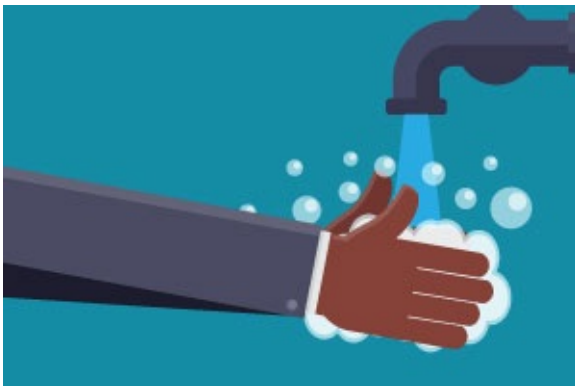
Protect Yourself and Your Family

Prepare your family



- Prepare your home
- Plan Ahead Checklist
- Stay informed

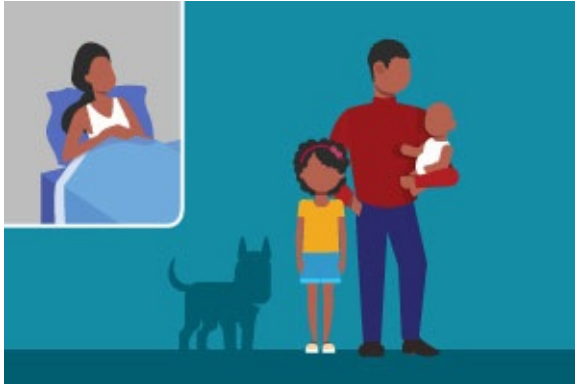
Protect your health



- Prevent Getting Sick

- Preventing spread
- Protect Others from Getting Sick

What to do if you are sick



- Symptoms
- Caring for yourself at home
- Caring for Someone Who is Sick

What You Can Do to Keep Yourself and Your Family Healthy

- Take everyday preventive actions to stay healthy.
- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose, and mouth.
- Stay home when you are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Clean and disinfect frequently touched objects and surfaces

using a regular household cleaning spray or wipe.

- Wash your hands often with soap and water for at least 20 seconds.
- Follow public health advice regarding school closures, avoiding crowds and other social distancing measures.
- Stay informed. CDC's COVID-19 Situation Summary will be updated regularly as information becomes available.

What You Should Know

Symptoms

Frequently Asked Questions and Answers

High Risk & Specific Populations

Prepare Yourself, Your Family, and Your Community



Protect yourself and your community from getting and spreading respiratory illnesses like coronavirus disease 2019. Everyone has a role to play in getting ready and staying healthy.

Here is what you can do to prepare your family in case COVID-19 spreads in your community.

- Know where to find local information on COVID-19 and local trends of COVID-19 cases.
- Know the signs and symptoms of COVID-19 and what to do if symptomatic:
 - Stay home when you are sick
 - Call your health care provider's office in advance of a visit
 - Limit movement in the community
 - Limit visitors
- Know what additional measures those at higher risk and who are vulnerable should take.
- Implement steps to prevent illness (e.g., stay home when sick, handwashing, respiratory etiquette, clean frequently touched surfaces daily).
- Create a household plan of action in case of illness in the household or disruption of daily activities due to COVID-19 in the community.
 - Consider 2-week supply of prescription and over the counter medications, food and other essentials. Know how to get food delivered if possible.
 - Establish ways to communicate with others (e.g., family, friends, co-workers).

- Establish plans to telework, what to do about childcare needs, how to adapt to cancellation of events.
- Know about emergency operations plans for schools/workplaces of household members.

Preventing Spread

Get My Household Ready

Plan Ahead

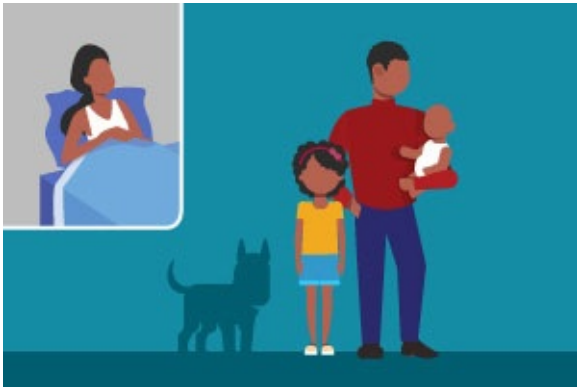
Cleaning & Disinfection

Decisions about the implementation of community measures will be made by local and state officials, in consultation with federal officials as appropriate, and based on the scope of the outbreak and the severity of illness. Implementation will require extensive community engagement, with ongoing and transparent public health communications.

Protect your health



What to do if you are sick



Stay Informed



Prevent Illness



There is currently no vaccine to prevent coronavirus disease 2019 (COVID-19). The best way to prevent illness is to avoid being exposed to this virus. However, as a reminder, CDC always recommends everyday preventive actions to help prevent the spread of respiratory diseases, including:

- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose, and mouth.
- Stay home when you are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.

- Clean and disinfect frequently touched objects and surfaces using a regular household cleaning spray or wipe.
- Wash your hands often with soap and water for at least 20 seconds. If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol. Always wash hands with soap and water if hands are visibly dirty.

Handwashing Resources

For information about handwashing, see CDC's Handwashing website

For information specific to healthcare, see CDC's Hand Hygiene in Healthcare Settings

These are everyday habits that can help prevent the spread of several viruses. CDC does have specific guidance for travelers.

Prepare your family



What to do if your are sick



Stay Informed



What to do if you are sick



There is no specific antiviral treatment recommended for COVID-19. People with COVID-19 should receive supportive care to help relieve symptoms.

People who think they may have been exposed to COVID-19 should contact their healthcare provider immediately.



Call your doctor: If you think you have been exposed to COVID-19 and develop a fever and symptoms, such as cough or difficulty breathing, call your healthcare provider for medical advice.

Symptoms

Caring for yourself at home

Protect Others from Getting Sick

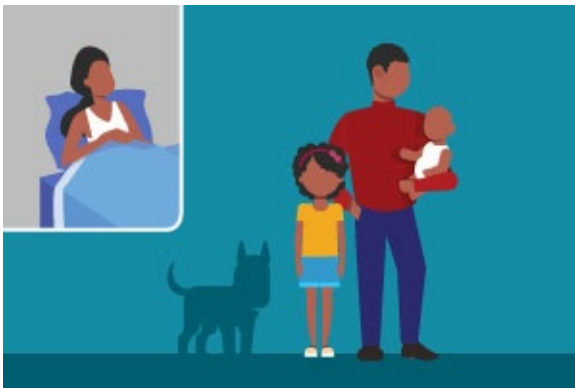
Caring for Someone Who is Sick

See Interim Guidance for Healthcare Professionals for information on persons under investigation.

Prepare



Prevent



Stay Informed



Caring for yourself at home

Prevent Others from getting sick

10 Things to Manage Your Health at Home



English

10 things you can do to manage your health at home

If you have possible or confirmed COVID-19:

1. Stay home from work, school, and away from other public places. If you must go out, avoid using any kind of public transportation, ridesharing, or taxis.
2. Monitor your symptoms carefully. If your symptoms get worse, call your healthcare provider immediately.
3. Get rest and stay hydrated.
4. If you have a medical appointment, call the healthcare provider ahead of time and tell them that you have or may have COVID-19.
5. For medical emergencies, call 911 and notify the dispatch personnel that you have or may have COVID-19.
6. Cover your cough and sneezes.

7. Wash your hands often with soap and water for at least 20 seconds or clean your hands with an alcohol-based hand sanitizer that contains at least 60% alcohol.
8. As much as possible, stay in a specific room and away from other people in your home. Also, you should use a separate bathroom, if available. If you need to be around other people in or outside of the home, wear a facemask.
9. Avoid sharing personal items with other people in your household, like dishes, towels, and bedding
10. Clean all surfaces that are touched often, like counters, tabletops, and doorknobs. Use household cleaning sprays or wipes according to the label instructions.

For any additional questions about your care, contact your healthcare provider or state or local health department.

There is no specific antiviral treatment recommended for COVID-19. People with COVID-19 should receive supportive care to help relieve symptoms. For severe cases, treatment should include care to support vital organ functions.

People who think they may have been exposed to COVID-19 should contact their healthcare provider immediately.

See Interim Guidance for Healthcare Professionals for information on persons under investigation.

People at Higher Risk and Special Populations

High Risk Groups

Older people and people of all ages with severe underlying health conditions – like heart disease, lung disease and diabetes, for example – seem to be at higher risk of developing serious COVID-19 illness.

People at Higher Risk for Serious Illness from COVID-19

Special Populations

DC has information for other special population, who at this time are not considered high risk of developing serious COVID-19 illness, but are at increased risk of severe illness from other infectious diseases. These include pregnant women and children.

Pregnant Women and Children

Homeless Shelter Population

Information on COVID-19 and Pregnant Women and Children

There is not currently information from published scientific reports about susceptibility of pregnant women to COVID-19. Pregnant women

experience immunologic and physiologic changes which might make them more susceptible to viral respiratory infections, including COVID-19.

There is no evidence that children are more susceptible to COVID-19. In fact, most confirmed cases of COVID-19 reported from China have occurred in adults. Infections in children have been reported, including in very young children. There is an ongoing investigation to determine more about this outbreak. This is a rapidly evolving situation and information will be updated as it becomes available.

Pregnant Women

Information on Breastfeeding

Children

Talking With Children About Coronavirus Disease 2019

Questions about Pregnancy and Coronavirus Disease 2019

Pregnant women

Interim Guidance on breastfeeding for a mother confirmed or under investigation for COVID-19

Q: What is the risk to pregnant women of getting COVID-19? Is it easier for pregnant women to become ill with the disease? If they become

infected, will they be more sick than other people?

A: We do not currently know if pregnant women have a greater chance of getting sick from COVID-19 than the general public nor whether they are more likely to have serious illness as a result. Pregnant women experience changes in their bodies that may increase their risk of some infections. With viruses from the same family as COVID-19, and other viral respiratory infections, such as influenza, women have had a higher risk of developing severe illness. It is always important for pregnant women to protect themselves from illnesses.

Q: How can pregnant women protect themselves from getting COVID-19?

Pregnant women should do the same things as the general public to avoid infection. You can help stop the spread of COVID-19 by taking these actions:

- Cover your cough (using your elbow is a good technique)
- Avoid people who are sick
- Clean your hands often using soap and water or alcohol-based hand sanitizer

You can find additional information on preventing COVID-19 disease at CDC's (Prevention for 2019 Novel Coronavirus).

Q: Can COVID-19 cause problems for a pregnancy?

A: We do not know at this time if COVID-19 would cause problems during pregnancy or affect the health of the baby after birth.

Transmission during pregnancy or during delivery

Q: Can COVID-19 be passed from a pregnant woman to the fetus or newborn?

A: We still do not know if a pregnant woman with COVID-19 can pass the virus that causes COVID-19 to her fetus or baby during pregnancy or

delivery. No infants born to mothers with COVID-19 have tested positive for the COVID-19 virus. In these cases, which are a small number, the virus was not found in samples of amniotic fluid or breastmilk.

Infants

Q: If a pregnant woman has COVID-19 during pregnancy, will it hurt the baby?

A: We do not know at this time what if any risk is posed to infants of a pregnant woman who has COVID-19. There have been a small number of reported problems with pregnancy or delivery (e.g. preterm birth) in babies born to mothers who tested positive for COVID-19 during their pregnancy. However, it is not clear that these outcomes were related to maternal infection. A: We do not know at this time what if any risk is posed to infants of a pregnant woman who has COVID-19. There have been a small number of reported problems with pregnancy or delivery (e.g. preterm birth) in babies born to mothers who tested positive for COVID-19 during their pregnancy. However, it is not clear that these outcomes were related to maternal infection.

Interim Guidance on Breastfeeding for a Mother Confirmed or Under Investigation For COVID-19

This interim guidance is intended for women who are confirmed to have COVID-19 or are persons-under-investigation (PUI) for COVID-19 and are currently breastfeeding. This interim guidance is based on what is currently known about COVID-19 and the transmission of other viral respiratory infections. CDC will update this interim guidance as needed as additional information becomes available. For breastfeeding guidance in the immediate postpartum setting, refer to Interim Considerations for

Transmission of COVID-19 through breast milk

Much is unknown about how COVID-19 is spread. Person-to-person spread is thought to occur mainly via respiratory droplets produced when an infected person coughs or sneezes, similar to how influenza (flu) and other respiratory pathogens spread. In limited studies on women with COVID-19 and another coronavirus infection, Severe Acute Respiratory Syndrome (SARS-CoV), the virus has not been detected in breast milk; however we do not know whether mothers with COVID-19 can transmit the virus via breast milk.

CDC breastfeeding guidance for other infectious illnesses

Breast milk provides protection against many illnesses. There are rare exceptions when breastfeeding or feeding expressed breast milk is not recommended. CDC has no specific guidance for breastfeeding during infection with similar viruses like SARS-CoV or Middle Eastern Respiratory Syndrome (MERS-CoV).

Outside of the immediate postpartum setting, CDC recommends that a mother with flu continue breastfeeding or feeding expressed breast milk to her infant while taking precautions to avoid spreading the virus to her infant.

Guidance on breastfeeding for mothers with

confirmed COVID-19 or under investigation for COVID-19

Breast milk is the best source of nutrition for most infants. However, much is unknown about COVID-19. Whether and how to start or continue breastfeeding should be determined by the mother in coordination with her family and healthcare providers. A mother with confirmed COVID-19 or who is a symptomatic PUI should take all possible precautions to avoid spreading the virus to her infant, including washing her hands before touching the infant and wearing a face mask, if possible, while feeding at the breast. If expressing breast milk with a manual or electric breast pump, the mother should wash her hands before touching any pump or bottle parts and follow recommendations for proper pump cleaning after each use. If possible, consider having someone who is well feed the expressed breast milk to the infant.

Frequently Asked Questions and Answers: Coronavirus Disease-2019 (COVID-19) and Children

See information on COVID-19 and pregnancy and neonates.

See CDC guidance related to COVID-19 and breastfeeding.

Q: What is the risk of my child becoming sick with COVID-19?

A: Based on available evidence, children do not appear to be at higher risk for COVID-19 than adults. While some children and infants have been sick with COVID-19, adults make up most of the known cases to

date. You can learn more about who is most at risk for health problems if they have COVID-19 infection on CDC's current Risk Assessment page.

Q: How can I protect my child from COVID-19 infection?

You can encourage your child to help stop the spread of COVID-19 by teaching them to do the same things everyone should do to stay healthy.

- Clean hands often using soap and water or alcohol-based hand sanitizer
- Avoid people who are sick (coughing and sneezing)
- Clean and disinfect high-touch surfaces daily in household common areas (e.g. tables, hard-backed chairs, doorknobs, light switches, remotes, handles, desks, toilets, sinks)
- Launder items including washable plush toys as appropriate in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely. Dirty laundry from an ill person can be washed with other people's items.

You can find additional information on preventing COVID-19 at Prevention for 2019 Novel Coronavirus and at Preventing COVID-19 Spread in Communities. Additional information on how COVID-19 is spread is available at How COVID-19 Spreads.

Q: Are the symptoms of COVID-19 different in children than in adults?

A: No. The symptoms of COVID-19 are similar in children and adults. However, children with confirmed COVID-19 have generally presented with mild symptoms. Reported symptoms in children include cold-like symptoms, such as fever, runny nose, and cough. Vomiting and diarrhea have also been reported. It's not known yet whether some children may be at higher risk for severe illness, for example, children with underlying medical conditions and special healthcare needs. There is much more to be learned about how the disease impacts children.

Q: Should children wear masks?

A: No. If your child is healthy, there is no need for them to wear a facemask. Only people who have symptoms of illness or who are providing care to those who are ill should wear masks.

People at Risk for Serious Illness from COVID-19

If you are at higher risk of getting very sick from COVID-19, you should:

- Stock up on supplies.
- Take everyday precautions to keep space between yourself and others.
- When you go out in public, keep away from others who are sick, limit close contact and wash your hands often.
- Avoid crowds as much as possible.
- Avoid cruise travel and non-essential air travel.
- During a COVID-19 outbreak in your community, stay home as much as possible to further reduce your risk of being exposed.

COVID-19: What Older Adults Need to Know

Jay Butler, Deputy Director for Infectious Diseases at CDC, describes preventative measures to help protect older adults from COVID-19.

AARP's Coronavirus Information Tele-Town Hall

Experts share information about COVID-19 and how to protect yourself.

CDC and other federal experts presented at an AARP tele-town hall event held on March 10, 2020 discussing prevention and care for older adults.

Who is at Higher Risk?

Early information out of China, where COVID-19 first started, shows that some people are at higher risk of getting very sick from this illness. This includes:

- Older adults
- People who have serious chronic medical conditions like:
 - Heart disease
 - Diabetes
 - Lung disease

If a COVID-19 outbreak happens in your community, it could last for a long time. (An outbreak is when a large number of people suddenly get sick.) Depending on how severe the outbreak is, public health officials may recommend community actions to reduce people's risk of being exposed to COVID-19. These actions can slow the spread and reduce

the impact of disease.

If you are at higher risk for serious illness from COVID-19 because of your age or because you have a serious long-term health problem, it is extra important for you to take actions to reduce your risk of getting sick with the disease.

Get Ready for COVID-19 Now

- Have supplies on Contact
 - hand your healthcare provider to ask about obtaining extra necessary medications to have on hand in case there is an outbreak of COVID-19 in your community and you need to stay home for a prolonged period of time.
 - If you cannot get extra medications, consider using mail-order for medications.
 - Be sure you have over-the-counter medicines and medical supplies (tissues, etc.) to treat fever and other symptoms. Most people will be able to recover from COVID-19 at home.
 - Have enough household items and groceries on hand so that you will be prepared to stay at home for a period of time.
- Take everyday precautions
 - Avoid close contact with people who are sick
 - Take everyday preventive actions
 - Clean your hands often
 - Wash your hands often with soap and water for at least 20 seconds, especially after blowing your nose, coughing, or sneezing, or having been in a public place.

- If soap and water are not available, use a hand sanitizer that contains at least 60% alcohol.
- To the extent possible, avoid touching high-touch surfaces in public places – elevator buttons, door handles, handrails, handshaking with people, etc. Use a tissue or your sleeve to cover your hand or finger if you must touch something.
- Wash your hands after touching surfaces in public places.
- Avoid touching your face, nose, eyes, etc.
- Clean and disinfect your home to remove germs: practice routine cleaning of frequently touched surfaces (for example: tables, doorknobs, light switches, handles, desks, toilets, faucets, sinks & cell phones)
- Avoid crowds, especially in poorly ventilated spaces. Your risk of exposure to respiratory viruses like COVID-19 may increase in crowded, closed-in settings with little air circulation if there are people in the crowd who are sick.
- Avoid all non-essential travel including plane trips, and especially avoid embarking on cruise ships.
- If COVID-19 is spreading in your community, take extra measures to put distance between yourself and other people to further reduce your risk of being exposed to this new virus.
 - Stay home as much as possible.
 - Consider ways of getting food brought to your house through family, social, or commercial networks
- Have a plan for if you get sick:
 - Consult with your health care provider for more

information about monitoring your health for symptoms suggestive of COVID-19.

- Stay in touch with others by phone or email. You may need to ask for help from friends, family, neighbors, community health workers, etc. if you become sick.
- Determine who can provide you with care if your caregiver gets sick

Watch for symptoms and emergency warning signs

- Pay attention for potential COVID-19 symptoms including, fever, cough, and shortness of breath. If you feel like you are developing symptoms, call your doctor.
- If you develop emergency warning signs for COVID-19 get medical attention immediately. In adults, emergency warning signs*:
 - Difficulty breathing or shortness of breath
 - Persistent pain or pressure in the chest
 - New confusion or inability to arouse
 - Bluish lips or face

* This list is not all inclusive. Please consult your medical provider for any other symptoms that are severe or concerning.

What to Do if You Get Sick

- Stay home and call your doctor
- Call your healthcare provider and let them know about your symptoms. Tell them that you have or may have COVID-19. This will help them take care of you and keep other people from getting infected or exposed.
- If you are not sick enough to be hospitalized, you can recover

at home. Follow CDC instructions for how to take care of yourself at home.

- Know when to get emergency help
- Get medical attention immediately if you have any of the emergency warning signs listed above.

What Others can do to Support Older Adults

Community Support for Older Adults

- Community preparedness planning for COVID-19 should include older adults and people with disabilities, and the organizations that support them in their communities, to ensure their needs are taken into consideration.
 - Many of these individuals live in the community, and many depend on services and supports provided in their homes or in the community to maintain their health and independence.
- Long-term care facilities should be vigilant to prevent the introduction and spread of COVID-19. Information for long-term care facilities can be found [here](#).

Family and Caregiver Support

- Know what medications your loved one is taking and see if you can help them have extra on hand.
- Monitor food and other medical supplies (oxygen, incontinence, dialysis, wound care) needed and create a back-up plan.
- Stock up on non-perishable food items to have on hand in your home to minimize trips to stores.

- If you care for a loved one living in a care facility, monitor the situation, ask about the health of the other residents frequently and know the protocol if there is an outbreak.

Prevention and Treatment

Get Your Household Ready

What to Do if You are Sick

Information for Healthcare Professionals

Current Interim Guidance

- Interim Guidance for Public Health Personnel Evaluating Persons Under Investigation (PUIs) and Asymptomatic Close Contacts of Confirmed Cases at Their Home or Non-Home Residential Settings
- Interim Guidance for Collection and Submission of Postmortem Specimens from Deceased Persons Under Investigation (PUI) for COVID-19, February 2020
- Evaluating and Reporting Persons Under Investigation (PUI)
- Healthcare Infection Control Guidance
- Clinical Care Guidance
- Home Care Guidance
- Guidance for EMS
- Healthcare Personnel with Potential Exposure Guidance
- Inpatient Obstetric Healthcare Guidance

Resources for Healthcare Professionals Caring for COVID-19 Patients

- What Healthcare Providers Should Know

- Frequently Asked Questions for Healthcare Providers

Persons Under Investigation (PUI)



- Interim Guidance for Public Health Personnel Evaluating Persons Under Investigation (PUIs) and Asymptomatic Close Contacts of Confirmed Cases at Their Home or Non-Home Residential Settings
- Evaluating and Reporting PUI Guidance
- Reporting a PUI or Laboratory-Confirmed Case for COVID-19

Clinical Care



- Clinical Care Guidance
- Disposition of Hospitalized Patients with COVID-2019
- Inpatient Obstetric Healthcare Guidance

Infection Control



- Guidance and Resources on Infection Control

Supply of Personal Protective Equipment

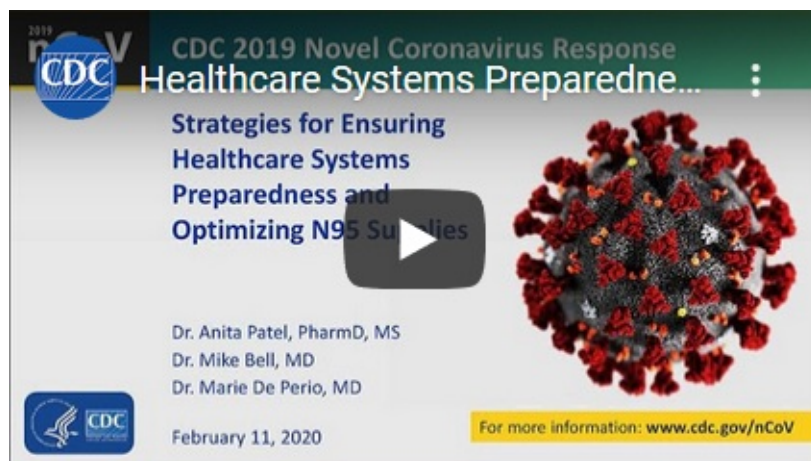


- Guidance and Resources on Healthcare Supply of Personal Protective Equipment

Home Care

- Implementing Home Care of People Not Requiring Hospitalization
- Preventing COVID-19 from Spreading in Homes and Communities
Disposition of Non-Hospitalized Patients with COVID-19

Webinar for Healthcare Professionals



Strategies for Healthcare Systems Preparedness and Optimizing N95 Supplies.

Find more information on supplies of personal protective equipment

View presentation slides

Evaluating and Testing Persons for Coronavirus Disease 2019 (COVID-19)

Summary of Recent Changes

Revisions were made on March 9, 2020, to reflect the following:

- Reorganized the Criteria to Guide Evaluation and Laboratory Testing for COVID-19 section

Revisions were made on March 4, 2020, to reflect the following:

- Criteria for evaluation of persons for testing for COVID-19 were expanded to include a wider group of symptomatic patients.

Limited information is available to characterize the spectrum of clinical illness associated with coronavirus disease 2019 (COVID-19). No vaccine or specific treatment for COVID-19 is available; care is supportive.

The CDC clinical criteria for considering testing for COVID-19 have been developed based on what is known about COVID-19 and are subject to change as additional information becomes available.

CDC Health Advisory



This is an official CDC Health Update

Update and Interim Guidance on Outbreak of Coronavirus Disease 2019 (COVID-19)

CDC continues to closely monitor an outbreak of respiratory illness caused by COVID-19 that was initially detected in Wuhan City, Hubei Province, China. This HAN Update provides a situational update and guidance to state and local health departments and health care providers.



Contact your local or state health department

Healthcare providers should immediately notify their local or state

health department in the event of the identification of a PUI for COVID-19. When working with your local or state health department check their available hours.

Criteria to Guide Evaluation and Laboratory Testing for COVID-19

Clinicians should continue to work with their local and state health departments to coordinate testing through public health laboratories. In addition, COVID-19 diagnostic testing, authorized by the Food and Drug Administration under an Emergency Use Authorization (EUA), is becoming available in clinical laboratories. This additional testing capacity will allow clinicians to consider COVID-19 testing for a wider group of symptomatic patients.

Clinicians should use their judgment to determine if a patient has signs and symptoms compatible with COVID-19 and whether the patient should be tested. Most patients with confirmed COVID-19 have developed fever¹ and/or symptoms of acute respiratory illness (e.g., cough, difficulty breathing). Priorities for testing may include:

1. Hospitalized patients who have signs and symptoms compatible with COVID-19 in order to inform decisions related to infection control.
2. Other symptomatic individuals such as, older adults and individuals with chronic medical conditions and/or an immunocompromised state that may put them at higher risk for poor outcomes (e.g., diabetes, heart disease, receiving immunosuppressive medications, chronic lung disease, chronic kidney disease).
3. Any persons including healthcare personnel², who within 14 days of symptom onset had close contact³ with a suspect or laboratory-

confirmed⁴ COVID-19 patient, or who have a history of travel from affected geographic areas⁵ (see below) within 14 days of their symptom onset.

There are epidemiologic factors that may also help guide decisions about COVID-19 testing. Documented COVID-19 infections in a jurisdiction and known community transmission may contribute to an epidemiologic risk assessment to inform testing decisions. Clinicians are strongly encouraged to test for other causes of respiratory illness (e.g., influenza).

Mildly ill patients should be encouraged to stay home and contact their healthcare provider by phone for guidance about clinical management. Patients who have severe symptoms, such as difficulty breathing, should seek care immediately. Older patients and individuals who have underlying medical conditions or are immunocompromised should contact their physician early in the course of even mild illness.

Recommendations for Reporting, Testing, and Specimen Collection

Clinicians should immediately implement recommended infection prevention and control practices if a patient is suspected of having COVID-19. They should also notify infection control personnel at their healthcare facility and their state or local health department if a patient is classified as a PUI for COVID-19. State health departments that have identified a PUI or a laboratory-confirmed case should complete a PUI and Case Report form through the processes identified on CDC's Coronavirus Disease 2019 website. State and local health departments can contact CDC's Emergency Operations Center (EOC) at 770-488-7100 for assistance with obtaining, storing, and shipping appropriate specimens to CDC for testing, including after hours or on weekends or holidays.

For initial diagnostic testing for COVID-19, CDC recommends collecting and testing upper respiratory tract specimens (nasopharyngeal AND oropharyngeal swabs). CDC also recommends testing lower respiratory tract specimens, if available. For patients who develop a productive cough, sputum should be collected and tested for COVID-19. The induction of sputum is not recommended. For patients for whom it is clinically indicated (e.g., those receiving invasive mechanical ventilation), a lower respiratory tract aspirate or bronchoalveolar lavage sample should be collected and tested as a lower respiratory tract specimen. Specimens should be collected as soon as possible once a PUI is identified, regardless of the time of symptom onset. See Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Patients Under Investigation (PUIs) for COVID-19 and Biosafety FAQs for handling and processing specimens from suspected cases and PUIs.

Interim Guidance for Collection and Submission of Postmortem Specimens from Deceased Persons Under Investigation (PUI) for COVID-19, February 2020

State and local health departments who have identified a Persons Under Investigation (PUI) should immediately notify CDC's Emergency Operations Center (EOC) at 770-488-7100 to report a deceased PUI and determine whether testing for SARS-CoV-2, the virus that causes COVID-19, at CDC is indicated. The EOC will assist local/state health departments to collect, store, and ship specimens appropriately to CDC, including during afterhours or on weekends/holidays.

CDC is available for urgent consultation in the event that an autopsy on a COVID-19 PUI is being considered. CDC can be reached for urgent consultation by calling the EOC at 770-488-7100.

This interim guidance is based on what is currently known about COVID-19. The Centers for Disease Control and Prevention (CDC) will update this interim guidance as needed and as additional information becomes available.

The CDC is closely monitoring an outbreak of respiratory illness caused by a novel (new) coronavirus (named SARS-CoV-2); this illness is now called coronavirus disease 2019 or COVID-19. This virus was first identified in Wuhan, Hubei Province, China and it continues to spread. CDC is working across the Department of Health and Human Services and other parts of the U.S. government in the public health response to COVID-19.

Much is unknown about COVID-19. Current knowledge is largely based on what is known about similar coronaviruses. Coronaviruses are a large family of viruses that are common in many different species of animals, including camels, cattle, cats, and bats. Rarely, animal coronaviruses can infect people and then spread between people such as with MERS-CoV, SARS-CoV, and now with SARS-CoV-2, the virus that causes COVID-19. Most often, spread from a living person happens with close contact (i.e., within about 6 feet) via respiratory droplets produced when an infected person coughs or sneezes, similar to how influenza and other respiratory pathogens spread. This route of transmission is not a concern when handling human remains or performing postmortem procedures. Postmortem activities should be conducted with a focus on avoiding aerosol generating procedures, and ensuring that if aerosol generation is likely (e.g., when using an oscillating saw) that appropriate engineering controls and personal protective equipment (PPE) are used. These precautions and the use of Standard Precautions should ensure that appropriate work practices are used to prevent direct contact with infectious material, percutaneous injury, and hazards related to moving heavy remains and handling embalming chemicals.

This document provides specific guidance for the collection and submission of postmortem specimens from deceased persons under investigation (PUI) for COVID-19. This document also provides recommendations for biosafety and infection control practices during specimen collection and handling, including during autopsy procedures. The guidance can be utilized by medical examiners, coroners, pathologists, other workers involved in the postmortem care of deceased PUI, and local and state health departments.

The following factors should be considered when determining if an autopsy will be performed for a deceased PUI: medicolegal jurisdiction, facility environmental controls, availability of recommended personal protective equipment (PPE), and family and cultural wishes.

If an autopsy is performed, collection of the following postmortem specimens is recommended:

- Postmortem clinical specimens for testing for SARS-CoV-2, the virus that causes COVID-19:
 - Upper respiratory tract swabs: Nasopharyngeal Swab AND Oropharyngeal Swab (NP swab and OP swab)
 - Lower respiratory tract swab: Lung swab from each lung
- Separate clinical specimens for testing of other respiratory pathogens and other postmortem testing as indicated
- Formalin-fixed autopsy tissues from lung, upper airway, and other major organs

If an autopsy is NOT performed, collection of the following postmortem specimens is recommended:

- Postmortem clinical specimens for testing for SARS-CoV-2, the virus that causes COVID-19, to include only upper respiratory tract swabs: Nasopharyngeal Swab AND Oropharyngeal Swab (NP swab and OP swab)

- Separate NP swab and OP swab specimens for testing of other respiratory pathogens

Detailed guidance for postmortem specimen collection can be found in the section: Collection of Postmortem Clinical and Pathologic Specimens.

In addition to postmortem specimens, submission of any remaining clinical specimens (e.g., NP swab, OP swab, sputum, serum, stool) that may have been collected prior to death is recommended. Please refer to Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons Under Investigation (PUIs) for Coronavirus Disease 2019 (COVID-19) for more information.

Recommended Biosafety and Infection Control Practices

Collection of Postmortem Upper Respiratory Tract Swab Specimens

Individuals in the room during the procedure should be limited to healthcare personnel (HCP) obtaining the specimen. If HCP are not performing an autopsy or conducting aerosol generating procedures (AGPs), follow Standard Precautions.

Engineering Control Recommendations:

Since collection of nasopharyngeal and oropharyngeal swab specimens from deceased persons will not induce coughing or sneezing, a negative pressure room is not required. Personnel should adhere to Standard Precautions as described above.

PPE Recommendations:

The following PPE should be worn at a minimum:

- Wear nonsterile, nitrile gloves when handling potentially infectious materials.
- If there is a risk of cuts, puncture wounds, or other injuries that break the skin, wear heavy-duty gloves over the nitrile gloves.
- Wear a clean, long-sleeved fluid-resistant or impermeable gown to protect skin and clothing.
- Use a plastic face shield or a face mask and goggles to protect the face, eyes, nose, and mouth from splashes of potentially infectious bodily fluids.

Autopsy Procedures

Standard Precautions, Contact Precautions, and Airborne Precautions with eye protection (e.g., goggles or a face shield) should be followed during autopsy. Many of the following procedures are consistent with existing guidelines for safe work practices in the autopsy setting; see Guidelines for Safe Work Practices in Human and Animal Medical Diagnostic Laboratories.

- AGPs such as use of an oscillating bone saw should be avoided for confirmed or suspected cases of COVID-19. Consider using hand shears as an alternative cutting tool. If an oscillating saw is used, attach a vacuum shroud to contain aerosols.
- Allow only one person to cut at a given time.
- Limit the number of personnel working in the autopsy suite at any given time to the minimum number of people necessary to safely conduct the autopsy.

- Limit the number of personnel working on the human body at any given time.
- Use a biosafety cabinet for the handling and examination of smaller specimens and other containment equipment whenever possible.
- Use caution when handling needles or other sharps, and dispose of contaminated sharps in puncture-proof, labeled, closable sharps containers.
- A logbook including names, dates, and activities of all workers participating in the postmortem and cleaning of the autopsy suite should be kept to assist in future follow up, if necessary. Include custodian staff entering after hours or during the day.

Engineering Control Recommendations

Autopsies on decedents with known or suspected COVID-19 should be conducted in Airborne Infection Isolation Rooms (AIIRs). These rooms are at negative pressure to surrounding areas, have a minimum of 6 air changes per hour (ACH) for existing structures and 12 ACH for renovated or new structures, and have air exhausted directly outside or through a HEPA filter. Doors to the room should be kept closed except during entry and egress. If an AIIR is not available, ensure the room is negative pressure with no air recirculation to adjacent spaces. A portable HEPA recirculation unit could be placed in the room to provide further reduction in aerosols. Local airflow control (i.e., laminar flow systems) can be used to direct aerosols away from personnel. If use of an AIIR or HEPA unit is not possible, the procedure should be performed in the most protective environment possible. Air should never be returned to the building interior, but should be exhausted outdoors, away from areas of human traffic or gathering spaces and away from other air intake systems.

PPE Recommendations:

The following PPE should be worn during autopsy procedures:

- Double surgical gloves interposed with a layer of cut-proof synthetic mesh gloves
- Fluid-resistant or impermeable gown
- Waterproof apron
- Goggles or face shield
- NIOSH-certified disposable N-95 respirator or higher
 - Powered, air-purifying respirators (PAPRs) with HEPA filters may provide increased worker comfort during extended autopsy procedures.
 - When respirators are necessary to protect workers, employers must implement a comprehensive respiratory protection program in accordance with the OSHA Respiratory Protection standard (29 CFR 1910.134) that includes medical exams, fit-testing, and training.

Surgical scrubs, shoe covers, and surgical cap should be used per routine protocols. Doff (take off) PPE carefully to avoid contaminating yourself and before leaving the autopsy suite or adjacent anteroom (<https://www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf>).

After removing PPE, discard the PPE in the appropriate laundry or waste receptacle. Reusable PPE (e.g., goggles, face shields, and PAPRs) must be cleaned and disinfected according to the manufacturer's recommendations before reuse. Immediately after doffing PPE, wash hands with soap and water for 20 seconds. If hands are not visibly dirty and soap and water are not available, an alcohol-based hand sanitizer that contains 60%-95% alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water before using alcohol-based hand sanitizer. Avoid touching the face with gloved or unwashed hands. Ensure that hand hygiene facilities are readily available at the point of use (e.g., at or adjacent to the PPE doffing area).

Additional safety and health guidance is available for workers handling deceased persons under investigation (PUI) for COVID-19 at the Occupational Safety and Health Administration (OSHA), COVID-19 website.

Collection of Postmortem Clinical and Pathologic Specimens

Implementing proper biosafety and infection control practices is critical when collecting specimens. Please refer to Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Coronavirus Disease 2019 (COVID-19) for additional information.

Collection of Postmortem Clinical Specimens for SARS-CoV-2 Testing

CDC recommends collecting and testing postmortem upper respiratory specimens (nasopharyngeal and oropharyngeal swabs) and, if an autopsy is performed, lower respiratory specimens (lung swabs).

Use only synthetic fiber swabs with plastic shafts. Do not use calcium alginate swabs or swabs with wooden shafts, as they may contain substances that inactivate some viruses and inhibit PCR testing. Place swabs immediately into sterile tubes containing 2-3 ml of viral transport media. NP, OP, and lung swab specimens should be kept in separate vials. Refrigerate specimen at 2-8°C and ship overnight to CDC on ice pack.

Upper Respiratory Tract Specimen

Collection: Nasopharyngeal Swab AND Oropharyngeal Swabs (NP swab, OP swab)

- Nasopharyngeal swab: Insert a swab into the nostril parallel to the palate. Leave the swab in place for a few seconds to absorb secretions. Swab both nasopharyngeal areas with the same swab.
- Oropharyngeal swab (e.g., throat swab): Swab the posterior pharynx, avoiding the tongue.

Lower respiratory tract: Lung swabs

- Collect one swab from each lung.

Collection of Postmortem Clinical Specimens for Other Routine Diagnostic Testing

Separate clinical specimens (e.g., NP swab, OP swab, lung swabs) should be collected for routine testing of respiratory pathogens at either clinical or public health labs. Note that clinical laboratories should NOT attempt viral isolation from specimens collected from COVID-19 PUIs.

Other postmortem specimen collection and evaluations should be directed by the decedent's clinical and exposure history, scene investigation, and gross autopsy findings, and may include routine bacterial cultures, toxicology, and other studies as indicated.

Collection of Fixed Autopsy Tissue Specimens

The preferred specimens would be a minimum of eight blocks and fixed tissue specimens representing samples from the respiratory sites listed below in addition to specimens from major organs (including liver, spleen, kidney, heart, GI tract) and any other tissues showing significant gross pathology.

The recommended respiratory sites include:

1. Trachea (proximal and distal)
2. Central (hilar) lung with segmental bronchi, right and left primary bronchi
3. Representative pulmonary parenchyma from right and left lung

Viral antigens and nucleic acid may be focal or sparsely distributed in patients with respiratory viral infections and are most frequently detected in respiratory epithelium of large airways. For example, larger airways (particularly primary and segmental bronchi) have the highest yield for detection of respiratory viruses by molecular testing and immunohistochemistry (IHC) staining. Performance of specific immunohistochemical, molecular, or other assays will be determined using clinical and epidemiologic information provided by the submitter and the histopathologic features identified in the submitted tissue specimens.

Collection of tissue samples roughly 4-5 mm in thickness (i.e., sample would fit in a tissue cassette) is recommended for optimal fixation. The volume of formalin used to fix tissues should be 10x the volume of tissue. Place tissue in 10% buffered formalin for three days (72 hours) for optimal fixation.

Safely Preparing the Specimens for Shipment

After collecting and properly securing and labeling specimens in primary containers with the appropriate media/solution, they must be transferred from the autopsy suite in a safe manner to laboratory staff who can process them for shipping.

1. Within the autopsy suite, primary containers should be placed into a larger secondary container.
2. If possible, the secondary container should then be placed into a resealable plastic bag that was not in the autopsy suite when the specimens were collected.
3. The resealable plastic bag should then be placed into a biological specimen bag with absorbent material; and then can be transferred outside of the autopsy suite.
 - a. Workers receiving the biological specimen bag outside the autopsy suite or anteroom should wear disposable nitrile gloves.

Submission of Specimens to CDC

State and local health departments who have identified a PUI should immediately notify CDC's Emergency Operations Center (EOC) at 770-488-7100 to report a deceased PUI and determine whether SARS-CoV-2, the virus that causes COVID-19, testing at CDC is indicated. The EOC will assist local/state health departments to collect, store, and ship specimens appropriately to CDC, including during afterhours or on weekends/holidays.

Submission of Postmortem Clinical Specimens for SARS-CoV-2 Testing

This section applies to submission of postmortem NP swab, OP swab, and lung swabs

- Store specimens at 2-8°C and ship overnight to CDC on ice pack.
- Label each specimen container with the patient's ID number (e.g., medical record number), unique specimen ID (e.g., laboratory requisition number), specimen type (e.g., tissue), and the date the sample was collected.
- Complete a CDC Form 50.34 for each specimen submitted.
- In the upper left box of the form provide the following: (1) for test requested select "Respiratory virus molecular detection (non-influenza) CDC-10401" and (2) for At CDC, bring to the attention of enter "Stephen Lindstrom: 2019-nCoV PUI – Autopsy specimens".

Clinical specimens from COVID-19 PUIs must be packaged, shipped, and transported according to the current edition of the International Air Transport Association (IATA) Dangerous Goods Regulations. Store specimens at 2-8°C and ship overnight to CDC on ice pack. If a specimen is frozen at -70°C ship overnight to CDC on dry ice. Additional useful and detailed information on packing, shipping, and transporting specimens can be found at Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Coronavirus 2019 (COVID-19).

Submission of Fixed Autopsy Tissue Specimens

CDC's Infectious Diseases Pathology Branch will perform histopathologic evaluation; testing for SARS-CoV-2, as well as other respiratory viral pathogens (e.g., influenza); and bacterial and other infections, as indicated.

Paraffin-embedded tissue blocks

In general, this is the preferred specimen and is especially important to submit in cases where tissues have been in formalin for a significant time. Prolonged fixation (>2 weeks) may interfere with some immunohistochemical and molecular diagnostic assays.

Wet tissue

If available, we highly recommend that unprocessed tissues in 10% neutral buffered formalin be submitted in addition to paraffin blocks.

Requirements for submitting fixed tissues to CDC

A. Contact CDC's Infectious Diseases Pathology Branch at pathology@cdc.gov who will provide a pre-populated CDC Form 50.34 for your convenience. Include in the email:

1. A brief clinical history
2. A description of gross or histopathologic findings in the tissues to be submitted

B. After you receive email approval from pathology@cdc.gov:

1. Electronically fill, save, and print both pages of the CDC Form 50.34.
2. In the upper left box of the form, Select Test Order Code CDC-10365 ("Pathologic Evaluation of Tissues for Possible Infectious Etiologies")
3. Enter "COVID-19 PUI" and provide any applicable CDC and

State Case ID numbers in the Comments section on Page 2 of the CDC 50.34 form.

4. In addition to the CDC 50.34 form, enclose the following in the specimen submission package:
 1. Surgical pathology, autopsy report (preliminary is acceptable), or both
 2. Relevant clinical notes, including admission History and Physical (H&P), discharge summary, if applicable

C.Mailing/Contact Info:

1. Formalin-fixed wet tissues and/or formalin-fixed paraffin-embedded tissue blocks should be shipped in suitable packaging at ambient temperature. Do not freeze fixed tissues.
2. Ship to: Dr. Sherif Zaki, CDC, IDPB, 1600 Clifton Rd NE, MS: H18-SB, Atlanta, GA 30329-4027
3. Send tracking number to pathology@cdc.gov
4. Tel: 404-639-3132, Fax: 404-639-3043, Email: pathology@cdc.gov

Cleaning and Waste Disposal Recommendations

The following are general guidelines for cleaning and waste disposal following an autopsy of a decedent with confirmed or suspected COVID-19. The surface persistence of SARS-CoV-2 is uncertain at this time. Other coronaviruses such as those that cause MERS and SARS can persist on nonporous surfaces for 24 hours or more.

Routine cleaning and disinfection procedures (e.g., using cleaners and

water to pre-clean surfaces prior to applying an Environmental Protection Agency (EPA)-registered, hospital-grade disinfectant for appropriate contact times as indicated on the product's label) are appropriate for COVID-19 in these settings.

After an autopsy of a decedent with confirmed or suspected COVID-19, the following recommendations apply for the autopsy room (and anteroom if applicable):

- Keep ventilation systems active while cleaning is conducted.
- Wear disposable gloves recommended by the manufacturer of the cleaner or disinfectant while cleaning and when handling cleaning or disinfecting solutions.
 - Dispose of gloves if they become damaged or soiled and when cleaning is completed, as described below. Never wash or reuse gloves.
- Use eye protection, such as a faceshield or goggles, if splashing of water, cleaner/disinfectant, or other fluids, is expected.
- Use respiratory protection if required on cleaner or disinfectant label.
- Ensure workers are trained on OSHA's Hazard Communication standard, 29 CFR 1910.1200, to communicate with workers about the hazardous chemicals used in the workplace.
- Wear a clean, long-sleeved fluid-resistant gown to protect skin and clothing.
- Use disinfectants with EPA-approved products with label claims against human coronaviruses. All products should be used according to label instructions.
 - Clean the surface first, and then apply the disinfectant as instructed on the disinfectant manufacturer's label. Ensure adequate contact time for effective disinfection.
 - Adhere to any safety precautions or other label

recommendations as directed (e.g., allowing adequate ventilation in confined areas and proper disposal of unused product or used containers).

- Avoid using product application methods that cause splashing or generate aerosols.
- Cleaning activities should be supervised and inspected periodically to ensure correct procedures are followed.
- Do not use compressed air and/or water under pressure for cleaning, or any other methods that can cause splashing or might re-aerosolize infectious material.
- Gross contamination and liquids should be collected with absorbent materials, such as towels, by staff conducting the autopsy wearing designated PPE. Gross contamination and liquids should then be disposed of as described below:
 - Use of tongs and other utensils can minimize the need for personal contact with soiled absorbent materials.
 - Large areas contaminated with body fluids should be treated with disinfectant following removal of the fluid with absorbent material. The area should then be cleaned and given a final disinfection.
 - Small amounts of liquid waste (e.g., body fluids) can be flushed or washed down ordinary sanitary drains without special procedures.
 - Hard, nonporous surfaces may then be cleaned and disinfected as described above.
- Follow standard operating procedures for the containment and disposal of used PPE and regulated medical waste. SARS-CoV-2 is not considered a Category A infectious substance. State and local governments should be consulted for appropriate disposal decisions.

- Dispose of human tissues according to routine procedures for pathological waste.
- Clean and disinfect or autoclave non-disposable instruments using routine procedures, taking appropriate precautions with sharp objects.
- Materials or clothing that will be laundered can be removed from the autopsy suite (or anteroom, if applicable) in a sturdy, leak-proof biohazard bag that is tied shut and not reopened. These materials should then be sent for laundering according to routine procedures.
- Wash reusable, non-launderable items (e.g., aprons) with detergent solution, decontaminate using disinfectant, rinse with water, and allow items to dry before next use.
- Keep camera, telephones, computer keyboards, and other items that remain in the autopsy suite (or anteroom, if applicable) as clean as possible, but treat as if they are contaminated and handle with gloves. Wipe the items with appropriate disinfectant after use. If being removed from the autopsy suite, ensure complete decontamination with appropriate disinfectant according to the manufacturer's recommendations prior to removal and reuse.
- When cleaning is complete and PPE has been removed, wash hands immediately with soap and water for 20 seconds. If hands are not visibly dirty and soap and water are not available, an alcohol-based hand sanitizer that contains 60%-95% alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water before using alcohol-based hand sanitizer. Avoid touching the face with gloved or unwashed hands. Ensure that hand hygiene facilities are readily available at the point of use (e.g., at or adjacent to the PPE doffing area).

Transportation of Human Remains

Follow standard routine procedures when transporting the body after specimens have been collected and the body has been bagged. Disinfect the outside of the bag with an EPA-registered hospital disinfectant applied according to the manufacturer's recommendations. Wear disposable nitrile gloves when handling the body bag.

Interim Guidance for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19 in the United States

This guidance applies to all first responders, including law enforcement, fire services, emergency medical services, and emergency management officials, who anticipate close contact with persons with confirmed or possible COVID-19 in the course of their work.

Summary of Key Changes for the EMS Guidance:

- Updated PPE recommendations for the care of patients with known or suspected COVID-19:
 - Facemasks are an acceptable alternative until the supply chain is restored. Respirators should be prioritized for

procedures that are likely to generate respiratory aerosols, which would pose the highest exposure risk to HCP.

- Eye protection, gown, and gloves continue to be recommended.
 - If there are shortages of gowns, they should be prioritized for aerosol-generating procedures, care activities where splashes and sprays are anticipated, and high-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of HCP.
- When the supply chain is restored, fit-tested EMS clinicians should return to use of respirators for patients with known or suspected COVID-19.
- Updated guidance about recommended EPA-registered disinfectants to include reference to a list now posted on the EPA website.

Background

Emergency medical services (EMS) play a vital role in responding to requests for assistance, triaging patients, and providing emergency medical treatment and transport for ill persons. However, unlike patient care in the controlled environment of a healthcare facility, care and transports by EMS present unique challenges because of the nature of the setting, enclosed space during transport, frequent need for rapid medical decision-making, interventions with limited information, and a varying range of patient acuity and jurisdictional healthcare resources.

When preparing for and responding to patients with confirmed or possible coronavirus disease 2019 (COVID-19), close coordination and effective communications are important among 911 Public Safety Answering Points (PSAPs)—commonly known as 911 call centers, the EMS system, healthcare facilities, and the public health system. Each PSAP

and EMS system should seek the involvement of an EMS medical director to provide appropriate medical oversight. For the purposes of this guidance, “EMS clinician” means prehospital EMS and medical first responders. When COVID-19 is suspected in a patient needing emergency transport, prehospital care providers and healthcare facilities should be notified in advance that they may be caring for, transporting, or receiving a patient who may have COVID-19 infection.

Updated information about COVID-19 may be accessed at <https://www.cdc.gov/coronavirus/2019-ncov/index.html>. Infection prevention and control recommendations can be found here: <https://www.cdc.gov/coronavirus/2019-nCoV/hcp/infection-control.html>. Additional information for healthcare personnel can be found at <https://www.cdc.gov/coronavirus/2019-nCoV/guidance-hcp.html>.

Case Definition for COVID-19

CDC’s most current case definition for a person under investigation (PUI) for COVID-19 may be accessed at <https://www.cdc.gov/coronavirus/2019-nCoV/clinical-criteria.html>.

Recommendations for 911 PSAPs

Municipalities and local EMS authorities should coordinate with state and local public health, PSAPs, and other emergency call centers to determine need for modified caller queries about COVID-19, outlined below.

Development of these modified caller queries should be closely coordinated with an EMS medical director and informed by local, state, and federal public health authorities, including the city or county health department(s), state health department(s), and CDC.

Modified Caller Queries

PSAPs or Emergency Medical Dispatch (EMD) centers (as appropriate) should question callers and determine the possibility that this call concerns a person who may have signs or symptoms and risk factors for COVID-19. The query process should never supersede the provision of pre-arrival instructions to the caller when immediate lifesaving interventions (e.g., CPR or the Heimlich maneuver) are indicated. Patients in the United States who meet the appropriate criteria should be evaluated and transported as a PUI. Information on COVID-19 will be updated as the public health response proceeds. PSAPs and medical directors can access CDC's PUI definitions [here](#).

Information on a possible PUI should be communicated immediately to EMS clinicians before arrival on scene in order to allow use of appropriate personal protective equipment (PPE). PSAPs should utilize medical dispatch procedures that are coordinated with their EMS medical director and with the local or state public health department.

PSAPs and EMS units that respond to ill travelers at US international airports or other ports of entry to the United States (maritime ports or border crossings) should be in contact with the CDC quarantine station of jurisdiction for the port of entry (see: CDC Quarantine Station Contact List) for planning guidance. They should notify the quarantine station when responding to that location if a communicable disease is suspected in a traveler. CDC has provided job aids for this purpose to EMS units operating routinely at US ports of entry. The PSAP or EMS unit can also call CDC's Emergency Operations Center at (770) 488-7100 to be connected with the appropriate CDC quarantine station.

Recommendations for EMS Clinicians and Medical First Responders

EMS clinician practices should be based on the most up-to-date COVID-19 clinical recommendations and information from appropriate public

health authorities and EMS medical direction.

State and local EMS authorities may direct EMS clinicians to modify their practices as described below.

Patient assessment

- If PSAP call takers advise that the patient is suspected of having COVID-19, EMS clinicians should put on appropriate PPE before entering the scene. EMS clinicians should consider the signs, symptoms, and risk factors of COVID-19 (<https://www.cdc.gov/coronavirus/2019-nCoV/clinical-criteria.html>).
- If information about potential for COVID-19 has not been provided by the PSAP, EMS clinicians should exercise appropriate precautions when responding to any patient with signs or symptoms of a respiratory infection. Initial assessment should begin from a distance of at least 6 feet from the patient, if possible. Patient contact should be minimized to the extent possible until a facemask is on the patient. If COVID-19 is suspected, all PPE as described below should be used. If COVID-19 is not suspected, EMS clinicians should follow standard procedures and use appropriate PPE for evaluating a patient with a potential respiratory infection.
- A facemask should be worn by the patient for source control. If a nasal cannula is in place, a facemask should be worn over the nasal cannula. Alternatively, an oxygen mask can be used if clinically indicated. If the patient requires intubation, see below for additional precautions for aerosol-generating procedures.
- During transport, limit the number of providers in the patient compartment to essential personnel to minimize possible exposures.

Recommended Personal Protective

Equipment (PPE)

- EMS clinicians who will directly care for a patient with possible COVID-19 infection or who will be in the compartment with the patient should follow Standard, Precautions and use the PPE as described below. Recommended PPE includes:
 - N-95 or higher-level respirator or facemask (if a respirator is not available),
 - N95 respirators or respirators that offer a higher level of protection should be used instead of a facemask when performing or present for an aerosol-generating procedure
 - Eye protection (i.e., goggles or disposable face shield that fully covers the front and sides of the face). Personal eyeglasses and contact lenses are NOT considered adequate eye protection.
 - A single pair of disposable patient examination gloves. Change gloves if they become torn or heavily contaminated, and isolation gown.,
 - If there are shortages of gowns, they should be prioritized for aerosol-generating procedures, care activities where splashes and sprays are anticipated, and high-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of EMS clinicians (e.g., moving patient onto a stretcher).
- When the supply chain is restored, fit-tested EMS clinicians should return to use of respirators for patients with known or suspected COVID-19.
- Drivers, if they provide direct patient care (e.g., moving patients onto stretchers), should wear all recommended PPE. After completing patient care and before entering an isolated driver's compartment, the driver should remove and dispose of PPE and

perform hand hygiene to avoid soiling the compartment.

- If the transport vehicle does not have an isolated driver's compartment, the driver should remove the face shield or goggles, gown and gloves and perform hand hygiene. A respirator or facemask should continue to be used during transport.
- All personnel should avoid touching their face while working.
- On arrival, after the patient is released to the facility, EMS clinicians should remove and discard PPE and perform hand hygiene. Used PPE should be discarded in accordance with routine procedures.
- Other required aspects of Standard Precautions (e.g., injection safety, hand hygiene) are not emphasized in this document but can be found in the guideline titled Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.

Precautions for Aerosol-Generating Procedures

- If possible, consult with medical control before performing aerosol-generating procedures for specific guidance.
- An N-95 or higher-level respirator, instead of a facemask, should be worn in addition to the other PPE described above, for EMS clinicians present for or performing aerosol-generating procedures.,
- EMS clinicians should exercise caution if an aerosol-generating procedure (e.g., bag valve mask (BVM) ventilation, oropharyngeal suctioning, endotracheal intubation, nebulizer treatment, continuous positive airway pressure (CPAP), bi-phasic positive airway pressure (biPAP), or resuscitation involving emergency intubation or cardiopulmonary resuscitation (CPR)) is necessary.

- BVMs, and other ventilatory equipment, should be equipped with HEPA filtration to filter expired air.
- EMS organizations should consult their ventilator equipment manufacturer to confirm appropriate filtration capability and the effect of filtration on positive-pressure ventilation.
- If possible, the rear doors of the transport vehicle should be opened and the HVAC system should be activated during aerosol-generating procedures. This should be done away from pedestrian traffic.

EMS Transport of a PUI or Patient with Confirmed COVID-19 to a Healthcare Facility (including interfacility transport)

If a patient with an exposure history and signs and symptoms suggestive of COVID-19 requires transport to a healthcare facility for further evaluation and management (subject to EMS medical direction), the following actions should occur during transport:

- EMS clinicians should notify the receiving healthcare facility that the patient has an exposure history and signs and symptoms suggestive of COVID-19 so that appropriate infection control precautions may be taken prior to patient arrival.
- Keep the patient separated from other people as much as possible.
- Family members and other contacts of patients with possible COVID-19 should not ride in the transport vehicle, if possible. If riding in the transport vehicle, they should wear a facemask.
- Isolate the ambulance driver from the patient compartment and keep pass-through doors and windows tightly shut.
- When possible, use vehicles that have isolated driver and patient

compartments that can provide separate ventilation to each area.

- Close the door/window between these compartments before bringing the patient on board.
- During transport, vehicle ventilation in both compartments should be on non-recirculated mode to maximize air changes that reduce potentially infectious particles in the vehicle.
- If the vehicle has a rear exhaust fan, use it to draw air away from the cab, toward the patient-care area, and out the back end of the vehicle.
- Some vehicles are equipped with a supplemental recirculating ventilation unit that passes air through HEPA filters before returning it to the vehicle. Such a unit can be used to increase the number of air changes per hour (ACH) (<https://www.cdc.gov/niosh/hhe/reports/pdfs/1995-0031-2601.pdf>).
- If a vehicle without an isolated driver compartment and ventilation must be used, open the outside air vents in the driver area and turn on the rear exhaust ventilation fans to the highest setting. This will create a negative pressure gradient in the patient area.
- Follow routine procedures for a transfer of the patient to the receiving healthcare facility (e.g., wheel the patient directly into an examination room).

Documentation of patient care

- Documentation of patient care should be done after EMS clinicians have completed transport, removed their PPE, and performed hand hygiene.
 - Any written documentation should match the verbal communication given to the emergency department providers

at the time patient care was transferred.

- EMS documentation should include a listing of EMS clinicians and public safety providers involved in the response and level of contact with the patient (for example, no contact with patient, provided direct patient care). This documentation may need to be shared with local public health authorities.

Cleaning EMS Transport Vehicles after Transporting a PUI or Patient with Confirmed COVID-19

The following are general guidelines for cleaning or maintaining EMS transport vehicles and equipment after transporting a PUI:

- After transporting the patient, leave the rear doors of the transport vehicle open to allow for sufficient air changes to remove potentially infectious particles.
 - The time to complete transfer of the patient to the receiving facility and complete all documentation should provide sufficient air changes.
- When cleaning the vehicle, EMS clinicians should wear a disposable gown and gloves. A face shield or facemask and goggles should also be worn if splashes or sprays during cleaning are anticipated.
- Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly, to include the provision of adequate ventilation when chemicals are in use. Doors should remain open when cleaning the vehicle.
- Routine cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying an EPA-registered, hospital-grade disinfectant to frequently touched

surfaces or objects for appropriate contact times as indicated on the product's label) are appropriate for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in healthcare settings, including those patient-care areas in which aerosol-generating procedures are performed.

- Products with EPA-approved emerging viral pathogens claims are recommended for use against SARS-CoV-2. Refer to List N on the EPA website for EPA-registered disinfectants that have qualified under EPA's emerging viral pathogens program for use against SARS-CoV-2.
- Clean and disinfect the vehicle in accordance with standard operating procedures. All surfaces that may have come in contact with the patient or materials contaminated during patient care (e.g., stretcher, rails, control panels, floors, walls, work surfaces) should be thoroughly cleaned and disinfected using an EPA-registered hospital grade disinfectant in accordance with the product label.
- Clean and disinfect reusable patient-care equipment before use on another patient, according to manufacturer's instructions.
- Follow standard operating procedures for the containment and disposal of used PPE and regulated medical waste.
- Follow standard operating procedures for containing and laundering used linen. Avoid shaking the linen.

Follow-up and/or Reporting Measures by EMS Clinicians After Caring for a PUI or Patient with Confirmed COVID-19

EMS clinicians should be aware of the follow-up and/or reporting measures they should take after caring for a PUI or patient with confirmed COVID-19:

- State or local public health authorities should be notified about the patient so appropriate follow-up monitoring can occur.
- EMS agencies should develop policies for assessing exposure risk and management of EMS personnel potentially exposed to SARS-CoV-2 in coordination with state or local public health authorities. Decisions for monitoring, excluding from work, or other public health actions for HCP with potential exposure to SARS-CoV-2 should be made in consultation with state or local public health authorities. Refer to the Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease 2019 (COVID-19) for additional information.
- EMS agencies should develop sick-leave policies for EMS personnel that are nonpunitive, flexible, and consistent with public health guidance. Ensure all EMS personnel, including staff who are not directly employed by the healthcare facility but provide essential daily services, are aware of the sick-leave policies.
- EMS personnel who have been exposed to a patient with suspected or confirmed COVID-19 should notify their chain of command to ensure appropriate follow-up.
 - Any unprotected exposure (e.g., not wearing recommended PPE) should be reported to occupational health services, a supervisor, or a designated infection control officer for evaluation.
 - EMS clinicians should be alert for fever or respiratory symptoms (e.g., cough, shortness of breath, sore throat). If symptoms develop, they should self-isolate and notify occupational health services and/or their public health authority to arrange for appropriate evaluation.

EMS Employer Responsibilities

The responsibilities described in this section are not specific for the care and transport of PUIs or patients with confirmed COVID-19. However, this interim guidance presents an opportunity to assess current practices and verify that training and procedures are up-to-date.

- EMS units should have infection control policies and procedures in place, including describing a recommended sequence for safely donning and doffing PPE.
- Provide all EMS clinicians with job- or task-specific education and training on preventing transmission of infectious agents, including refresher training.
- Ensure that EMS clinicians are educated, trained, and have practiced the appropriate use of PPE prior to caring for a patient, including attention to correct use of PPE and prevention of contamination of clothing, skin, and environment during the process of removing such equipment.
- Ensure EMS clinicians are medically cleared, trained, and fit tested for respiratory protection device use (e.g., N95 filtering facepiece respirators), or medically cleared and trained in the use of an alternative respiratory protection device (e.g., Powered Air-Purifying Respirator, PAPR) whenever respirators are required. OSHA has a number of respiratory training videos.
- EMS units should have an adequate supply of PPE.
- Ensure an adequate supply of or access to EPA-registered hospital grade disinfectants (see above for more information) for adequate decontamination of EMS transport vehicles and their contents.
- Ensure that EMS clinicians and biohazard cleaners contracted by the EMS employer tasked to the decontamination process are educated, trained, and have practiced the process according to the manufacturer's recommendations or the EMS agency's standard operating procedures.

Infection Control



Guidance

- Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings
- Interim Guidance for Collection and Submission of Postmortem Specimens from Deceased Persons Under Investigation (PUI) for COVID-19 (Recommended Biosafety and Infection Control Practices)

Frequently Asked Questions: Healthcare Infection Prevention and Control

Frequently Asked Questions about Personal Protective Equipment

Personal Protective Equipment (PPE) Supply Resources

- Strategies for Optimizing Supply of N95 Respirators
- Healthcare Supply of Personal Protective Equipment
- Checklist for Healthcare Facilities: Strategies for Optimizing the Supply of N95 Respirators
- Release of Stockpiled N95 Filtering Facepiece Respirators Beyond the Manufacturer-Designated Shelf Life

Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings

Summary of Changes to the Guidance:

- Updated PPE recommendations for the care of patients with known or suspected COVID-19:
 - Based on local and regional situational analysis of PPE supplies, facemasks are an acceptable alternative when

the supply chain of respirators cannot meet the demand. During this time, available respirators should be prioritized for procedures that are likely to generate respiratory aerosols, which would pose the highest exposure risk to HCP.

- Facemasks protect the wearer from splashes and sprays.
- Respirators, which filter inspired air, offer respiratory protection.
- When the supply chain is restored, facilities with a respiratory protection program should return to use of respirators for patients with known or suspected COVID-19. Facilities that do not currently have a respiratory protection program, but care for patients infected with pathogens for which a respirator is recommended, should implement a respiratory protection program.
- Eye protection, gown, and gloves continue to be recommended.
- If there are shortages of gowns, they should be prioritized for aerosol-generating procedures, care activities where splashes and sprays are anticipated, and high-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of HCP.
- Included are considerations for designating entire units within the facility, with dedicated HCP, to care for known or suspected COVID-19 patients and options for extended use of respirators, facemasks, and eye protection on such units. Updated recommendations regarding need for an airborne infection isolation room (AIIR).
 - Patients with known or suspected COVID-19 should be

cared for in a single-person room with the door closed. Airborne Infection Isolation Rooms (AIIRs) (See definition of AIIR in appendix) should be reserved for patients undergoing aerosol-generating procedures (See Aerosol-Generating Procedures Section)

- Updated information in the background is based on currently available information about COVID-19 and the current situation in the United States, which includes reports of cases of community transmission, infections identified in healthcare personnel (HCP), and shortages of facemasks, N95 filtering facepiece respirators (FFRs) (commonly known as N95 respirators), and gowns.
 - Increased emphasis on early identification and implementation of source control (i.e., putting a face mask on patients presenting with symptoms of respiratory infection).

Healthcare Personnel (HCP)

For the purposes of this document, HCP refers to all paid and unpaid persons serving in healthcare settings who have the potential for direct or indirect exposure to patients or infectious materials, including:

- body substances
- contaminated medical supplies, devices, and equipment
- contaminated environmental surfaces
- contaminated air

Frequently Asked Questions: Healthcare Infection Prevention and Control

Background

This interim guidance has been updated based on currently available information about COVID-19 and the current situation in the United States, which includes reports of cases of community transmission, infections identified in healthcare personnel (HCP), and shortages of facemasks, N95 filtering facepiece respirators (FFRs) (commonly known as N95 respirators), and gowns. Here is what is currently known:

This guidance is applicable to all U.S. healthcare settings. This guidance is not intended for non-healthcare settings (e.g., schools) OR for persons outside of healthcare settings. For recommendations regarding clinical management, air or ground medical transport, or laboratory settings, refer to the main CDC COVID-19 website.

Mode of transmission: Early reports suggest person-to-person transmission most commonly happens during close exposure to a person infected with COVID-19, primarily via respiratory droplets produced when the infected person coughs or sneezes. Droplets can land in the mouths, noses, or eyes of people who are nearby or possibly be inhaled into the lungs of those within close proximity. The contribution of small respirable particles, sometimes called aerosols or droplet nuclei, to close proximity transmission is currently uncertain. However, airborne transmission from person-to-person over long distances is unlikely.

Shortage of personal protective equipment: Controlling exposures to occupational infections is a fundamental method of protecting HCP.

Traditionally, a hierarchy of controls has been used as a means of determining how to implement feasible and effective control solutions. The hierarchy ranks controls according to their reliability and effectiveness and includes such controls as engineering controls, administrative controls, and ends with personal protective equipment (PPE). PPE is the least effective control because it involves a high level of worker involvement and is highly dependent on proper fit and correct, consistent use.

Major distributors in the United States have reported shortages of PPE, specifically N95 respirators, facemasks, and gowns. Healthcare facilities are responsible for protecting their HCP from exposure to pathogens, including by providing appropriate PPE.

In times of shortages, alternatives to N95s should be considered, including other classes of FFRs, elastomeric half-mask and full facepiece air purifying respirators, and powered air purifying respirators (PAPRs) where feasible. Special care should be taken to ensure that respirators are reserved for situations where respiratory protection is most important, such as performance of aerosol-generating procedures on suspected or confirmed COVID-19 patients or provision of care to patients with other infections for which respiratory protection is strongly indicated (e.g., tuberculosis, measles, varicella).

The anticipated timeline for return to routine levels of PPE is not yet known. Information about strategies to optimize the current supply of N95 respirators, including the use of devices that provide higher levels of respiratory protection (e.g., powered air purifying respirators [PAPRs]) when N95s are in limited supply and a companion checklist to help healthcare facilities prioritize the implementation of the strategies, is available.

Capacity across the healthcare continuum: Use of N95 or higher-level respirators are recommended for HCP who have been medically cleared, trained, and fit-tested, in the context of a facility's respiratory protection program. The majority of nursing homes and outpatient clinics, including

hemodialysis facilities, do not have respiratory protection programs nor have they fit-tested HCP, hampering implementation of recommendations in the previous version of this guidance. This can lead to unnecessary transfer of patients with known or suspected COVID-19 to another facility (e.g., acute care hospital) for evaluation and care. In areas with community transmission, acute care facilities will be quickly overwhelmed by transfers of patients who have only mild illness and do not require hospitalization.

Many of the recommendations described in this guidance (e.g., triage procedures, source control) should already be part of an infection control program designed to prevent transmission of seasonal respiratory infections. As it will be challenging to distinguish COVID-19 from other respiratory infections, interventions will need to be applied broadly and not limited to patients with confirmed COVID-19.

This guidance is applicable to all U.S. healthcare settings. This guidance is not intended for non-healthcare settings (e.g., schools) OR for persons outside of healthcare settings. For recommendations regarding clinical management, air or ground medical transport, or laboratory settings, refer to the main CDC COVID-19 website.

Definition of Healthcare Personnel (HCP) –For the purposes of this document, HCP refers to all paid and unpaid persons serving in healthcare settings who have the potential for direct or indirect exposure to patients or infectious materials, including body substances; contaminated medical supplies, devices, and equipment; contaminated environmental surfaces; or contaminated air.

Recommendations

1. Minimize Chance for Exposures

Ensure facility policies and practices are in place to minimize exposures

to respiratory pathogens including SARS-CoV-2, the virus that causes COVID-19. Measures should be implemented before patient arrival, upon arrival, throughout the duration of the patient's visit, and until the patient's room is cleaned and disinfected. It is particularly important to protect individuals at increased risk for adverse outcomes from COVID-19 (e.g. older individuals with comorbid conditions), including HCP who are in a recognized risk category.

- Before Arrival

- When scheduling appointments for routine medical care (e.g., annual physical, elective surgery), instruct patients to call ahead and discuss the need to reschedule their appointment if they develop symptoms of a respiratory infection (e.g., cough, sore throat, fever¹) on the day they are scheduled to be seen.
- When scheduling appointments for patients requesting evaluation for a respiratory infection, use nurse-directed triage protocols to determine if an appointment is necessary or if the patient can be managed from home.
 - If the patient must come in for an appointment, instruct them to call beforehand to inform triage personnel that they have symptoms of a respiratory infection (e.g., cough, sore throat, fever¹) and to take appropriate preventive actions (e.g., follow triage procedures, wear a facemask upon entry and throughout their visit or, if a facemask cannot be tolerated, use a tissue to contain respiratory secretions).
- If a patient is arriving via transport by emergency medical services (EMS), EMS personnel should contact the receiving emergency department (ED) or healthcare facility and follow previously agreed upon local or regional transport protocols. This will allow the healthcare facility to prepare for receipt of the patient.

- Upon Arrival and During the Visit

- Consider limiting points of entry to the facility.
- Take steps to ensure all persons with symptoms of COVID-19 or other respiratory infection (e.g., fever, cough) adhere to respiratory hygiene and cough etiquette (see appendix), hand hygiene, and triage procedures throughout the duration of the visit.
 - Post visual alerts (e.g., signs, posters) at the entrance and in strategic places (e.g., waiting areas, elevators, cafeterias) to provide patients and HCP with instructions (in appropriate languages) about hand hygiene, respiratory hygiene, and cough etiquette. Instructions should include how to use tissues to cover nose and mouth when coughing or sneezing, to dispose of tissues and contaminated items in waste receptacles, and how and when to perform hand hygiene.
 - Provide supplies for respiratory hygiene and cough etiquette, including alcohol-based hand rub (ABHR) with 60-95% alcohol, tissues, and no-touch receptacles for disposal, at healthcare facility entrances, waiting rooms, and patient check-ins.
 - Install physical barriers (e.g., glass or plastic windows) at reception areas to limit close contact between triage personnel and potentially infectious patients.
 - Consider establishing triage stations outside the facility to screen patients before they enter.
- Ensure rapid safe triage and isolation of patients with symptoms of suspected COVID-19 or other respiratory infection (e.g., fever, cough).
 - Prioritize triage of patients with respiratory symptoms.
 - Triage personnel should have a supply of facemasks and tissues for patients with symptoms of respiratory infection.

These should be provided to patients with symptoms of respiratory infection at check-in. Source control (putting a facemask over the mouth and nose of a symptomatic patient) can help to prevent transmission to others.

- Ensure that, at the time of patient check-in, all patients are asked about the presence of symptoms of a respiratory infection and history of travel to areas experiencing transmission of COVID-19 or contact with possible COVID-19 patients.
- Isolate the patient in an examination room with the door closed. If an examination room is not readily available ensure the patient is not allowed to wait among other patients seeking care.
- Identify a separate, well-ventilated space that allows waiting patients to be separated by 6 or more feet, with easy access to respiratory hygiene supplies.
- In some settings, patients might opt to wait in a personal vehicle or outside the healthcare facility where they can be contacted by mobile phone when it is their turn to be evaluated.
- Incorporate questions about new onset of respiratory symptoms into daily assessments of all admitted patients. Monitor for and evaluate all new fevers and respiratory illnesses among patients. Place any patient with unexplained fever or respiratory symptoms on appropriate Transmission-Based Precautions and evaluate.

Additional considerations during periods of community transmission:

- Explore alternatives to face-to-face triage and visits.
- Learn more about how healthcare facilities can Prepare for Community Transmission
- Designate an area at the facility (e.g., an ancillary building or

temporary structure) or identify a location in the area to be a “respiratory virus evaluation center” where patients with fever or respiratory symptoms can seek evaluation and care.

- Cancel group healthcare activities (e.g., group therapy, recreational activities).
- Postpone elective procedures, surgeries, and non-urgent outpatient visits.

2. Adhere to Standard and Transmission-Based Precautions

Standard Precautions assume that every person is potentially infected or colonized with a pathogen that could be transmitted in the healthcare setting. Elements of Standard Precautions that apply to patients with respiratory infections, including COVID-19, are summarized below. Attention should be paid to training and proper donning (putting on), doffing (taking off), and disposal of any PPE. This document does not emphasize all aspects of Standard Precautions (e.g., injection safety) that are required for all patient care; the full description is provided in the Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.

HCP (see Section 5 for measures for non-HCP visitors) who enter the room of a patient with known or suspected COVID-19 should adhere to Standard Precautions and use a respirator or facemask, gown, gloves, and eye protection. When available, respirators (instead of facemasks) are preferred; they should be prioritized for situations where respiratory protection is most important and the care of patients with pathogens requiring Airborne Precautions (e.g., tuberculosis, measles, varicella). Information about the recommended duration of Transmission-Based Precautions is available in the Interim Guidance for Discontinuation of Transmission-Based Precautions and Disposition of Hospitalized Patients

with COVID-19

- Hand Hygiene
 - HCP should perform hand hygiene before and after all patient contact, contact with potentially infectious material, and before putting on and after removing PPE, including gloves. Hand hygiene after removing PPE is particularly important to remove any pathogens that might have been transferred to bare hands during the removal process.
 - HCP should perform hand hygiene by using ABHR with 60-95% alcohol or washing hands with soap and water for at least 20 seconds. If hands are visibly soiled, use soap and water before returning to ABHR.
 - Healthcare facilities should ensure that hand hygiene supplies are readily available to all personnel in every care location.
- Personal Protective Equipment
- Employers should select appropriate PPE and provide it to HCP in accordance with OSHA PPE standards (29 CFR 1910 Subpart I). HCP must receive training on and demonstrate an understanding of:
 - when to use PPE
 - what PPE is necessary
 - how to properly don, use, and doff PPE in a manner to prevent self-contamination
 - how to properly dispose of or disinfect and maintain PPE
 - the limitations of PPE.

Any reusable PPE must be properly cleaned, decontaminated, and maintained after and between uses. Facilities should have policies and procedures describing a recommended sequence for safely donning and doffing PPE. The PPE recommended when caring for a patient with known or suspected COVID-19 includes:

- Respirator or Facemask
 - Put on a respirator or facemask (if a respirator is not available) before entry into the patient room or care area.
 - N95 respirators or respirators that offer a higher level of protection should be used instead of a facemask when performing or present for an aerosol-generating procedure (See Section 4). See appendix for respirator definition. Disposable respirators and facemasks should be removed and discarded after exiting the patient's room or care area and closing the door. Perform hand hygiene after discarding the respirator or facemask. For guidance on extended use of respirators, refer to Strategies to Optimize the Current Supply of N95 Respirators
 - If reusable respirators (e.g., powered air purifying respirators [PAPRs]) are used, they must be cleaned and disinfected according to manufacturer's reprocessing instructions prior to re-use.
 - When the supply chain is restored, facilities with a respiratory protection program should return to use of respirators for patients with known or suspected COVID-19. Those that do not currently have a respiratory protection program, but care for patients with pathogens for which a respirator is recommended, should implement a respiratory protection program.
- Eye Protection
 - Put on eye protection (i.e., goggles or a disposable face shield that covers the front and sides of the face) upon entry to the patient room or care area. Personal eyeglasses and contact lenses are NOT considered adequate eye protection.
 - Remove eye protection before leaving the patient room or care area.

- Reusable eye protection (e.g., goggles) must be cleaned and disinfected according to manufacturer's reprocessing instructions prior to re-use. Disposable eye protection should be discarded after use.
- Gloves
 - Put on clean, non-sterile gloves upon entry into the patient room or care area.
 - Change gloves if they become torn or heavily contaminated.
 - Remove and discard gloves when leaving the patient room or care area, and immediately perform hand hygiene.
- Gowns
 - Put on a clean isolation gown upon entry into the patient room or area. Change the gown if it becomes soiled. Remove and discard the gown in a dedicated container for waste or linen before leaving the patient room or care area. Disposable gowns should be discarded after use. Cloth gowns should be laundered after each use.
 - If there are shortages of gowns, they should be prioritized for:
 - aerosol-generating procedures
 - care activities where splashes and sprays are anticipated
 - high-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of HCP. Examples include:
 - dressing
 - bathing/showering
 - transferring
 - providing hygiene

- changing linens
- changing briefs or assisting with toileting
- device care or use
- wound care

3. Patient Placement

- For patients with COVID-19 or other respiratory infections, evaluate need for hospitalization. If hospitalization is not medically necessary, home care is preferable if the individual's situation allows.
- If admitted, place a patient with known or suspected COVID-19 in a single-person room with the door closed. The patient should have a dedicated bathroom.
 - Airborne Infection Isolation Rooms (AIIRs) (See definition of AIIR in appendix) should be reserved for patients who will be undergoing aerosol-generating procedures (See Aerosol-Generating Procedures Section)
- As a measure to limit HCP exposure and conserve PPE, facilities could consider designating entire units within the facility, with dedicated HCP, to care for known or suspected COVID-19 patients. Dedicated means that HCP are assigned to care only for these patients during their shift.
 - Determine how staffing needs will be met as the number of patients with known or suspected COVID-19 increases and HCP become ill and are excluded from work.
 - It might not be possible to distinguish patients who have COVID-19 from patients with other respiratory viruses. As such, patients with different respiratory pathogens will likely be housed on the same unit. However, only patients with the

same respiratory pathogen may be housed in the same room. For example, a patient with COVID-19 should not be housed in the same room as a patient with an undiagnosed respiratory infection.

- During times of limited access to respirators or facemasks, facilities could consider having HCP remove only gloves and gowns (if used) and perform hand hygiene between patients with the same diagnosis (e.g., confirmed COVID-19) while continuing to wear the same eye protection and respirator or facemask (i.e., extended use). Risk of transmission from eye protection and facemasks during extended use is expected to be very low.
 - HCP must take care not to touch their eye protection and respirator or facemask.
 - Eye protection and the respirator or facemask should be removed, and hand hygiene performed if they become damaged or soiled and when leaving the unit.
- HCP should strictly follow basic infection control practices between patients (e.g., hand hygiene, cleaning and disinfecting shared equipment).
- Limit transport and movement of the patient outside of the room to medically essential purposes.
 - Consider providing portable x-ray equipment in patient cohort areas to reduce the need for patient transport.
- To the extent possible, patients with known or suspected COVID-19 should be housed in the same room for the duration of their stay in the facility (e.g., minimize room transfers).
- Patients should wear a facemask to contain secretions during transport. If patients cannot tolerate a facemask or one is not available, they should use tissues to cover their mouth and nose.
- Personnel entering the room should use PPE as described above.

- To the extent possible, patients with known or suspected COVID-19 should be housed in the same room for the duration of their stay in the facility (e.g., minimize room transfers).
- To the extent possible, patients with known or suspected COVID-19 should be housed in the same room for the duration of their stay in the facility (e.g., minimize room transfers).
- Whenever possible, perform procedures/tests in the patient's room.
- Once the patient has been discharged or transferred, HCP, including environmental services personnel, should refrain from entering the vacated room until sufficient time has elapsed for enough air changes to remove potentially infectious particles (more information on clearance rates under differing ventilation conditions is available). After this time has elapsed, the room should undergo appropriate cleaning and surface disinfection before it is returned to routine use (See Section 10).

4. Take Precautions When Performing Aerosol-Generating Procedures (AGPs)

- Some procedures performed on patient with known or suspected COVID-19 could generate infectious aerosols. In particular, procedures that are likely to induce coughing (e.g., sputum induction, open suctioning of airways) should be performed cautiously and avoided if possible.
- If performed, the following should occur:
 - HCP in the room should wear an N95 or higher-level respirator, eye protection, gloves, and a gown.
 - The number of HCP present during the procedure should be limited to only those essential for patient care and procedure support. Visitors should not be present for the procedure.

- AGPs should ideally take place in an AIIR.
- Clean and disinfect procedure room surfaces promptly as described in the section on environmental infection control below.

5. Collection of Diagnostic Respiratory Specimens

- When collecting diagnostic respiratory specimens (e.g., nasopharyngeal swab) from a possible COVID-19 patient, the following should occur:
 - HCP in the room should wear an N-95 or higher-level respirator (or facemask if a respirator is not available), eye protection, gloves, and a gown.
 - The number of HCP present during the procedure should be limited to only those essential for patient care and procedure support. Visitors should not be present for specimen collection.
 - Specimen collection should be performed in a normal examination room with the door closed.
 - Clean and disinfect procedure room surfaces promptly as described in the section on environmental infection control below.

6. Manage Visitor Access and Movement Within the Facility

- Establish procedures for monitoring, managing and training all visitors, which should include:
 - All visitors should perform frequent hand hygiene and follow respiratory hygiene and cough etiquette precautions while in the facility, especially common areas.

- Passively screen visitors for symptoms of acute respiratory illness before entering the healthcare facility
 - Post visual alerts (e.g., signs, posters) at the entrance and in strategic places (e.g., waiting areas, elevators, cafeterias) advising visitors not to enter the facility when ill.
- Informing visitors about appropriate PPE use according to current facility visitor policy
- Visitors to the most vulnerable patients (e.g., oncology and transplant wards) should be limited; visitors should be screened for symptoms prior to entry to the unit.
- Limit visitors to patients with known or suspected COVID-19. Encourage use of alternative mechanisms for patient and visitor interactions such as video-call applications on cell phones or tablets. If visitation must occur, visits should be scheduled and controlled to allow for the following:
 - Facilities should evaluate risk to the health of the visitor (e.g., visitor might have underlying illness putting them at higher risk for COVID-19) and ability to comply with precautions.
 - Facilities should provide instruction, before visitors enter patients' rooms, on hand hygiene, limiting surfaces touched, and use of PPE according to current facility policy while in the patient's room.
 - Visitors should not be present during AGPs or other specimen collection procedures.
 - Visitors should be instructed to only visit the patient room. They should not go to other locations in the facility.

Additional considerations during periods of community transmission:

- All visitors should be actively assessed for fever and respiratory symptoms upon entry to the facility. If fever or respiratory symptoms are present, visitor should not be allowed entry into the facility.

- Determine the threshold at which screening of persons entering the facility will be initiated and at what point screening will escalate from passive (e.g., signs at the entrance) to active (e.g., direct questioning) to restricting all visitors to the facility.
- If restriction of all visitors is implemented, facilities can consider exceptions based on end-of-life situations or when a visitor is essential for the patient's emotional well-being and care.
- Limit points of entry to the facility.

7. Implement Engineering Controls

- Design and install engineering controls to reduce or eliminate exposures by shielding HCP and other patients from infected individuals. Examples of engineering controls include:
 - physical barriers or partitions to guide patients through triage areas
 - curtains between patients in shared areas
 - air-handling systems (with appropriate directionality, filtration, exchange rate, etc.) that are installed and properly maintained

8. Monitor and Manage Ill and Exposed Healthcare Personnel

- Facilities and organizations providing healthcare should implement sick leave policies for HCP that are non-punitive, flexible, and consistent with public health guidance.
- Movement and monitoring decisions for HCP with exposure to COVID-19 should be made in consultation with public health authorities. Refer to the Interim U.S. Guidance for Risk Assessment

and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease 2019 (COVID-19) for additional information.

9. Train and Educate Healthcare Personnel

- Provide HCP with job- or task-specific education and training on preventing transmission of infectious agents, including refresher training.
- Ensure that HCP are educated, trained, and have practiced the appropriate use of PPE prior to caring for a patient, including attention to correct use of PPE and prevention of contamination of clothing, skin, and environment during the process of removing such equipment.

10. Implement Environmental Infection Control

- Dedicated medical equipment should be used when caring for patients with known or suspected COVID-19.
 - All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected according to manufacturer's instructions and facility policies.
- Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly.
- Routine cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying an EPA-registered, hospital-grade disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product's label) are appropriate for SARS-CoV-2 in healthcare

settings, including those patient-care areas in which aerosol-generating procedures are performed.

- Refer to List Ne on the EPA website for EPA-registered disinfectants that have qualified under EPA's emerging viral pathogens program for use against SARS-CoV-2.
- Management of laundry, food service utensils, and medical waste should also be performed in accordance with routine procedures.
- Additional information about recommended practices for terminal cleaning of rooms and PPE to be worn by environmental services personnel is available in the Healthcare Infection Prevention and Control FAQs for COVID-19

11. Establish Reporting within and between Healthcare Facilities and to Public Health Authorities

- Implement mechanisms and policies that promote situational awareness for facility staff including infection control, healthcare epidemiology, facility leadership, occupational health, clinical laboratory, and frontline staff about known or suspected COVID-19 patients and facility plans for response.
- Communicate and collaborate with public health authorities.
 - Facilities should designate specific persons within the healthcare facility who are responsible for communication with public health officials and dissemination of information to HCP.
- Communicate information about known or suspected COVID-19 patients to appropriate personnel before transferring them to other departments in the facility (e.g., radiology) and to other healthcare facilities.

Appendix: Additional Information about Airborne Infection Isolation Rooms, Respirators and Facemasks

Information about Airborne Infection Isolation Rooms (AIIRs):

- AIIRs are single-patient rooms at negative pressure relative to the surrounding areas, and with a minimum of 6 air changes per hour (12 air changes per hour are recommended for new construction or renovation).
- Air from these rooms should be exhausted directly to the outside or be filtered through a high-efficiency particulate air (HEPA) filter directly before recirculation.
- Room doors should be kept closed except when entering or leaving the room, and entry and exit should be minimized.
- Facilities should monitor and document the proper negative-pressure function of these rooms.

Information about Respirators:

- A respirator is a personal protective device that is worn on the face, covers at least the nose and mouth, and is used to reduce the wearer's risk of inhaling hazardous airborne particles (including dust particles and infectious agents), gases, or vapors. Respirators are certified by the CDC/NIOSH, including those intended for use in healthcare.
- Respirator use must be in the context of a complete respiratory protection program in accordance with OSHA Respiratory Protection standard (29 CFR 1910.134). HCP should be medically cleared and fit-tested if using respirators with tight-fitting facepieces (e.g., a NIOSH-approved N95 respirator) and trained in the proper use of respirators, safe removal and disposal, and medical

contraindications to respirator use.

- NIOSH information about respirators
- OSHA Respiratory Protection eTool
- Strategies for Optimizing the Supply of N-95 Respirators

Filtering Facepiece Respirators (FFR) including N95 Respirators

- A commonly used respirator in healthcare settings is a filtering facepiece respirator (commonly referred to as an N95). FFRs are disposable half facepiece respirators that filter out particles.
- To work properly, FFRs must be worn throughout the period of exposure and be specially fitted for each person who wears one. This is called “fit-testing” and is usually done in a workplace where respirators are used.
- Three key factors for an N95 respirator to be effective
- FFR users should also perform a user seal check to ensure proper fit each time an FFR is used.
- Learn more about how to perform a user seal check
- For more information on how to perform a user seal check:
<https://www.cdc.gov/niosh/docs/2018-130/pdfs/2018-130.pdf?id=10.26616/NIOSH PUB2018130>

NIOSH-approved N95 respirators list.

- PAPRs have a battery-powered blower that pulls air through attached filters, canisters, or cartridges. They provide protection against gases, vapors, or particles, when equipped with the appropriate cartridge, canister, or filter.
- Loose-fitting PAPRs do not require fit testing and can be used with facial hair.
- A list of NIOSH-approved PAPRs is located on the NIOSH Certified Equipment List.

Information about Facemasks:

- If worn properly, a facemask helps block respiratory secretions produced by the wearer from contaminating other persons and surfaces (often called source control).
- Facemasks are cleared by the U.S. Food and Drug Administration (FDA) for use as medical devices. Facemasks should be used once and then thrown away in the trash.

Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for COVID-19

CDC has developed interim guidance for staff at local and state health departments, infection prevention and control professionals, healthcare providers, and healthcare workers who are coordinating the home care and isolation of people who are confirmed to have, or being evaluated for (COVID-19 (see Criteria to Guide Evaluation of Patients Under Investigation (PUI) for COVID-19).

Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for COVID-19)

Important Links

- [Respirator Trusted-Source Information](#)
- [Respirator Fact Sheet](#)

Healthcare Infection Prevention and

Control FAQs for COVID-19

Page Summary

This page was updated on March 10, 2020 to align with the revised Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.

Who is this for: Healthcare personnel who may care for patients who are confirmed with or under investigation for COVID-19.

What is it for: This creates FAQs to support the existing Healthcare Infection Prevention and Control Guidance for COVID-19.

How is it used: To assist healthcare facilities in preventing transmission of COVID-19 in healthcare settings.

1. What personal protective equipment (PPE) should be worn by individuals transporting patients who are confirmed with or under investigation for COVID-19 within a healthcare facility? For example, what PPE should be worn when transporting a patient to radiology for imaging that cannot be performed in the patient room?

In general, transport and movement of the patient outside of their room

should be limited to medically essential purposes. If being transported outside of the room, such as to radiology, healthcare personnel (HCP) in the receiving area should be notified in advance of transporting the patient. For transport, the patient should wear a facemask to contain secretions and be covered with a clean sheet.

If transport personnel must prepare the patient for transport (e.g., transfer them to the wheelchair or gurney), transport personnel should wear all recommended PPE (gloves, a gown, respiratory protection that is at least as protective as a fit-tested NIOSH-certified disposable N95 filtering facepiece respirator or facemask—if a respirator is not available—and eye protection [i.e., goggles or disposable face shield that covers the front and sides of the face]). This recommendation is needed because these interactions typically involve close, often face-to-face, contact with the patient in an enclosed space (e.g., patient room). Once the patient has been transferred to the wheelchair or gurney (and prior to exiting the room), transporters should remove their gown, gloves, and eye protection and perform hand hygiene.

If the patient is wearing a facemask, no recommendation for PPE is made typically for HCP transporting patients with a respiratory infection from the patient's room to the destination. However, given current limitations in knowledge regarding COVID-19 and following the currently cautious approach for risk stratification and monitoring of healthcare personnel caring for patients with COVID-19, use of a facemask by the transporter is recommended for anything more than brief encounters with COVID-19 patients. Additional PPE should not be required unless there is an anticipated need to provide medical assistance during transport (e.g., helping the patient replace a dislodged facemask).

After arrival at their destination, receiving personnel (e.g., in radiology) and the transporter (if assisting with transfer) should perform hand hygiene and wear all recommended PPE. If still wearing their original respirator or facemask, the transporter should take care to avoid self-contamination when donning the remainder of the recommended PPE. This cautious approach will be refined and updated as more information

becomes available and as response needs change in the United States.

Interim guidance for EMS personnel transporting patients with confirmed or suspected COVID-19 is available [here](#). EMS personnel should wear all recommended PPE because they are providing direct medical care and in close contact with the patient for longer periods of time.

2. What PPE should be worn by HCP providing care to asymptomatic patients with a history of exposure to COVID-19 who are being evaluated for a non-infectious complaint (e.g., hypertension or hyperglycemia)?

Standard Precautions should be followed when caring for any patient, regardless of suspected or confirmed COVID-19. If the patient is afebrile (temperature is less than 100.0°F) and otherwise without even mild symptoms* that might be consistent with COVID-19 (e.g., cough, sore throat, shortness of breath), then precautions specific to COVID-19 are not required. However, until the patient is determined to be without such symptoms, HCP should wear all recommended PPE for the patient encounter. If the primary evaluation confirms the patient is without symptoms, management and need for any Transmission-Based Precautions should be based with the condition for which they are being evaluated (e.g., patient colonized with a drug-resistant organism), rather than potential exposure to COVID-19.

This public health response is an important opportunity to reinforce the importance of strict adherence to Standard Precautions during all patient encounters. Standard Precautions are based on the principles that all blood, body fluids, secretions, excretions except sweat, nonintact skin,

and mucous membranes may contain transmissible infectious agents. The application of Standard Precautions is determined by the nature of the HCP-patient interaction and the extent of anticipated blood, body fluids, and pathogen exposure. For example, a facemask and eye protection should be worn during the care of any patient if splashes, sprays, or coughs could occur during the patient encounter. Similarly, gloves should be worn if contact with body fluids, mucous membranes, or nonintact skin are anticipated.

3. What personal protective equipment (PPE) should be worn by environmental services (EVS) personnel who clean and disinfect rooms of hospitalized patients with COVID-19?

In general, only essential personnel should enter the room of patients with COVID-19. Healthcare facilities should consider assigning daily cleaning and disinfection of high-touch surfaces to nursing personnel who will already be in the room providing care to the patient. If this responsibility is assigned to EVS personnel, they should wear all recommended PPE when in the room. PPE should be removed upon leaving the room, immediately followed by performance of hand hygiene.

After discharge, terminal cleaning may be performed by EVS personnel. They should delay entry into the room until a sufficient time has elapsed for enough air changes to remove potentially infectious particles. We do not yet know how long SARS-CoV-2 remains infectious in the air. Regardless, EVS personnel should refrain from entering the vacated room until sufficient time has elapsed for enough air changes to remove potentially infectious particles (more information on clearance rates under differing ventilation conditions is available). After this time has elapsed, EVS personnel may enter the room and should wear a gown and gloves

when performing terminal cleaning. A facemask and eye protection should be added if splashes or sprays during cleaning and disinfection activities are anticipated or otherwise required based on the selected cleaning products. Shoe covers are not recommended at this time for personnel caring for patients with COVID-19.

Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19)

Summary of Recent Changes

Revisions were made on March 7, 2020, to reflect the following:

- Characteristics of patients with confirmed COVID-19 based on recent epidemiologic data from China, including characteristics of patients with COVID-19 admitted to the intensive care unit and data on pediatric cases
- Data regarding SARS-CoV-2 viral shedding among asymptomatic persons, and data from a recent report of viable SARS-CoV-2 isolation from stool
- Accessibility of investigational drug therapies for COVID-19 treatment through clinical trial enrollment in the United States
- Recently published pediatric surviving sepsis guidance

This interim guidance is for clinicians caring for patients with confirmed

infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease (COVID-19).

This update includes additional information from recent reports including:

- Characteristics of patients with confirmed COVID-19 based on recent epidemiologic data from China, including characteristics of patients with COVID-19 admitted to the intensive care unit and data on pediatric cases
- Data regarding SARS-CoV-2 viral shedding among asymptomatic persons, and data from a recent report of viable SARS-CoV-2 isolation from stool
- Accessibility of investigational drug therapies for COVID-19 treatment through clinical trial enrollment in the United States
- Recently published pediatric surviving sepsis guidance

CDC will update this interim guidance as more information becomes available.

Clinical Presentation

Among reports that describe the clinical presentation of patients with confirmed COVID-19, most are limited to hospitalized patients with pneumonia. The incubation period is estimated at 4 days (interquartile range: 2 to 7 days). [1] Some studies have estimated a wider range for the incubation period; data for human infection with other coronaviruses (e.g. MERS-CoV, SARS-CoV) suggest that the incubation period may range from 2-14 days. Frequently reported signs and symptoms of patients admitted to the hospital include fever (77–98%), cough (46%–82%), myalgia or fatigue (11–52%), and shortness of breath (3–31%) at illness onset. [2–5] Among 1,099 hospitalized COVID-19 patients, fever was present in 44% at hospital admission, and developed in 89% during hospitalization. [6] Other less commonly reported respiratory symptoms

include sore throat, headache, cough with sputum production and/or hemoptysis. Some patients have experienced gastrointestinal symptoms such as diarrhea and nausea prior to developing fever and lower respiratory tract signs and symptoms. The fever course among patients with COVID-19 is not fully understood; it may be prolonged and intermittent. A limited number of reports describe identification of asymptomatic or subclinical infection on the basis of detection of SARS-CoV-2 RNA or live virus from throat swab specimens of contacts of confirmed patients. [7–8]

Risk factors for severe illness are not yet clear, although older patients and those with chronic medical conditions may be at higher risk for severe illness. Among more than 44,000 confirmed cases of COVID-19 in China as of Feb 11, 2020, most occurred among patients aged 30–69 years (77.8%), and approximately 19% were severely or critically ill [9]. Case-fatality proportion among cases aged ≥ 60 years was: 60-69 years: 3.6%; 70-79 years: 8%; ≥ 80 years: 14.8%. Patients who reported no underlying medical conditions had an overall case fatality of 0.9%, but case fatality was higher for patients with comorbidities: 10.5% for those with cardiovascular disease, 7% for diabetes, and 6% each for chronic respiratory disease, hypertension, and cancer. Case fatality for patients who developed respiratory failure, septic shock, or multiple organ dysfunction was 49%. [9]

Limited information is available about the clinical presentation, clinical course, and risk factors for severe COVID-19 in children. Of confirmed COVID-19 patients in China as of Feb 11, 2020, only 2.1% were aged >20 years, and no deaths were reported among those >10 years of age [9]. From limited published reports, signs and symptoms among children with COVID-19 may be more mild than adults, with most pediatric patients presenting with fever, cough, congestion, and rhinorrhea [10, 12–13], and one report of primarily gastrointestinal symptoms (vomiting and diarrhea) [13]. Prolonged detection of SARS-CoV RNA has been reported in respiratory specimens (up to 22 days after illness onset) and stool specimens (at least 30 days after illness onset) [10–11]. Severe

complications of acute respiratory distress syndrome and septic shock were reported in a 13-month old with COVID-19 in China [13].

Clinical Course

Clinical presentation among reported cases of COVID-19 varies in severity from asymptomatic infection to mild illness to severe or fatal illness. Some reports suggest the potential for clinical deterioration during the second week of illness.[2,5] In one report, among patients with confirmed COVID-19 and pneumonia, just over half of patients developed dyspnea a median of 8 days after illness onset (range: 5–13 days). [2] In another report, the mean time from illness onset to hospital admission with pneumonia was 9 days.[1] Acute respiratory distress syndrome (ARDS) developed in 17–29% of hospitalized patients, and secondary infection developed in 10%. [2,4] In one report, the median time from symptom onset to ARDS was 8 days.[3]

Approximately 20-30% of hospitalized patients with COVID-19 and pneumonia have required intensive care for respiratory support.[2–3] Compared to patients not admitted to an intensive care unit, critically ill patients were older (median age 66 years versus 51 years), and were more likely to have underlying co-morbid conditions (72% versus 37%). [3] Among critically ill patients admitted to an intensive care unit, 11–64% received high-flow oxygen therapy and 47-71% received mechanical ventilation; some hospitalized patients have required advanced organ support with endotracheal intubation and mechanical ventilation (4–42%). [3–4,9] A small proportion have also been supported with extracorporeal membrane oxygenation (ECMO, 3–12%).[3–4,9] Other reported complications include cardiac injury, arrhythmia, septic shock, liver dysfunction, acute kidney injury, and multi-organ failure. Post-mortem biopsies in one patient who died of ARDS reported pulmonary findings of diffuse alveolar damage. [14]

An overall case fatality proportion of 2.3% has been reported among

confirmed cases of COVID-19 in China. [9] However, the majority of these cases were among hospitalized patients and therefore this estimate of mortality is likely biased upward. Among hospitalized patients with pneumonia, the case fatality proportion has been reported as 4–15%. [2–4] Among critically ill COVID-19 patients in China, the reported case fatality proportion was 49%. In a report from one hospital, 61.5% of critically ill patients with COVID-19 had died by day 28 of ICU admission. [9,15]

Diagnostic Testing

Information on specimen collection, handling, and storage is available at: Real-Time RT-PCR Panel for Detection 2019-Novel Coronavirus. After initial confirmation of COVID-10, additional testing of clinical specimens can help inform clinical management, including discharge planning.

Laboratory and Radiographic Findings

The most common laboratory abnormalities reported among hospitalized patients with pneumonia on admission included leukopenia (9–25%), leukocytosis (24–30%), lymphopenia (63%), and elevated alanine aminotransferase and aspartate aminotransferase levels (37%). [2,4] Among 1,099 COVID-19 patients, lymphocytopenia was present in 83%; 36% had thrombocytopenia, and 34% had leukopenia. [6] Most patients had normal serum levels of procalcitonin on admission. Chest CT images have shown bilateral involvement in most patients. Multiple areas of consolidation and ground glass opacities are typical findings reported to date. [2–4, 16–24] However, one study that evaluated the time from symptom onset to initial CT scan found that 56% of patients who presented within 2 days had a normal CT. [20]

Limited data are available about the detection of SARS-CoV-2 RNA and

infectious virus in clinical specimens. SARS-CoV-2 RNA has been detected from upper and lower respiratory tract specimens, and the virus has been isolated in cell culture from upper respiratory tract specimens and bronchoalveolar lavage fluid. In one case series SARS-CoV-2 viral RNA levels in the first 3 days after symptom onset were higher in specimens collected from the nose than from the throat (as demonstrated by lower cycle threshold values in the nose). [25] A similar time course and pattern of viral RNA detection was reported in one asymptomatic patient after exposure to a patient with confirmed COVID-19. [25]

SARS-CoV-2 RNA has been detected in blood and stool specimens and SARS-CoV-2 virus has been isolated in cell culture from the stool of a patient with pneumonia 15 days after symptom onset. [26–29]. The duration of SARS-CoV-2 RNA detection in the upper and lower respiratory tracts and in extrapulmonary specimens is not yet known. It is possible that RNA could be detected for weeks, which has occurred in some cases of MERS-CoV or SARS-CoV infection. [30–37] Viable SARS-CoV has been isolated from respiratory, blood, urine, and stool specimens. In contrast, viable MERS-CoV has been isolated only from respiratory tract specimens. [37–39]

Clinical Management and Treatment

For information regarding infection prevention and control recommendations, please see Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.

Patients with a mild clinical presentation may not initially require hospitalization. However, clinical signs and symptoms may worsen with progression to lower respiratory tract disease in the second week of illness; all patients should be monitored closely. Possible risk factors for progressing to severe illness may include, but are not limited to, older

age, and underlying chronic medical conditions such as lung disease, cancer, heart failure, cerebrovascular disease, renal disease, liver disease, diabetes, immunocompromising conditions, and pregnancy.

The decision to monitor a patient in the inpatient or outpatient setting should be made on a case-by-case basis. This decision will depend not only on the clinical presentation, but also on the patient's ability to engage in monitoring, home isolation, and the risk of transmission in the patient's home environment. For more information, see *Evaluating and Reporting Persons Under Investigation (PUI)*

No specific treatment for COVID-19 is currently available. Clinical management includes prompt implementation of recommended infection prevention and control measures and supportive management of complications, including advanced organ support if indicated.

Corticosteroids should be avoided, because of the potential for prolonging viral replication as observed in MERS-CoV patients, unless indicated for other reasons. [31, 40–42] For example, for a chronic obstructive pulmonary disease exacerbation or for septic shock per Surviving Sepsis guidelines for adults and children.

For more information, see: WHO interim guidance on clinical management of severe acute respiratory infection when novel coronavirus (nCoV) infection is suspected, *Diagnosis and Treatment of Adults with Community-acquired Pneumonia. An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America*, and *Surviving Sepsis Campaign International Guidelines for the Management of Septic Shock and Sepsis-Associated Organ Dysfunction in Children*

Investigational Therapeutics

There are currently no antiviral drugs licensed by the U.S. Food and Drug Administration (FDA) to treat patients with COVID-19. In the United

States, the National Institutes of Health (NIH) and collaborators are working on development of candidate vaccines and therapeutics for COVID-19. Some in-vitro or in-vivo studies suggest potential therapeutic activity of compounds against related coronaviruses, but there are no available data from randomized controlled trials in humans to support recommending any investigational therapeutics for patients with confirmed or suspected COVID-19 at this time.

Remdesivir is an investigational antiviral drug that was reported to have in-vitro activity against SARS-CoV-2. [43] Some patients with COVID-19 have received intravenous remdesivir for compassionate use outside of a clinical trial setting. In China, multiple clinical trials of investigational therapeutics have been implemented, including two clinical trials of remdesivir. An NIH adaptive randomized controlled clinical trial of investigational therapeutics for hospitalized COVID-19 patients in the United States was approved by the Food and Drug Administration; the first investigational therapeutic to be studied is remdesivir. Other remdesivir trials for COVID-19 patients in the U.S. are available (participants with severe and moderate coronavirus disease). Some COVID-19 patients have received uncontrolled treatment with other investigational antivirals. [4, 28, 44] For information on specific clinical trials underway for treatment of patients with COVID-19, see clinicaltrials.gov, and www.chictr.org.cn

In the absence of an approved vaccine, community mitigation measures are the primary way to reduce SARS-CoV-2 transmission among persons in the community, and adherence to recommended infection prevention and control measures can reduce the risk of SARS-CoV-2 spread in healthcare facilities. In the absence of an approved therapeutic with demonstrated safety and efficacy in patients with COVID-19, clinical management of COVID-19 patients includes avoidance of corticosteroids, and supportive care of complications, including advanced organ support.

Discontinuation of Transmission-Based

Precautions or Home Isolation

For recommendations on discontinuation of transmission-based precautions or home isolation for patients who have recovered from COVID-19 illness, please see: Interim Guidance for Discontinuation of Transmission-Based Precautions and Disposition of Hospitalized Patients with COVID-19 and Interim Guidance for Discontinuation of In-Home Isolation for Patients with COVID-19

Additional resources:

- Evaluating and Reporting Persons Under Investigation (PUI)
- Resources for Hospitals and Healthcare Professionals Preparing for Patients with Suspected or Confirmed COVID-19
- Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings World Health Organization. Interim Guidance on Clinical management of severe acute respiratory infection when novel coronavirus (nCoV) infection is suspected
- American Thoracic Society and Infectious Diseases Society of America Clinical Practice Guidelines. Diagnosis and treatment of adults with community-acquired pneumonia
- Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016
- Surviving Sepsis Campaign International Guidelines for the Management of Septic Shock and Sepsis-Associated Organ Dysfunction in Children
- Clinical Practice Guidelines by the Infectious Diseases Society of America: 2018 Update on Diagnosis, Treatment,

References

1. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, Liu L, Shan H, Lei CL, Hui DSC, Du B, Li LJ, Zeng G, Yuen KY, Chen RC, Tang CL, Wang T, Chen PY, Xiang J, Li SY, Wang JL, Liang ZJ, Peng YX, Wei L, Liu Y, Hu YH, Peng P, Wang JM, Liu JY, Chen Z, Li G, Zheng ZJ, Qiu SQ, Luo J, Ye CJ, Zhu SY, Zhong NS; China Medical Treatment Expert Group for Covid-19. Clinical Characteristics of Coronavirus Disease 2019 in China. *N Engl J Med*. 2020 Feb 28. doi: 10.1056/NEJMoa2002032. [Epub ahead of print]
2. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, Zhang L, Fan G, Xu J, Gu X, Cheng Z. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*. 2020 Jan 24.
3. Wang D, Hu B, Hu C, Zhu F, Liu X et al. Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus-Infected Pneumonia in Wuhan. Published online February 7, 2020.
4. Chen N, Zhou M, Dong X, Qu J, Gong F. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet*. 2020 Jan 30. [Epub ahead of print]
5. Holshue ML, DeBolt C, Lindquist S, Lofy KH, Wiesman J et al. First Case of 2019 Novel Coronavirus in the United States. *N Engl J Med*. 2020 Jan 31. doi: 10.1056/NEJMoa2001191. [Epub ahead of print] Huang C, Wang Y, Li X, Ren L, Zhao J, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020 Jan 24. [Epub ahead of print]
6. Li Q, Guan X, Wu P, Wang X, Zhou L, et al. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected

Pneumonia. *N Engl J Med*. 2020 Jan 29.

- 7.Chan JF, Yuan S, Kok K, To KK, Chu H, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet*. 2020 Jan 24. [Epub ahead of print]
- 8.Hoehl S, Berger A, Kortenbusch M, Cinatl J, Bojkova D, Rabenau H, Behrens P, Böddinghaus B, Götsch U, Naujoks F, Neumann P. Evidence of SARS-CoV-2 Infection in Returning Travelers from Wuhan, China. *New England Journal of Medicine*. 2020 Feb 18.
- 9.Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. [The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) in China]. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2020;41(2):145–151. DOI:10.3760/cma.j.issn.0254-6450.2020.02.003.
- 10.Kam KQ, Yung CF, Cui L, Lin Tzer Pin R, Mak TM, Maiwald M, Li J, Chong CY, Nadua K, Tan NWH, Thoon KC. A Well Infant with Coronavirus Disease 2019 (COVID-19) with High Viral Load. *Clin Infect Dis*. 2020 Feb 28. pii: ciaa201. doi: 10.1093/cid/ciaa201. [Epub ahead of print]
- 11.Cai J, Xu J, Lin D, Yang Z, Xu L, Qu Z, Zhang Y, Zhang H, Jia R, Liu P, Wang X, Ge Y, Xia A, Tian H, Chang H, Wang C, Li J, Wang J, Zeng M. A Case Series of children with 2019 novel coronavirus infection: clinical and epidemiological features. *Clin Infect Dis*. 2020 Feb 28. pii: ciaa198. doi: 10.1093/cid/ciaa198. [Epub ahead of print]
- 12.Wei M, Yuan J, Liu Y, Fu T, Yu X, Zhang ZJ. Novel Coronavirus Infection in Hospitalized Infants Under 1 Year of Age in China. *JAMA*. 2020 Feb 14. doi: 10.1001/jama.2020.2131. [Epub ahead of print]
- 13.Chen F, Liu ZS, Zhang FR, Xiong RH, Chen Y, Cheng XF, Wang WY, Ren J. [First case of severe childhood novel coronavirus pneumonia in China]. *Zhonghua Er Ke Za Zhi*. 2020 Feb

11;58(0):E005. doi: 10.3760/cma.j.issn.0578-1310.2020.0005.
[Epub ahead of print] Chinese.

14. Xu Z, Shi L, Wang Y, Zhang J, Huang L, Zhang C, Liu S, Zhao P, Liu H, Zhu L, Tai Y, Bai C, Gao T, Song J, Xia P, Dong J, Zhao J, Wang FS. Pathological findings of COVID-19 associated with acute respiratory distress syndrome. *Lancet Respir Med*. 2020 Feb 18. pii: S2213-2600(20)30076-X. doi: 10.1016/S2213-2600(20)30076-X. [Epub ahead of print]
15. Yang X, Yu Y, Xu J, Shu H, Xia J, et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. *Lancet Respir Med*. 2020. Published Online February 21, 2020 [https://doi.org/10.1016/S2213-2600\(20\)30079-5](https://doi.org/10.1016/S2213-2600(20)30079-5)
16. Chang D, Minggui L, Wei L, Lixin X, Guangfa Z et al. Epidemiologic and Clinical Characteristics of Novel Coronavirus Infections Involving 13 Patients Outside Wuhan China. Published online February 7, 2020.
17. Zhu N, Zhang D, Wang W, Li X, Yang B, et al; China Novel Coronavirus Investigating and Research Team. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *N Engl J Med*. 2020 Jan 24. [Epub ahead of print]
18. Phan LT, Nguyen TV, Luong QC, Nguyen TV, Nguyen HT et al. Importation and Human-to-Human Transmission of a Novel Coronavirus in Vietnam. *N Engl J Med*. 2020 Jan 28. doi: 10.1056/NEJMc2001272. [Epub ahead of print]
19. Lei J, Li J, Li X, Qi X. CT Imaging of the 2019 Novel Coronavirus (2019-nCoV) Pneumonia. *Radiology*. 2020 Jan 31:200236. doi: 10.1148/radiol.2020200236. [Epub ahead of print]
20. Bernheim A, Mei X, Huang M, Yang Y, Fayad ZA, Zhang N, Diao K, Lin B, Zhu X, Li K, Li S. Chest CT Findings in Coronavirus Disease-19 (COVID-19): Relationship to Duration of Infection.

Radiology. 2020 Feb 20:200463.

21. Xu X, Yu C, Qu J, Zhang L, Jiang S, Huang D, Chen B, Zhang Z, Guan W, Ling Z, Jiang R, Hu T, Ding Y, Lin L, Gan Q, Luo L, Tang X, Liu J. Imaging and clinical features of patients with 2019 novel coronavirus SARS-CoV-2. *Eur J Nucl Med Mol Imaging*. 2020 Feb 28. doi: 10.1007/s00259-020-04735-9. [Epub ahead of print]
22. Yang W, Cao Q, Qin L, Wang X, Cheng Z, Pan A, Dai J, Sun Q, Zhao F, Qu J, Yan F. Clinical characteristics and imaging manifestations of the 2019 novel coronavirus disease (COVID-19): A multi-center study in Wenzhou city, Zhejiang, China. *J Infect*. 2020 Feb 26. pii: S0163-4453(20)30099-2. doi: 10.1016/j.jinf.2020.02.016. [Epub ahead of print]
23. Ai T, Yang Z, Hou H, Zhan C, Chen C, Lv W, Tao Q, Sun Z, Xia L. Correlation of Chest CT and RT-PCR Testing in Coronavirus Disease 2019 (COVID-19) in China: A Report of 1014 Cases. *Radiology*. 2020 Feb 26:200642. doi: 10.1148/radiol.2020200642. [Epub ahead of print]
24. Shi H, Han X, Jiang N, Cao Y, Alwalid O, Gu J, Fan Y, Zheng C. Radiological findings from 81 patients with COVID-19 pneumonia in Wuhan, China: a descriptive study. *Lancet Infect Dis*. 2020 Feb 24. pii: S1473-3099(20)30086-4. doi: 10.1016/S1473-3099(20)30086-4. [Epub ahead of print]
25. Zou L, Ruan F, Huang M, Liang L, Huang H, et al. SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients. *N Engl J Med*. 2020 Feb 19. doi: 10.1056/NEJMc2001737. [Epub ahead of print]
26. Zhang W, Du RH, Li B, Zheng XS, Yang XL, Hu B, Wang YY, Xiao GF, Yan B, Shi ZL, Zhou P. Molecular and serological investigation of 2019-nCoV infected patients: implication of multiple shedding routes. *Emerging Microbes & Infections*. 2020 Jan 1;9(1):386-9.
27. Chen W, Lan Y, Yuan X, Deng X, Li Y, Cai X, Li L, He R, Tan Y,

- Deng X, Gao M, Tang G, Zhao L, Wang J, Fan Q, Wen C, Tong Y, Tang Y, Hu F, Li F, Tang X. Detectable 2019-nCoV viral RNA in blood is a strong indicator for the further clinical severity. *Emerg Microbes Infect.* 2020 Dec;9(1):469-473.
28. Young BE, Ong SWX, Kalimuddin S, Low JG, Tan SY, Loh J, Ng OT, Marimuthu K, Ang LW, Mak TM, Lau SK, Anderson DE, Chan KS, Tan TY, Ng TY, Cui L, Said Z, Kurupatham L, Chen MI, Chan M, Vasoo S, Wang LF, Tan BH, Lin RTP, Lee VJM, Leo YS, Lye DC; Singapore 2019 Novel Coronavirus Outbreak Research Team. Epidemiologic Features and Clinical Course of Patients Infected With SARS-CoV-2 in Singapore. *JAMA.* 2020 Mar 3. doi: 10.1001/jama.2020.3204. [Epub ahead of print]
29. Zhang Y, Chen C, Zhu S, Shu C, Wang D, Song J, et al. Isolation of 2019-nCoV from a Stool Specimen of a Laboratory-Confirmed Case of the Coronavirus Disease 2019 (COVID-19)[J]. *China CDC Weekly*, 2020, 2(8): 123-124
30. Memish ZA, Assiri AM, Al-Tawfiq JA. Middle East respiratory syndrome coronavirus (MERS-CoV) viral shedding in the respiratory tract: an observational analysis with infection control implications. *Int J Infect Dis.* 2014 Dec;29:307-8.
31. Zumla A, Hui DS, Perlman S. Middle East respiratory syndrome. *Lancet.* 2015 Sep 5;386(9997):995-1007. doi: 10.1016/S0140-6736(15)60454-8. Epub 2015 Jun 3. Review.
32. Chan KH, Poon LL, Cheng VC, Guan Y, Hung IF et al. Detection of SARS coronavirus in patients with suspected SARS. *Emerg Infect Dis.* 2004 Feb;10(2):294-9.
33. Cheng PK, Wong DA, Tong LK, Ip SM, Lo AC et al. Viral shedding patterns of coronavirus in patients with probable severe acute respiratory syndrome. *Lancet.* 2004 May 22;363(9422):1699-700.
34. Hung IF, Cheng VC, Wu AK, Tang BS, Chan KH et al. Viral loads in clinical specimens and SARS manifestations. *Emerg Infect Dis.*

2004 Sep;10(9):1550-7.

35. Peiris JS, Chu CM, Cheng VC, Chan KS, Hung IF, et al; HKU/UCH SARS Study Group. Clinical progression and viral load in a community outbreak of coronavirus-associated SARS pneumonia: a prospective study. *Lancet*. 2003 May 24;361(9371):1767-72.
36. Liu W, Tang F, Fontanet A, Zhan L, Zhao QM et al. Long-term SARS coronavirus excretion from patient cohort, China. *Emerg Infect Dis*. 2004 Oct;10(10):1841-3.
37. Corman VM, Albarrak AM, Omrani AS, Albarrak MM, Farah ME, et al. Viral Shedding and Antibody Response in 37 Patients With Middle East Respiratory Syndrome Coronavirus Infection. *Clin Infect Dis*. 2016 Feb 15;62(4):477-483.
38. Al-Abdely HM, Midgley CM, Alkhamis AM, Abedi GR, Lu X, et al. Middle East respiratory syndrome coronavirus infection dynamics and antibody responses among clinically diverse patients, Saudi Arabia. *Emerg Infect Dis*. 2019 Apr;25(4):753-766.
39. Al-Abdely HM, Midgley CM, Alkhamis AM, Abedi GR, Tamin A et al. Infectious MERS-CoV Isolated From a Mildly Ill Patient, Saudi Arabia. *Open Forum Infect Dis*. 2018 May 15;5(6):ofy111.
40. Arabi YM, Mandourah Y, Al-Hameed F, Sindi AA, Almekhlafi GA, et al; Saudi Critical Care Trial Group. Corticosteroid Therapy for Critically Ill Patients with Middle East Respiratory Syndrome. *Am J Respir Crit Care Med*. 2018 Mar 15;197(6):757-767.
41. Russell CD, Millar JE, Baillie JK. Clinical evidence does not support corticosteroid treatment for 2019-nCoV lung injury. *Lancet*. 2020 Feb 6; S0140-6736(20)30305-6.
42. Metlay JP, Waterer GW, Long AC, Anzueto A, Brozek J, et al. Diagnosis and treatment of adults with community-acquired pneumonia. An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America. *Am J Respir Crit Care Med*. 2019 Oct 1;200(7):e45-e67.

43. Wang M, Cao R, Zhang L, Yang X, Liu J, Xu M, Shi Z, Hu Z, Zhong W, Xiao G. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. Cell Res. 2020 Feb 4. doi: 1038/s41422-020-0282-0. [Epub ahead of print] PubMed PMID: 32020029.
44. Xu XW, Wu XX, Jiang XG, Xu KJ, Ying LJ, Ma CL, Li SB, Wang HY, Zhang S, Gao HN, Sheng JF, Cai HL, Qiu YQ, Li LJ. Clinical findings in a group of patients infected with the 2019 novel coronavirus (SARS-Cov-2) outside of Wuhan, China: retrospective case series. BMJ. 2020 Feb 19;368:m606. doi:10.1136/bmj.m606.

Information for Pediatric Healthcare Providers

Who this is for: Pediatric Healthcare Providers

What this is for: To inform pediatric healthcare providers of information available on children with COVID-19.

How to use: Refer to this information when managing pediatric patients with confirmed or suspected COVID-19.

Burden of COVID-19 and epidemiologic risk factors in children

Relatively few cases of COVID-19 caused by SARS-CoV-2 infection have been reported in children compared with the total number of cases in the general population. As of Feb. 20, 2020, 2.4% of the 75,465 cases (confirmed and suspected) in China had occurred among persons

younger than 19 years old. An analysis from one large city in southern China suggests that, among all cases, the proportion of children younger than 15 years old may have increased from 2% to 13% from early to later in the outbreak.

Of the cases reported in China to date, most children had exposure to household members with confirmed COVID-19. In one case, a three-month-old child visited a healthcare setting before COVID-19 was confirmed and was thought to be the first case in a family cluster—the source of infection (healthcare or community) was not determined. At least one child who primarily had gastrointestinal symptoms sought care at multiple outpatient healthcare centers before becoming a confirmed case.

During previous outbreaks caused by related zoonotic beta coronaviruses, Severe Acute Respiratory Syndrome (SARS) and Middle Eastern Respiratory Syndrome (MERS), the majority of confirmed cases occurred among adults. During the 2002-2003 SARS epidemic, less than 5% of cases were diagnosed in patients younger than 18. The majority of SARS cases in patients younger than 18 were thought to have occurred through household transmission, though some cases were hospital-acquired. The majority of MERS-CoV cases in children were also thought to be due to household transmission.

Children may play a role in the spread of SARS-CoV-2 in the community. In one report examining 10 infected children in China, SARS-CoV-2 ribonucleic acid (RNA) was detected in respiratory specimens up to 22 days after symptoms began and in stool up to 30 days after symptoms began. A case report of a 6-month-old infant describes detection of SARS-CoV-2 RNA in blood, stool, and multiple nasopharyngeal swab samples, even though the infant's only documented manifestation of illness was one recorded temperature of 38.5° C (101.3° F). Viral culture was not performed on specimens in these reports; therefore, it is uncertain whether persistent or asymptomatic RNA detection represented potentially transmissible virus.

Currently, it is unknown if differences in reported incidence of confirmed COVID-19 among children versus adults in China is because of difference in exposures (e.g., children are less likely to care for sick contacts), disease severity, testing, or surveillance (e.g., symptoms at presentation differ from case definitions for surveillance or diagnosis).

Clinical presentation in children

Symptoms in Pediatric Patients

Illness among pediatric cases appear to be mild, with most cases presenting with:

- symptoms of respiratory infection
- cough
- nasal congestion
- rhinorrhea
- sore throat

The predominant signs and symptoms of COVID-19 reported to date among all patients are similar to other viral respiratory infections. These include fever, cough, and difficulty breathing. Gastrointestinal symptoms, including abdominal pain, diarrhea, nausea, and vomiting, were reported in a minority of adult patients.

In a report of nine hospitalized infants in China with confirmed COVID-19, only half presented with fever. At least one child to date had primarily gastrointestinal symptoms of vomiting, diarrhea, and anorexia at initial presentation. There have been multiple reports to date of children with asymptomatic SARS-CoV-2 infection.

Data from pediatric cases of SARS and MERS also show milder symptoms among children compared with adults, and adolescents with SARS had more severe symptoms compared with younger children. Co-detection of other respiratory pathogens (influenza, respiratory syncytial virus, *Mycoplasma pneumoniae*) have been described in children with COVID-19.

Signs and symptoms of COVID-19 in children may be similar to those for common viral respiratory infections or other childhood illnesses. It is important for pediatric providers to have an appropriate suspicion of COVID-19, but also to continue to consider and test for other diagnoses, such as influenza (see CDC's Flu Information for Healthcare Professionals for more information).

Clinical course and complications in children

Complications of COVID-19 appear to be milder among children compared with adults based on limited reports from China. Severe complications (e.g., acute respiratory distress syndrome, septic shock) were reported in one case of a 13-month old with confirmed COVID-19. Other reports describe a mild disease course, including in infants. As of February 20, 2020, just one of the 2,114 deaths among 55,924 confirmed COVID-19 cases in China occurred among children younger than 20 years old. No further details were provided about this patient.

Chest X-rays of children with COVID-19 show patchy infiltrates consistent with viral pneumonia, and chest CT scans have shown nodular ground glass opacities.

During the 2003-2004 SARS outbreak, patients younger than 12 years old had milder and shorter illnesses than adults, and no deaths were reported. Death was rare among children with MERS. One pediatric

death from MERS was reported in a child with cystic fibrosis who had respiratory specimens also positive for influenza A(H1N1)pdm09 and multidrug-resistant *Pseudomonas*.

Though symptoms and disease course for COVID-19 may be milder in children than adults, it is unknown if children with underlying medical conditions are at increased risk of severe disease.

Treatment and prevention

Currently, there are no antiviral drugs recommended or licensed by the U.S. Food and Drug Administration (FDA) for COVID-19. Clinical management includes promptly using recommended infection prevention and control measures (e.g., a respirator or facemask, gloves, gown, eye protection) in healthcare settings and supportive management of complications.

Lopinavir/ritonavir and interferon-alpha have been used for treatment of children with COVID-19 in China but safety and efficacy of these drugs have not been determined. Remdesivir is an investigational antiviral drug that has been reported to have in-vitro activity against SARS-CoV-2. Some adult patients with COVID-19 have received intravenous remdesivir through clinical trials or compassionate use, although remdesivir has not been used for treatment of children with COVID-19. For additional information on investigational therapeutics, please see Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19).

Additional information

For general information on caring for patients with confirmed or possible COVID-19 please see: What Healthcare Personnel Should Know about Caring for Patients with Confirmed or Possible COVID-19 Infection

For CDC's latest clinical guidance for management of patients with COVID-19 please see: Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease 2019 (COVID-19)

For information on infection prevention and control recommendations, please see: Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings

For information on COVID-19 and pregnancy, please see: Frequently Asked Questions and Answers: Coronavirus Disease 2019 (COVID-19) and Pregnancy

For information on COVID-19 and breastfeeding, please see: Interim Guidance on Breastfeeding for a Mother Confirmed or Under Investigation For COVID-19

For information for healthcare facilities on how to prepare for the COVID-19 outbreak: Steps Healthcare Facilities Can Take Now to Prepare for Coronavirus Disease 2019 (COVID-19)

References

1. Al-Tawfiq, J.A., R.F. Kattan, and Z.A. Memish, Middle East respiratory syndrome coronavirus disease is rare in children: An update from Saudi Arabia. *World J Clin Pediatr*, 2016. 5(4): p. 391-396.
2. Bartenfeld, M., et al., Middle East Respiratory Syndrome Coronavirus and Children. *Clin Pediatr (Phila)*, 2017. 56(2): p. 187-189.
3. Cai, J., et al., A Case Series of children with 2019 novel

coronavirus infection: clinical and epidemiological features. Clin Infect Dis, 2020.

4. Centers for Disease Control and Prevention. Coronavirus. 2020; Available from: <https://www.cdc.gov/coronavirus/index.html>; accessed 6 Mar 2020.
5. Chan, J.F., et al., A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. Lancet, 2020. 24: p. 24.
6. Chen, F., et al., [First case of severe childhood novel coronavirus pneumonia in China]. Zhonghua Erke Zazhi, 2020. 58(0): p. E005.
7. China Center for Disease Control and Prevention. The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China]. Zhonghua Liu Xing Bing Xue Za Zhi, 2020. 41(2): p. 145-151.
8. Dowell, S.F. and M.S. Ho, Seasonality of infectious diseases and severe acute respiratory syndrome-what we don't know can hurt us. Lancet Infect Dis, 2004. 4(11): p. 704-8.
9. Feng, K., et al., [Analysis of CT features of 15 Children with 2019 novel coronavirus infection]. Zhonghua Er Ke Za Zhi, 2020. 58(0): p. E007.
10. Hon, K.L., et al., Clinical presentations and outcome of severe acute respiratory syndrome in children. Lancet, 2003. 361(9370): p. 1701-3.
11. Liu, J., et al., Community Transmission of Severe Acute Respiratory Syndrome Coronavirus 2, Shenzhen, China, 2020. Emerging Infectious Diseases, 2020. 26(6). <https://doi.org/10.3201/eid2606.200239>
12. Memish, Z.A., et al., Middle East respiratory syndrome coronavirus disease in children. Pediatr Infect Dis J, 2014. 33(9): p. 904-6.
13. Monto, A.S., J.S. Koopman, and I.M. Longini, Jr., Tecumseh study

- of illness. XIII. Influenza infection and disease, 1976-1981. *Am J Epidemiol*, 1985. 121(6): p. 811-22.
14. Pan, X., et al., Asymptomatic cases in a family cluster with SARS-CoV-2 infection. *Lancet Infect Dis*, 2020.
 15. Shen, K., et al., Diagnosis, treatment, and prevention of 2019 novel coronavirus infection in children: experts' consensus statement. *World J Pediatr*, 2020.
 16. Stockman, L.J., et al., Severe acute respiratory syndrome in children. *Pediatr Infect Dis J*, 2007. 26(1): p. 68-74.
 17. Wang, D., et al., Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus-Infected Pneumonia in Wuhan, China. *JAMA*, 2020.
 18. Wang M, Cao R, Zhang L, Yang X, Liu J, Xu M, Shi Z, Hu Z, Zhong W, Xiao G. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. *Cell Res*. 2020 Feb 4. doi: 1038/s41422-020-0282-0. [Epub ahead of print]
 19. Wei, M., et al., Novel Coronavirus Infection in Hospitalized Infants Under 1 Year of Age in China. *Jama*, 2020.
 20. Worby, C.J., et al., On the relative role of different age groups in influenza epidemics. *Epidemics*, 2015. 13: p. 10-16.
 21. World Health Organization – People's Republic of China Joint Mission. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Available at: <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>; accessed 6 Mar 2020.
 22. Xia W., et al., Clinical and CT features in pediatric patients with COVID-19 infection: Different points from adults. *Pediatric Pulmonology*. 2020;1-6. <https://doi.org/10.1002/ppul.24718>.
 23. Zhang, Y.H., et al., [2019-novel coronavirus infection in a three-month-old baby]. *Zhonghua Er Ke Za Zhi*, 2020. 58(0): p. E006.

Interim Guidance for Discontinuation of Transmission-Based Precautions and Disposition of Hospitalized Patients with COVID-19

Summary Page

Who this is for: Healthcare providers and public health officials managing patients with coronavirus disease (COVID-19).

What this is for: To help prevent the spread of COVID-19 in healthcare facilities.

How to use: Reference to guide healthcare staff and public health officials regarding discontinuing transmission-based precautions and discharging hospitalized patients with COVID-19.

Summary of Recent Changes

Revisions were made on March 10, 2020, to reflect the updated Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.

Limited information is available to characterize the spectrum of clinical illness, transmission efficiency, and the duration of viral shedding for patients with COVID-19. Interim guidance for discontinuation of Transmission-Based Precautions and disposition

of hospitalized patients has been developed based on available information about COVID-19 and what is known about similar diseases caused by related coronaviruses (MERS-CoV and SARS-CoV). This guidance is subject to change as additional information becomes available.

For non-hospitalized patients, see (Interim Guidance for Discontinuation of In-Home Isolation for Patients with COVID-19).

Limited information is available to characterize the spectrum of clinical illness, transmission efficiency, and the duration of viral shedding for patients with COVID-19. Interim guidance for discontinuation of Transmission-Based Precautions and disposition of hospitalized patients has been developed based on available information about COVID-19 and what is known about similar diseases caused by related coronaviruses (MERS-CoV and SARS-CoV). This guidance is subject to change as additional information becomes available.

For non-hospitalized patients, see (Interim Guidance for Discontinuation of In-Home Isolation for Patients with COVID-19).

For Hospitalized Patients with COVID-19 Under Transmission-Based Precautions:

- The decision to discontinue Transmission-Based Precautions for hospitalized patients with COVID-19 should be made on a case-by-case basis in consultation with clinicians, infection prevention and control specialists, and public health officials. This decision should consider disease severity, illness signs and symptoms, and results of laboratory testing for COVID-19 in respiratory specimens. Guidance for discontinuation of in-home isolation precautions is the same as that to discontinue Transmission-Based Precautions for hospitalized patients with

COVID-19. Considerations to discontinue Transmission-Based Precautions include all of the following:

- Resolution of fever, without use of antipyretic medication
- Improvement in illness signs and symptoms
- Negative results of an FDA Emergency Use Authorized molecular assay for COVID-19 from at least two consecutive sets of paired nasopharyngeal and throat swabs specimens collected ≥ 24 hours apart* (total of four negative specimens—two nasopharyngeal and two throat). See Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Patients Under Investigation (PUIs) for 2019 Novel Coronavirus (2019-nCoV) for specimen collection guidance.

Footnote

* Initial guidance is based upon limited information and is subject to change as more information becomes available. In persons with a persistent productive cough, SARS-CoV-2-RNA might be detected for longer periods in sputum specimens than in upper respiratory tract (nasopharyngeal swab and throat swab) specimens.

Disposition of Hospitalized Patients with COVID-19:

- Patients can be discharged from the healthcare facility whenever clinically indicated.
- Isolation should be maintained at home if the patient returns home before the decision is made to discontinue Transmission-Based Precautions. The decision to send the patient home should be made in consultation with the patient's clinical care team and local or state public health departments

and should include considerations of the home's suitability for and patient's ability to adhere to home isolation recommendations, and potential risk of secondary transmission to household members with immunocompromising conditions. See CDC Interim Guidance for Home Care of patients with confirmed COVID-19 and persons under investigation for COVID-19, Interim Guidance for Preventing 2019-nCoV from Spreading to Others in Homes and Communities and Interim Guidance for Discontinuation of In-Home Isolation for Patients with COVID-19.

References

- Al-Abdely HM, Midgley CM, Alkhamis AM, et al. Middle East respiratory syndrome coronavirus infection dynamics and antibody responses among clinically diverse patients, Saudi Arabia. *Emerg Infect Dis*. 2019 Apr;25(4):753–66.
- Al-Abdely HM, Midgley CM, Alkhamis AM, et al. Infectious MERS-CoV isolated from a mildly ill patient, Saudi Arabia. *Open Forum Infect Dis*. 2018 May 15;5(6):ofy111.
- Chan JF, Yuan S, Kok KH, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet*. 2020 Jan 24; 395(10223):514–23. doi: 10.1016/S0140-6736(20)30154-9.
- Chan KH, Poon LL, Cheng VC, et al. Detection of SARS coronavirus in patients with suspected SARS. *Emerg Infect Dis*. 2004 Feb;10(2):294–9.
- Cheng PK, Wong DA, Tong LK, et al. Viral shedding patterns of coronavirus in patients with probable severe acute respiratory syndrome. *Lancet*. 2004 May 22;363(9422):1699–700.
- Corman VM, Albarak AM, Omrani AS, et al. Viral shedding and

antibody response in 37 patients with Middle East respiratory syndrome coronavirus infection. *Clin Infect Dis*. 2016 Feb 15;62(4):477–83.

- Holshue ML, DeBolt C, Lindquist S, et al. First case of 2019 novel coronavirus in the United States. *N Engl J Med*. 2020 Jan 31. doi: 10.1056/NEJMoa2001191. [Epub ahead of print]
- Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020 Jan 24;395(10223):497–506. doi: 10.1016/S0140-6736(20)30183-5
- Hung IF, Cheng VC, Wu AK, et al. Viral loads in clinical specimens and SARS manifestations. *Emerg Infect Dis*. 2004 Sep;10(9):1550–7.
- Liu W, Tang F, Fontanet A, et al. Long-term SARS coronavirus excretion from patient cohort, China. *Emerg Infect Dis*. 2004 Oct;10(10):1841–3.
- Memish ZA, Assiri AM, Al-Tawfiq JA. Middle East respiratory syndrome coronavirus (MERS-CoV) viral shedding in the respiratory tract: an observational analysis with infection control implications. *Int J Infect Dis*. 2014 Dec;29:307–8.
- Zhu N, Zhang D, Wang W, et al. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med*. 2020 Jan 24. doi: 10.1056/NEJMoa2001017 [Epub ahead of print]

Interim Considerations for Infection Prevention and Control of Coronavirus Disease 2019 (COVID-19) in Inpatient Obstetric Healthcare

Settings

These infection prevention and control considerations are for healthcare facilities providing obstetric care for pregnant patients with confirmed coronavirus disease (COVID-19) or pregnant persons under investigation (PUI) in inpatient obstetric healthcare settings including obstetrical triage, labor and delivery, recovery and inpatient postpartum settings.

This information is intended to aid hospitals and clinicians in applying broader CDC interim guidance on infection control (Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings).

Since maternity and newborn care units vary in physical configuration, each facility should consider their appropriate space and staffing needs to prevent transmission of the virus that causes COVID-19. These considerations include appropriate isolation of pregnant patients who have confirmed COVID-19 or are PUIs; basic and refresher training for all healthcare personnel on those units to include correct adherence to infection control practices and personal protective equipment (PPE) use and handling; sufficient and appropriate PPE supplies positioned at all points of care; and processes to protect newborns from risk of COVID-19.

These considerations are based upon the limited evidence available to date about transmission of the virus that causes COVID-19, and knowledge of other viruses that cause severe respiratory illness including influenza, severe acute respiratory syndrome coronavirus (SARS-CoV), and Middle East Respiratory Syndrome coronavirus (MERS-CoV). The approaches outlined below are intentionally cautious until additional data become available to refine recommendations for prevention of person-to-person transmission in inpatient obstetric care settings.

Prehospital Considerations

- Pregnant patients who have confirmed COVID-19 or who are PUIs should notify the obstetric unit prior to arrival so the facility can make appropriate infection control preparations (e.g., identifying the most appropriate room for labor and delivery, ensuring infection prevention and control supplies and PPE are correctly positioned, informing all healthcare personnel who will be involved in the patient's care of infection control expectations) before the patient's arrival.
- If a pregnant patient who has confirmed COVID-19 or is a PUI is arriving via transport by emergency medical services, the driver should contact the receiving emergency department or healthcare facility and follow previously agreed-upon local or regional transport protocols. For more information refer to the Interim Guidance for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19 in the United States.
- Healthcare providers should promptly notify infection control personnel at their facility of the anticipated arrival of a pregnant patient who has confirmed COVID-19 or is a PUI.

During Hospitalization

- Healthcare facilities should ensure recommended infection control practices for hospitalized pregnant patients who have confirmed COVID-19 or are PUIs are consistent with Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.
- All healthcare facilities that provide obstetric care must ensure that

their personnel are correctly trained and capable of implementing recommended infection control interventions. Individual healthcare personnel should ensure they understand and can adhere to infection control requirements.

- Healthcare facilities should follow the above infection control guidance on managing visitor access, including essential support persons for women in labor (e.g., spouse, partner).
- Infants born to mothers with confirmed COVID-19 should be considered PUIs. As such, infants should be isolated according to the Infection Prevention and Control Guidance for PUIs.

Mother/Baby Contact

- It is unknown whether newborns with COVID-19 are at increased risk for severe complications. Transmission after birth via contact with infectious respiratory secretions is a concern. To reduce the risk of transmission of the virus that causes COVID-19 from the mother to the newborn, facilities should consider temporarily separating (e.g., separate rooms) the mother who has confirmed COVID-19 or is a PUI from her baby until the mother's transmission-based precautions are discontinued, as described in the Interim Considerations for Disposition of Hospitalized Patients with COVID-19. See the considerations below for temporary separation:
 - The risks and benefits of temporary separation of the mother from her baby should be discussed with the mother by the healthcare team.
 - A separate isolation room should be available for the infant while they remain a PUI. Healthcare facilities should consider limiting visitors, with the exception of a healthy parent or caregiver. Visitors should be instructed to wear appropriate PPE, including gown, gloves, face mask, and eye protection.

If another healthy family or staff member is present to provide care (e.g., diapering, bathing) and feeding for the newborn, they should use appropriate PPE. For healthy family members, appropriate PPE includes gown, gloves, face mask, and eye protection. For healthcare personnel, recommendations for appropriate PPE are outlined in the Infection Prevention and Control Recommendations.

- The decision to discontinue temporary separation of the mother from her baby should be made on a case-by-case basis in consultation with clinicians, infection prevention and control specialists, and public health officials. The decision should take into account disease severity, illness signs and symptoms, and results of laboratory testing for the virus that causes COVID-19, SARS-CoV-2. Considerations to discontinue temporary separation are the same as those to discontinue transmission-based precautions for hospitalized patients with COVID-19. Please see Interim Considerations for Disposition of Hospitalized Patients with COVID-19.
- If colocation (sometimes referred to as “rooming in”) of the newborn with his/her ill mother in the same hospital room occurs in accordance with the mother’s wishes or is unavoidable due to facility limitations, facilities should consider implementing measures to reduce exposure of the newborn to the virus that causes COVID-19.
 - Consider using engineering controls like physical barriers (e.g., a curtain between the mother and newborn) and keeping the newborn ≥ 6 feet away from the ill mother.
 - If no other healthy adult is present in the room to care for the newborn, a mother who has confirmed COVID-19 or is a PUI should put on a facemask and practice hand hygiene¹ before each feeding or other close contact with her newborn. The facemask should remain in place during contact with the newborn. These practices should continue

while the mother is on transmission-based precautions in a healthcare facility.

Breastfeeding

- During temporary separation, mothers who intend to breastfeed should be encouraged to express their breast milk to establish and maintain milk supply. If possible, a dedicated breast pump should be provided. Prior to expressing breast milk, mothers should practice hand hygiene.¹ After each pumping session, all parts that come into contact with breast milk should be thoroughly washed and the entire pump should be appropriately disinfected per the manufacturer's instructions. This expressed breast milk should be fed to the newborn by a healthy caregiver.
- If a mother and newborn do room-in and the mother wishes to feed at the breast, she should put on a facemask and practice hand hygiene before each feeding.

Hospital Discharge

- Discharge for postpartum women should follow recommendations described in the Interim Considerations for Disposition of Hospitalized Patients with COVID-19.
- For infants with pending testing results or who test negative for the virus that causes COVID-19 upon hospital discharge, caretakers should take steps to reduce the risk of transmission to the infant, including following the Interim Guidance for Preventing Spread of Coronavirus Disease 2019 (COVID-19) in Homes and Residential Communities.

Footnote:

¹ Hand hygiene includes use of alcohol-based hand sanitizer that contains 60% to 95% alcohol before and after all patient contact, contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves. Hand hygiene can also be performed by washing with soap and water for at least 20 seconds. If hands are visibly soiled, use soap and water before returning to alcohol-based hand sanitizer.

What Healthcare Personnel Should Know about Caring for Patients with Confirmed or Possible COVID-19 Infection

Healthcare personnel (HCP) are on the front lines of caring for patients with confirmed or possible infection with coronavirus disease 2019 (COVID-19) and therefore have an increased risk of exposure to this virus. HCPs can minimize their risk of exposure when caring for confirmed or possible COVID-19 patients by following Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.

How COVID-19 Spreads

There is much to learn about the newly emerged COVID-19, including how and how easily it spreads. Based on what is currently known about COVID-19 and what is known about other coronaviruses, spread is thought to occur mostly from person-to-person via respiratory droplets among close contacts.

Close contact can occur while caring for a patient, including:

- being within approximately 6 feet (2 meters) of a patient with COVID-19 for a prolonged period of time.
- having direct contact with infectious secretions from a patient with COVID-19. Infectious secretions may include sputum, serum, blood, and respiratory droplets.

If close contact occurs while not wearing all recommended PPE, healthcare personnel may be at risk of infection.

How You Can Protect Yourself

Healthcare personnel caring for patients with confirmed or possible COVID-19 should adhere to CDC recommendations for infection prevention and control (IPC):

- Assess and triage these patients with acute respiratory symptoms and risk factors for COVID-19 to minimize chances of exposure, including placing a facemask on the patient and placing them in an examination room with the door closed.
- Use Standard and Transmission-Based Precautions when caring for patients with confirmed or possible COVID-19.
- Perform hand hygiene with alcohol-based hand rub before and after all patient contact, contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves. Use soap and water if hands are visibly soiled.
- Practice how to properly in a manner to prevent self-contamination.
- Perform aerosol-generating procedures, in an AIIR, while following appropriate IPC practices, including use of appropriate PPE.

Environmental Cleaning and Disinfection

Routine cleaning and disinfection procedures are appropriate for SARS-CoV-2 in healthcare settings, including those patient-care areas in which

aerosol-generating procedures are performed. Products with EPA-approved emerging viral pathogens claims are recommended for use against SARS-CoV-2. Management of laundry, food service utensils, and medical waste should also be performed in accordance with routine procedures.

When to Contact Occupational Health Services

If you have an unprotected exposure (i.e., not wearing recommended PPE) to a confirmed or possible COVID-19 patient, contact your supervisor or occupational health immediately.

If you develop symptoms consistent with COVID-19 (fever, cough, or difficulty breathing), do not report to work. Contact your occupational health services.

For more information for healthcare personnel, visit:
<https://www.cdc.gov/coronavirus/2019-nCoV/hcp/index.html>

Strategies for Optimizing the Supply of N95 Respirators

Summary of Changes

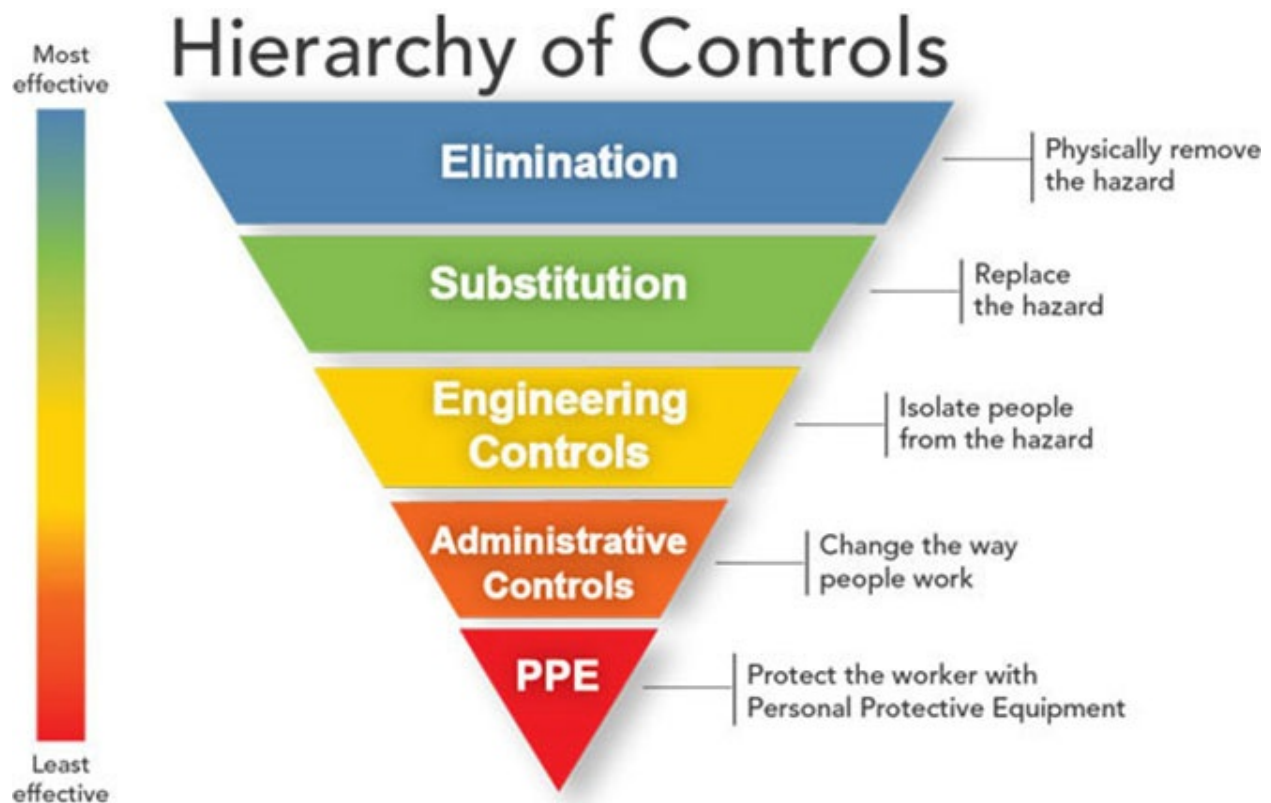
- Clarification of introductory language
- Information added on Crisis/Alternative Strategies
- Information added to expand upon strategies, including two new resources:
 - Checklist for Healthcare Facilities: Strategies for Optimizing the Supply of N95 Respirators during the COVID-19 Response

- Release of Stockpiled N95 Filtering Facepiece Respirators Beyond the Manufacturer-Designated Shelf Life: Considerations for the COVID-19 Response

Audience: These considerations are intended for use by federal, state, and local public health officials, respiratory protection program managers, occupational health service leaders, infection prevention and control program leaders, and other leaders in healthcare settings who are responsible for developing and implementing policies and procedures for preventing pathogen transmission in healthcare settings.

Purpose: This document offers a series of strategies or options to optimize supplies of disposable N95 filtering facepiece respirators (commonly called “N95 respirators”) in healthcare settings when there is limited supply. It does not address other aspects of pandemic planning; for those, healthcare settings can refer to existing influenza preparedness plans to address other aspects of preparing to respond to novel coronavirus disease 2019 (COVID-19). The strategies are also listed in order of priority and preference in the Checklist for Healthcare Facilities: Strategies for Optimizing the Supply of N95 Respirators during the COVID-19 Response in an easy-to-use format for healthcare facilities.

The following strategies are based upon these assumptions: 1) facilities understand their current N95 respirator inventory and supply chain, 2) facilities understand their N95 respirators utilization rate, and 3) facilities are in communication with state and local public health partners (e.g., public health emergency preparedness and response staff) and healthcare coalitions. While these strategies are targeted for optimizing the supply of N95 respirators, some of these strategies may be applicable to optimizing the supply of other personal protective equipment such as gowns, gloves, and eye protection.



Controlling exposures to occupational hazards is a fundamental way to protect personnel. Conventionally, a hierarchy has been used to achieve feasible and effective controls. Multiple control strategies can be implemented concurrently and or sequentially. This hierarchy can be represented as follows:

- Elimination
- Substitution
- Engineering controls
- Administrative controls
- Personal protective equipment (PPE)

To prevent infectious disease transmission, elimination (physically removing the hazard) and substitution (replacing the hazard) are not typically options for the healthcare setting. However, exposures to transmissible respiratory pathogens in healthcare facilities can often be

reduced or possibly avoided through engineering and administrative controls and PPE. Prompt detection and effective triage and isolation of potentially infectious patients are essential to prevent unnecessary exposures among patients, healthcare personnel (HCP), and visitors at the facility.

N95 respirators are the PPE most often used to control exposures to infections transmitted via the airborne route, though their effectiveness is highly dependent upon proper fit and use. The optimal way to prevent airborne transmission is to use a combination of interventions from across the hierarchy of controls, not just PPE alone. Applying a combination of controls can provide an additional degree of protection, even if one intervention fails or is not available.

Respirators, when required to protect HCP from airborne contaminants such as infectious agents, must be used in the context of a comprehensive, written respiratory protection program that meets the requirements of OSHA's Respiratory Protection standard. The program should include medical evaluations, training, and fit testing.

Surge capacity refers to the ability to manage a sudden, unexpected increase in patient volume that would otherwise severely challenge or exceed the present capacity of a facility. While there are no commonly accepted measurements or triggers to distinguish surge capacity from daily patient care capacity, surge capacity is a useful framework to approach a decreased supply of N95 respirators during the COVID-19 response. Three general strata have been used to describe surge capacity and can be used to prioritize measures to conserve N95 respirator supplies along the continuum of care.¹

- Conventional capacity: measures consist of providing patient care without any change in daily contemporary practices. This set of measures, consisting of engineering, administrative, and PPE controls should already be implemented in general infection prevention and control plans in healthcare settings.
- Contingency capacity: measures may change daily contemporary

practices but may not have any significant impact on the care delivered to the patient or the safety of the HCP. These practices may be used temporarily when demands exceed resources.

- Crisis capacity: alternate strategies that are not commensurate with contemporary U.S. standards of care. These measures, or a combination of these measures, may need to be considered during periods of expected or known N95 respirator shortages.

Decisions to implement measures in contingency capacity and then crisis capacity should be based on:

- Consideration of all conventional capacity strategies first.
- The availability of N95 respirators and other types of respiratory protection.
- Consultation with entities that include some combination of: local healthcare coalitions, federal, state, or local public health officials, appropriate state agencies that are managing the overall emergency response related to COVID-19, and state crisis standards of care committees. Even when state/local coalitions or public health authorities can shift resources between health care facilities, these strategies may still be necessary.

Conventional Capacity Strategies

Contingency Capacity Strategies

Crisis Alternate Strategies

References

1. Hick JL, Barbera JA, Kelen GD. Refining surge capacity: conventional, contingency, and crisis capacity. Disaster Med Public Health Prep. 2009;3(2 Suppl): S59-67.

Strategies for Optimizing the Supply of N95 Respirators: Conventional Capacity Strategies

Conventional Capacity Strategies

In the continuum of care, the following measures can be categorized as conventional capacity, which consists of providing patient care without any change in daily practices. This set of controls should already be implemented in general infection prevention and control plans in healthcare settings.

Engineering Controls

Engineering controls reduce exposures for HCP by placing a barrier between the hazard and the HCP. Engineering controls can be very effective as part of a suite of strategies to protect HCP without placing primary responsibility of implementation on them (i.e., they function without HCP having to take an action).

Isolation in airborne infection isolation room

Patients with known or suspected COVID-19 (i.e., person under investigation [PUI]) should be placed in an airborne infection

isolation room (AIIR) that has been constructed and maintained in accordance with current guidelines, as recommended in the Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.

Use of physical barriers

Barriers such as glass/plastic windows can be an effective solution for reducing exposures among HCP to potentially infectious patients. This approach can be effective in reception areas (e.g., intake desk at emergency department, triage station, information booth, pharmacy drop-off/pick-up windows) where patients may first report upon arrival to a healthcare facility. Other examples include the use of curtains between patients in shared areas and closed suctioning systems for airway suctioning for intubated patients.

Properly maintained ventilation systems

Another cornerstone of engineering controls are ventilation systems that provide air movement from a clean (HCP workstation or area) to contaminated (sick patient) flow direction (along with appropriate filtration, exchange rate) that are installed and properly maintained.

Administrative Controls

Administrative controls are employer-dictated work practices and policies that reduce or prevent hazardous exposures. Their effectiveness depends on employer commitment and HCP acceptance and consistent

use of the strategies. Regular training, monitoring and reinforcement are necessary to ensure that policies and procedures are followed consistently. Many of these strategies should already be incorporated into existing infection prevention and control policies in healthcare settings.

Limit number of patients going to hospital or outpatient settings

Consider developing mechanisms to screen patients for acute respiratory illness prior to their non-urgent care or elective visits or procedures, such as through the appointment reminder system. Postpone and reschedule those with signs and symptoms presenting for these non-acute visits.

Exclude all HCP not directly involved in patient care

Current CDC guidance recommends that, for COVID-19, only essential personnel enter the patient care area, and that facilities consider caring for these patients with dedicated HCP. Further limiting the numbers of healthcare personnel and patient contacts to those that are medically essential (e.g., excluding dietary personnel, environmental services) could limit the number of respirators used. The medically essential personnel would assume food delivery and environmental services.

Limit face-to-face HCP encounters with patient

Measures can be explored to limit face-to-face contact encounters between HCP and patients with confirmed or suspected COVID-19. HCP may consider bundling care activities to minimize room entries, and bundling may occur across HCP types (e.g., food trays are

delivered by HCP performing other care). Alternative mechanisms for HCP and patient interactions include telephones, video monitoring, and video-call applications on cell phones or tablets.

Exclude visitors to patients with known or suspected COVID-19

Restrict visitors from entering the rooms of patients with known COVID-19 or suspected (PUI) COVID-19, as recommended in CDC's guidance. Alternative mechanisms for patient and visitor interactions, such as video-call applications on cell phones or tablets should be explored. Facilities can consider exceptions based on end-of-life situations or when a visitor is essential for the patient's emotional well-being and care. If visitors must enter the room of a known or suspected COVID-19 patient, facilities should provide instruction, before visitors enter patients' rooms on use of PPE according to current facility policy while in the patient's room.

Source control

Identify and assess patients who may be ill with or who may have been exposed to a person with known COVID-19. Patients with symptoms of suspected COVID-19 or other respiratory infection (e.g., fever, cough) presenting to care should use facemasks for source control until they can be placed in an airborne infection isolation room or a private room. Instructions should include how to use facemasks. Patients with these symptoms should not wear N95 respirators. If these patients need to leave their room for services in other areas of the hospital (e.g., radiology), they should also wear facemasks for source control.

Cohorting patients

Cohorting is the practice of grouping together patients who are infected with the same organism to confine their care to one area and prevent contact with other patients. Cohorts are created based on clinical diagnosis, microbiologic confirmation when available, epidemiology, and mode of transmission of the infectious agent. Cohorting has been used extensively for managing outbreaks of multidrug resistant organisms including MRSA, VRE, MDR-ESBLs, *Pseudomonas aeruginosa*; methicillin-susceptible *Staphylococcus aureus*, RSV, adenovirus keratoconjunctivitis, rotavirus, and SARS. When single patient rooms are not available, patients with confirmed COVID-19 may be placed in the same room. Cohorting patients could minimize respirator use when extended wear of respirators is implemented. For more information on cohorting of patients, refer to 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.

Cohorting HCP

Assigning designated teams of HCP to provide care for all patients with suspected or confirmed COVID-19 could minimize respirator use when extended wear of RPDs is implemented. This strategy can also limit the number of exposed HCP who need to be fit tested.

Telemedicine

Nurse advice lines and telemedicine can screen and manage patients with suspected COVID-19 without the need for the HCP to use respiratory protection. Promoting the use of these technologies

and referral networks can help triage persons to the appropriate level of care, potentially reducing the influx of patients to healthcare facilities seeking evaluation.

Training on indications for use of N95 respirators

It is important that HCP be trained on indications for use of N95 respirators. The OSHA Respiratory Protection standard requires employers to provide respirator training prior to requiring an employee to use a respirator in the workplace. For example, HCP should use N95 respirators when caring for patients under airborne precautions for infectious diseases including COVID-19, tuberculosis, measles, and varicella. HCP should generally not need to use N95 respirators when caring for patients under droplet precautions for infectious diseases except under certain circumstances (e.g., aerosol-generating procedures for influenza).

Training on use of N95 respirators

Training employees on the proper use of respirators, including putting on and removing them, limitations on their use, and maintenance is essential for effective use of respiratory protection. HCP should be thoroughly trained before they are fit tested to ensure they are comfortable donning the respirator and know how to conduct a user seal check. HCP should be trained on the respirator they are expecting to use at work.

Just in time fit testing

Just-in-time fit testing refers to the capacity of healthcare facilities to do larger scale evaluation, training, and fit testing of employees when necessary during a pandemic. Facilities may adopt a plan to use the “just-in-time” method for fit testing, which has been incorporated into pandemic plans for many facilities. For large facilities, it may not be feasible to fit test all employees, especially if their job does not typically place them at risk for exposure to airborne infectious diseases such as tuberculosis. If healthcare facilities are expecting to receive COVID-19 patients, they should begin training and start to plan for fit testing now. It is essential to have HCP trained and fit tested prior to receiving patients.

Limiting respirators during training

In order to conserve the supply of N95 respirators, healthcare facilities should understand which of their HCP do and do not need to be in a respiratory protection program and thus medically evaluated, trained, and fit tested. If training and fit testing are conducted during two separate steps, it is possible to allow limited re-use of N95 respirators used by individual HCP during both steps. Employees should be fit tested after they are comfortable donning the respirator and have passed a user seal check. Employees should be trained on the respirator they are expecting to use at work. The respirator can be saved and used for fit testing and patient care.

Qualitative fit testing

Respirator fit test methods are classified as either qualitative or

quantitative, and there are multiple protocols of each classification that are NIOSH-recommended or meet the requirements of OSHA's Respiratory Protection Standard. A qualitative fit test is a pass/fail test to assess the adequacy of respirator fit that relies on the individual's sensory detection of a test agent. A quantitative fit test numerically measures the effectiveness of the respirator to seal with the wearer's face, without relying on the wearer's voluntary or involuntary response to a test agent. Quantitative fit tests involve adaptation of the respirator to the fit testing equipment, which can involve making holes in the respirator.

Many healthcare systems already use qualitative fit test methods for fit testing HCP. For those using quantitative fit test methods, considerations can be made to use qualitative fit test methods to minimize the destruction of an N95 respirator used in fit testing and allow for the re-use of the same N95 respirator by the HCP. Qualitative fit methods may also allow for rapid fit testing of larger numbers of HCP. Any switch in methods should be assessed to ensure proficiency of the fit testers in carrying out the test.

Personal Protective Equipment and Respiratory Protection

While engineering and administrative controls should be considered first when selecting controls, the use of personal protective equipment (PPE) should also be part of a suite of strategies used to protect personnel. Proper use of respiratory protection by HCP requires a comprehensive program (including medical clearance, training, and fit testing) that complies with OSHA's Respiratory Protection Standard and a high level of HCP involvement and commitment. The program should also include provisions for the cleaning, disinfecting, inspection, repair, and storage of respirators used by workers on the job. Proper storage conditions can

maximize shelf life of respirators. The following strategies in this section are traditionally used by some healthcare systems. If not already implemented, these strategies can be considered by healthcare settings in the face of a potential N95 respirator shortage before implementing the contingency strategies that are listed further below.

Surgical N95 respirators

Surgical N95 respirators (sometimes called medical respirators) are recommended only for use by HCP who need protection from both airborne and fluid hazards (e.g., splashes, sprays). These respirators are approved by NIOSH and regulated by the FDA and are not used or needed outside of healthcare settings. In times of shortage, only HCP who are working in a sterile field or who may be exposed to high velocity splashes, sprays, or splatters of blood or body fluids should be provided these respirators. Other HCP can use standard N95 respirators. If surgical N95 respirators are not available, and there is a risk that the worker may be exposed to high velocity splashes, sprays, or splatters of blood or body fluids, then a faceshield should be worn over the standard N95 respirator.

Use of alternatives to N95 respirators

Use alternatives to N95 respirators where feasible. These include other classes of filtering facepiece respirators, elastomeric half-mask and full facepiece air purifying respirators, powered air purifying respirators (PAPRs) where feasible. All of these alternatives will provide equivalent or higher protection than N95 respirators when properly worn. NIOSH maintains a searchable, online version of the certified equipment list identifying all NIOSH-approved respirators.

NIOSH approves other filtering facepiece respirators that are at least

as protective as the N95. These include N99, N100, P95, P99, P100, R95, R99, and R100.

Elastomeric respirators are half-facepiece, tight-fitting respirators that are made of synthetic or rubber material permitting them to be repeatedly disinfected, cleaned, and reused. They are equipped with exchangeable filter cartridges. Similar to N95 respirators, elastomeric respirators require annual fit testing. Elastomeric respirators should not be used in surgical settings due to concerns that air coming out of the exhalation valve may contaminate the sterile field.

PAPRs are reusable respirators that are typically loose-fitting hoods or helmets. These respirators are battery-powered with blower that pulls air through attached filters or cartridges. The filter is typically a high-efficiency particulate air (HEPA) filter. Loose-fitting PAPRs do not require fit-testing and can be worn by people with facial hair. However, PAPRs should not be used in surgical settings due to concerns that the blower exhaust and exhaled air may contaminate the sterile field.

Facilities using elastomeric respirators and PAPRs should have up to date cleaning/disinfection procedures, which are an essential part of use for protection against infectious agents.

Strategies for Optimizing the Supply of N95 Respirators: Contingency Capacity Strategies

Contingency Capacity Strategies

In the continuum of care, the following measures can be categorized as contingency capacity, which may change daily practices but may not have any significant impact on the care delivered to the patient or the safety of the HCP. The following measures may be considered in the setting of a potential impending shortage of N95 respirators. The decision to implement these practices should be made on a case by case basis taking into account known characteristics of the SARS-CoV-2 and local conditions (e.g., number of disposable N95 respirators available, current respirator usage rate, success of other respirator conservation strategies, etc.).

Administrative Controls

Decrease length of hospital stay for medically stable patients with COVID-19

Currently, CDC recommends discharge of patients with confirmed COVID-19 when they are medically stable and have an appropriate home environment to which to return. CDC lists considerations for care at home in: Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for Coronavirus Disease 2019 (COVID-19). If patients cannot be discharged to home for social rather than medical reasons, public health officials might need to identify alternative non-hospital housing where those patients can convalesce.

Personal Protective Equipment and Respiratory Protection

Use of N95 respirators beyond the manufacturer-designated shelf life for

training and fit testing

In times of shortage, consideration can be made to use N95 respirators beyond the manufacturer-designated shelf life. However, expired respirators might not perform to the requirements for which they were certified. Over time, components such as the strap and material may degrade, which can affect the quality of the fit and seal. Because of this, use of expired respirators could be prioritized for situations where HCP are NOT exposed to pathogens, such as training and fit testing. As expired respirators can still serve an important purpose, healthcare facilities should retain all N95 respirators during the early phases of this outbreak.

Extended use of N95 respirators

Practices allowing extended use of N95 respirators, when acceptable, can also be considered. The decision to implement policies that permit extended use of N95 respirators should be made by the professionals who manage the institution's respiratory protection program, in consultation with their occupational health and infection control departments with input from the state/local public health departments. CDC has recommended guidance on implementation of extended use of N95 respirators in healthcare settings. Extended use has been recommended and widely used as an option for conserving respirators during previous respiratory pathogen outbreaks and pandemics.

Extended use refers to the practice of wearing the same N95 respirator for repeated close contact encounters with several different patients, without removing the respirator between patient encounters. Extended use is well suited to situations wherein multiple patients with the same infectious disease diagnosis, whose care requires use of a respirator, are cohorted (e.g., housed on the same hospital unit). It can also be considered to be used for care of patients with tuberculosis, varicella, and measles.

Limited re-use of N95 respirators for tuberculosis

Re-use refers to the practice of using the same N95 respirator by one HCP for multiple encounters with different patients but removing it (i.e. doffing) after each encounter. This practice is often referred to as “limited reuse” because restrictions are in place to limit the number of times the same respirator is reused. It is important to consult with the respirator manufacturer regarding the maximum number of donnings or uses they recommend for the N95 respirator model. If no manufacturer guidance is available, data suggests limiting the number of reuses to no more than five uses per device to ensure an adequate safety margin.¹ N95 and other disposable respirators should not be shared by multiple HCP. CDC has recommended guidance on implementation of limited re-use of N95 respirators in healthcare settings.

For pathogens for which contact transmission is not a concern, routine limited reuse of single-use disposable respirators has been practiced for decades. For example, for tuberculosis prevention, a respirator classified as disposable can be reused by the same provider as long as the respirator maintains its structural and functional integrity. To extend the supply of N95 respirators during an anticipated dwindling supply, HCP could be encouraged to reuse their N95 respirators when caring for patients with tuberculosis disease.

To maintain the integrity of the respirator, it is important for HCP to hang used respirators in a designated storage area or keep them in a clean, breathable container such as a paper bag between uses. It is not recommended to modify the N95 respirator by placing any material within the respirator or over the respirator. Modification may negatively affect the performance of the respirator and could void the NIOSH approval.

References

1. Hick JL, Barbera JA, Kelen GD. Refining surge capacity: conventional, contingency, and crisis capacity. Disaster Med Public Health Prep. 2009;3(2 Suppl): S59-67.

Strategies for Optimizing the Supply of N95 Respirators: Crisis/Alternate Strategies

Crisis/Alternate Strategies

These crisis capacity or alternate strategies accompany and build on the conventional and contingency capacity strategies. The following measures are not commensurate with current U.S. standards of care. However, individual measures or a combination of these measures may need to be considered during periods of expected or known N95 respirator shortages. It is important to consult with entities that include some combination of: local healthcare coalitions, federal, state, or local public health officials, appropriate state agencies that are managing the overall emergency response related to COVID-19, and state crisis standards of care committees. Even when state/local healthcare coalitions or public health authorities can shift resources between health care facilities, these strategies may still be necessary.

When N95 Supplies are Running Low

Personal Protective Equipment and Respiratory Protection

Use of respirators beyond the manufacturer-designated shelf life for healthcare delivery

Consideration can be made to use N95 respirators beyond the manufacturer-designated shelf life for care of patients with COVID-19, tuberculosis, measles, and varicella. However, respirators beyond the manufacturer-designated shelf life may not perform to the requirements for which they were certified. Over time, components such as the straps and nose bridge material may degrade, which can affect the quality of the fit and seal. Many models found in U.S. stockpiles and stockpiles of healthcare facilities have been found to continue to perform in accordance with NIOSH performance standards. However, fluid resistance and flammability were not assessed. Use of the N95 respirators recommended in Release of Stockpiled N95 Filtering Facepiece Respirators Beyond the Manufacturer-Designated Shelf Life: Considerations for the COVID-19 Response can be considered. It is optimal to use these respirators in the context of a respiratory protection program that includes medical evaluation, training, and fit testing. If used in healthcare delivery, it is particularly important that HCP perform the expected seal check, prior to entering a patient care area. CDC does not recommend using N95s beyond the manufacturer-designated shelf life in surgical settings.

Use of respirators approved under standards used in other countries that are similar to NIOSH-approved N95 respirators

Other countries approve respirators for occupational use and approve respirators to these standards. These products are evaluated using some methods similar to those used by NIOSH, and some methods that are different, but are expected to protect HCPs. These respirators are expected to provide protection to workers. Those with equivalent or similar protection to NIOSH-approved respirators may be available to provide respiratory protection to workers exposed to harmful airborne

particulate matter. These devices are expected to be suitable alternatives to provide protection during the COVID-19 response when supplies are short. The country, conformity assessment standards, acceptable product classifications, standards and guidance documents, and protection factor determination are provided in alphabetical order. All of these respirators have protection factors of at least 10 in the countries listed below, as outlined in the standards and guidance documents specified.

Country	Performance Standard	Acceptable product classifications	Standards/Guidance Documents
Australia	AS/NZS 1716:2012	P3 P2	AS/NZS 1715:2009
Brazil	ABNT/NBR 13694:1996 and 13697:2010	P3 P2	Fundacentro CDU 614.894
China	GB 2626-2006	KN 100 KP100 KN95 KP95	GB/T 18664—2002
Europe	EN 149-2001	FFP3 FFP2	EN 529:2005
Japan	JMHLW-2000	DS/DL3 DS/DL2	JIS T8150: 2006
Korea	KMOEL-2017-64	Special 1st	KOSHA GUIDE H-82-2015

Mexico	NOM-116-2009	N100, P100, R100 N99, P99, R99 N95, P95, R95	NOM-116
US NIOSH Requirements	NIOSH approved 42 CFR 84	N100, P100, R100 N99, P99, R99 N95, P95, R95	OSHA 29CFR1910.134

Limited re-use of N95 respirators for COVID-19 patients

Limited re-use of N95 respirators when caring for patients with COVID-19 might become necessary. However, it is unknown what the potential contribution of contact transmission is for SARS-CoV-2, and caution should be used. Re-use should be implemented according to CDC guidance. Re-use has been recommended as an option for conserving respirators during previous respiratory pathogen outbreaks and pandemics. It may also be necessary to re-use N95 respirators when caring for patients with varicella or measles, although contact transmission poses a risk to HCP who implement this practice.

Use of additional respirators beyond the manufacturer-designated shelf life for healthcare delivery

Use of additional N95 respirators beyond the manufacturer-designated shelf life for care of patients with COVID-19, tuberculosis, measles, and

varicella can be considered. However, respirators beyond the manufacturer-designated shelf life may not perform to the requirements for which they were certified. Over time, components such as the straps and nose bridge material may degrade, which can affect the quality of the fit and seal. Some models have been found NOT to perform in accordance with NIOSH performances standards, and consideration may be given to use these respirators as identified in Release of Stockpiled N95 Filtering Facepiece Respirators Beyond the Manufacturer-Designated Shelf Life: Considerations for the COVID-19 Response. In addition, consideration can be given to use N95 respirators beyond the manufacturer-designated shelf life that have not been evaluated by NIOSH. It is optimal to use these respirators in the context of a respiratory protection program that includes medical evaluation, training, and fit testing. It is particularly important that HCP perform the expected seal check, prior to entering a patient care area.

Prioritize the use of N95 respirators and facemasks by activity type

The number of infectious particles required to cause an infection (infectious dose) is often uncertain or unknown for respiratory pathogens. Further, there is often uncertainty about the influence of factors such as exposure duration and nature of clinical symptoms on the likelihood of infection transmission from person-to-person. When facemasks must be used by HCP entering a patient care area, source control (i.e. masking of symptomatic patients) and maintaining distance from the patient are particularly important to reduce the risk of transmission.

This prioritization approach to conservation is intended to be used when N95 respirators are so limited that routinely practiced standards of care for all HCP wearing N95 respirators when caring for a COVID-19 patient are no longer possible. N95 respirators beyond their manufacture-designated shelf life, when available, are preferable to use of facemasks. The use of N95s or elastomeric respirators or PAPRs should be prioritized for HCP with the highest potential exposures including being

present in the room during aerosol generating procedures performed on symptomatic persons.

Suggested facemask or respirator use, based upon distance from a patient with suspected or known COVID-19 and use of source control*

HCP planned proximity to the case patient during encounter	Facemask or respirator determination	
	Patient masked for entire encounter (i.e., with source control)	Unmasked patient or mask needs to be removed for any period of time during the patient encounter
HCP will remain at greater than 6 feet from symptomatic patient	HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: no facemask or respirator	HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: no facemask or respirator
HCP will be within 3 to 6 feet of symptomatic patient	HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: facemask	HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: facemask
HCP will be within 3 feet of symptomatic patient, including providing direct patient care	Facemask	N95 respirator/ elastomeric /PAPR, based on availability

HCP will be present in the room during aerosol generating procedures performed on symptomatic persons	N95 respirator/ elastomeric /PAPR, based on availability	N95 respirator/ elastomeric /PAPR, based on availability
* Based on availability, organizations may require and/or individuals may voluntarily choose to utilize higher levels of protection		

When No Respirators are Left

Administrative Controls

Exclude HCP at higher risk for severe illness from COVID-19 from contact with known or suspected COVID-19 patients

During severe resource limitations, consider excluding HCP who may be at higher risk for severe illness from COVID-19, such as those of older age, those with chronic medical conditions, or those who may be pregnant, from caring for patients with confirmed or suspected COVID-19 infection.

Designate convalescent HCP for provision of care to known or suspected COVID-19 patients

It may be possible to designate HCP who have clinically recovered from

COVID-19 to preferentially provide care for additional patients with COVID-19. Individuals who have recovered from COVID-19 infection may have developed some protective immunity, but this has not yet been confirmed.

Engineering Controls

Expedient patient isolation rooms for risk-reduction

Portable fan devices with high-efficiency particulate air (HEPA) filtration that are carefully placed can increase the effective air changes per hour of clean air to the patient room, reducing risk to individuals entering the room without respiratory protection. NIOSH has developed guidance for using portable HEPA filtration systems to create expedient patient isolation rooms. The expedient patient isolation room approach involves establishing a high-ventilation-rate, negative pressure, inner isolation zone that sits within a “clean” larger ventilated zone. In the absence of any remaining supply of N95 respirators, it may be possible to use this technology in conjunction with HCP wearing facemasks.

Ventilated Headboards

NIOSH has developed the ventilated headboard that draws exhaled air from a patient in bed into a HEPA filter, decreasing risk of HCP exposure to patient-generated aerosol. This technology consists of lightweight, sturdy, and adjustable aluminum framing with a retractable plastic canopy. The ventilated headboard can be deployed in combination with HEPA fan/filter units to provide surge isolation capacity within a variety of environments, from traditional patient rooms to triage stations, and emergency medical shelters. In the absence of any remaining supply of N95 respirators, it may be possible to use this technology in conjunction with HCP and/or patients wearing facemasks.

Personal Protective Equipment and

Respiratory Protection

HCP use of non-NIOSH approved masks or homemade masks

In settings where N95 respirators are so limited that routinely practiced standards of care for wearing N95 respirators and equivalent or higher level of protection respirators are no longer possible, and surgical masks are not available, as a last resort, it may be necessary for HCP to use masks that have never been evaluated or approved by NIOSH or homemade masks. It may be considered to use these masks for care of patients with COVID-19, tuberculosis, measles, and varicella. However, caution should be exercised when considering this option.^{1,2}

References

1. Dato, VM, Hostler, D, and Hahn, ME. Simple Respiratory Mask, *Emerg Infect Dis.* 2006; 12(6): 1033–1034.
2. Rengasamy S, Eimer B, and Shaffer R. Simple respiratory protection-evaluation of the filtration performance of cloth masks and common fabric materials against 20-1000 nm size particles, *Ann Occup Hyg.* 2010;54(7):789-98.

Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients

with Coronavirus Disease (COVID-19)

Summary of Recent Changes

Update: This Interim Guidance was updated on March 7, 2020 to make the following changes:

- Updating recommendations regarding HCP contact tracing, monitoring, and work restrictions in selected circumstances. These include allowances for asymptomatic HCP who have had an exposure to a COVID-19 patient to continue to work after options to improve staffing have been exhausted and in consultation with their occupational health program. (See Additional Considerations and Recommendations at the end of the document)
- Removed requirement under “self monitoring with delegated supervision” for healthcare facilities to actively verify absence of fever and respiratory symptoms when healthcare personnel (HCP) report for work. This is now optional.
- Simplified risk exposure categories based on most common scenarios with focus on presence/absence of source control measures; use of personal protective equipment (PPE) by HCP; and degree of contact with the patient (i.e., prolonged versus brief)
- Added language advising HCP to inform their occupational health program if they have travel or community-associated exposures as defined in Interim US Guidance for Risk Assessment and Public Health

Management of Persons with Potential Coronavirus Disease (COVID-19) Exposure in Travel-associated or Community Settings.

Background

Coronaviruses are a large family of viruses that are common in humans and in many different species of animals, including camels, cattle, cats, and bats. Rarely, animal coronaviruses can infect people and then spread between people such as with SARS-CoV, MERS-CoV, and now with SARS-CoV-2.

Published and early reports suggest spread from person-to-person most frequently happens during close exposure to a person infected with COVID-19. Person-to-person appears to occur similar to other respiratory viruses, mainly via respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths, noses, or eyes of people who are nearby or possibly be inhaled into the lungs. Although not likely to be the predominant mode of transmission, it is not clear the extent to which touching a surface contaminated with the virus and then touching the mouth, nose, or eyes contributes to transmission.

Purpose

This interim guidance is intended to assist with assessment of risk, monitoring, and work restriction decisions for HCP with potential exposure to COVID-19. For guidance on assessment and management of exposure risk in non-healthcare settings, refer to the Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease (COVID-19) Exposure in Travel-associated or Community Settings. The guidance for non-

healthcare settings can also be used to identify the movement, public activity and travel restrictions that apply to the HCP included here.

Because of their often extensive and close contact with vulnerable individuals in healthcare settings, a conservative approach to HCP monitoring and restriction from work was taken to quickly identify early symptoms and prevent transmission from potentially contagious HCP to patients, HCP, and visitors. The signs and symptoms* described in this guidance are broader than those described when assessing exposures for individuals not working in healthcare. Healthcare facilities should have a low threshold for evaluating symptoms and testing symptomatic HCP, particularly those who fall into the high- and medium- risk categories described in this guidance.

This guidance is based on currently available data about COVID-19. Recommendations regarding which HCP are restricted from work may not anticipate every potential scenario and will change if indicated by new information.

Healthcare facilities, in consultation with public health authorities, should use clinical judgement as well as the principles outlined in this guidance to assign risk and determine need for work restrictions. CDC remains available for further consultation by calling the Emergency Operations Center at 770-488-7100. This cautious approach will be refined and updated as more information becomes available and as response needs change in the United States.

Other Resources

For guidance on risk assessment and public health management of persons not working in a U.S. healthcare setting refer to: Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease (COVID-19) Exposure in Travel-associated or Community Settings.

For infection prevention and control guidance for healthcare settings caring for Persons with Known or Under Investigation (PUI) for Coronavirus Disease (COVID-19), refer to the Interim Infection Prevention and Control Recommendations for Patients with Known or Patients Under Investigation for Coronavirus Disease (COVID-19) in a Healthcare Setting.

I. Definitions Used in this Guidance

Self-monitoring means HCP should monitor themselves for fever by taking their temperature twice a day and remain alert for respiratory symptoms (e.g., cough, shortness of breath, sore throat)*. Anyone on self-monitoring should be provided a plan for whom to contact if they develop fever or respiratory symptoms during the self-monitoring period to determine whether medical evaluation is needed.

Active monitoring means that the state or local public health authority assumes responsibility for establishing regular communication with potentially exposed people to assess for the presence of fever or respiratory symptoms (e.g., cough, shortness of breath, sore throat)*. For HCP with high- or medium-risk exposures, CDC recommends this communication occurs at least once each day. The mode of communication can be determined by the state or local public health authority and may include telephone calls or any electronic or internet-based means of communication.

For HCP, active monitoring can be delegated by the health department to the HCP's healthcare facility occupational health or infection control program, if both the health department and the facility are in agreement. Note, inter-jurisdictional coordination will be needed if HCP live in a different local health jurisdiction than where the healthcare facility is located.

Self-Monitoring with delegated supervision in a healthcare setting means

HCP perform self-monitoring with oversight by their healthcare facility's occupational health or infection control program in coordination with the health department of jurisdiction, if both the health department and the facility are in agreement. On days HCP are scheduled to work, healthcare facilities could consider measuring temperature and assessing symptoms prior to starting work. Alternatively, a facility may consider having HCP report temperature and absence of symptoms to occupational health prior to starting work. Modes of communication may include telephone calls or any electronic or internet-based means of communication.

Occupational health or infection control personnel should establish points of contact between the organization, the self-monitoring personnel, and the local or state health departments of authority in the location where self-monitoring personnel will be during the self-monitoring period. This communication should result in agreement on a plan for medical evaluation of personnel who develop fever or respiratory symptoms (e.g., cough, shortness of breath, sore throat)* during the self-monitoring period. The plan should include instructions for notifying occupational health and the local public health authority, and transportation arrangements to a designated hospital, if medically necessary, with advance notice if fever or respiratory symptoms occur. The supervising organization should remain in contact with HCP through the self-monitoring period to manage self-monitoring activities and provide timely and appropriate follow-up if symptoms occur in a HCP. Note, inter-jurisdictional coordination will be needed if HCP live in a different local health jurisdiction than where the healthcare facility is located.

Close contact for healthcare exposures is defined as follows: a) being within approximately 6 feet (2 meters), of a person with COVID-19 for a prolonged period of time (such as caring for or visiting the patient; or sitting within 6 feet of the patient in a healthcare waiting area or room); or b) having unprotected direct contact with infectious secretions or excretions of the patient (e.g., being coughed on, touching used tissues with a bare hand).

Data are limited for definitions of close contact. Factors for consideration include the duration of exposure (e.g., longer exposure time likely increases exposure risk), clinical symptoms of the patient (e.g., coughing likely increases exposure risk) and whether the patient was wearing a facemask (which can efficiently block respiratory secretions from contaminating others and the environment), PPE used by personnel, and whether aerosol-generating procedures were performed.

Data are insufficient to precisely define the duration of time that constitutes a prolonged exposure. However, until more is known about transmission risks, it is reasonable to consider an exposure greater than a few minutes as a prolonged exposure. Brief interactions are less likely to result in transmission; however, clinical symptoms of the patient and type of interaction (e.g., did the patient cough directly into the face of the HCP) remain important. Recommendations will be updated as more information becomes available.

Risk stratification can be made in consultation with public health authorities. Examples of brief interactions include: briefly entering the patient room without having direct contact with the patient or their secretions/excretions, brief conversation at a triage desk with a patient who was not wearing a facemask. See Table 1 for more detailed information.

Healthcare Personnel: For the purposes of this document HCP refers to all paid and unpaid persons serving in healthcare settings who have the potential for direct or indirect exposure to patients or infectious materials, including body substances; contaminated medical supplies, devices, and equipment; contaminated environmental surfaces; or contaminated air. For this document, HCP does not include clinical laboratory personnel.

II. Defining Exposure Risk Category

While body fluids other than respiratory secretions have not been clearly

implicated in transmission of COVID-19, unprotected contact with other body fluids, including blood, stool, vomit, and urine, might put HCP at risk of COVID-19.

Table 1 describes possible scenarios that can be used to assist with risk assessment. These scenarios do not cover all potential exposure scenarios and should not replace an individual assessment of risk for the purpose of clinical decision making or individualized public health management. Any public health decisions that place restrictions on an individual's or group's movements or impose specific monitoring requirements should be based on an assessment of risk for the individual or group. Healthcare facilities, in consultation with public health authorities should use the concepts outlined in this guidance along with clinical judgement to assign risk and determine need for work restrictions.

For this guidance high-risk exposures refer to HCP who have had prolonged close contact with patients with COVID-19 who were not wearing a facemask while HCP nose and mouth were exposed to material potentially infectious with the virus causing COVID-19. Being present in the room for procedures that generate aerosols or during which respiratory secretions are likely to be poorly controlled (e.g., cardiopulmonary resuscitation, intubation, extubation, bronchoscopy, nebulizer therapy, sputum induction) on patients with COVID-19 when the healthcare providers' eyes, nose, or mouth were not protected, is also considered high-risk.

Medium-risk exposures generally include HCP who had prolonged close contact with patients with COVID-19 who were wearing a facemask while HCP nose and mouth were exposed to material potentially infectious with the virus causing COVID-19. Some low-risk exposures are considered medium-risk depending on the type of care activity performed. For example, HCP who were wearing a gown, gloves, eye protection and a facemask (instead of a respirator) during an aerosol-generating procedure would be considered to have a medium-risk exposure. If an aerosol-generating procedure had not been performed, they would have been considered low-risk. See Table 1 for additional examples.

Low-risk exposures generally refer to brief interactions with patients with COVID-19 or prolonged close contact with patients who were wearing a facemask for source control while HCP were wearing a facemask or respirator. Use of eye protection, in addition to a facemask or respirator would further lower the risk of exposure.

Proper adherence to currently recommended infection control practices, including all recommended PPE, should protect HCP having prolonged close contact with patients infected with COVID-19. However, to account for any inconsistencies in use or adherence that could result in unrecognized exposures HCP should still perform self-monitoring with delegated supervision.

HCP with no direct patient contact and no entry into active patient management areas who adhere to routine safety precautions do not have a risk of exposure to COVID-19 (i.e., they have no identifiable risk.)

Currently, this guidance applies to HCP with potential exposure in a healthcare setting to patients with confirmed COVID-19. However, HCP exposures could involve a PUI who is awaiting testing. Implementation of monitoring and work restrictions described in this guidance could be applied to HCP exposed to a PUI if test results for the PUI are not expected to return within 48 to 72 hours. A record of HCP exposed to a PUI should be maintained and HCP should be encouraged to perform self-monitoring while awaiting test results. If the results will be delayed more than 72 hours or the patient is positive for COVID-19, then the monitoring and work restrictions described in this document should be followed.

Table 1: Epidemiologic Risk Classification¹ for Asymptomatic Healthcare Personnel Following Exposure to Patients with Coronavirus Disease (COVID-19) or their Secretions/Excretions in a Healthcare Setting, and their Associated Monitoring and Work Restriction Recommendations

Both high- and medium-risk exposures place HCP at more than low-risk for developing infection; therefore, the recommendations for active

monitoring and work restrictions are the same for these exposures. However, these risk categories were created to align with risk categories described in the Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease (COVID-19) Exposure in Travel-associated or Community Settings, which outlines criteria for quarantine and travel restrictions specific to high-risk exposures. Use that Interim Guidance for information about the movement, public activity, and travel restrictions that apply to the HCP included here.

The highest risk exposure category that applies to each person should be used to guide monitoring and work restrictions.

Note: While respirators confer a higher level of protection than facemasks, and are recommended when caring for patients with COVID-19, facemasks still confer some level of protection to HCP, which was factored into our assessment of risk.

Epidemiologic risk factors	Exposure category	Recommended Monitoring for COVID-19 (until 14 days after last potential exposure)	Work Restrictions for Asymptomatic HCP
Prolonged close contact with a COVID-19 patient who was wearing a facemask (i.e., source control)			
HCP PPE: None	Medium	Active	Exclude from work for 14 days after last exposure
HCP PPE: Not wearing a facemask	Medium	Active	Exclude from work

or respirator			for 14 days after last exposure
HCP PPE: Not wearing eye protection	Low	Self with delegated supervision	None
HCP PPE: Not wearing gown or gloves	Low	Self with delegated supervision	None
HCP PPE: Wearing all recommended PPE (except wearing a facemask instead of a respirator)	Low	Self with delegated supervision	None
Prolonged close contact with a COVID-19 patient who was not wearing a facemask (i.e., no source control)			
HCP PPE: None	High	Active	Exclude from work for 14 days after last exposure
HCP PPE: Not wearing a facemask or respirator	High	Active	Exclude from work for 14 days after last exposure
HCP PPE: Not wearing eye	Medium	Active	Exclude from work

protection ^b			for 14 days after last exposure
HCP PPE: Not wearing gown or gloves ^{a,b}	Low	Self with delegated supervision	None
HCP PPE: Wearing all recommended PPE (except wearing a facemask instead of a respirator) ^b	Low	Self with delegated supervision	None

HCP=healthcare personnel; PPE=personal protective equipment

- a The risk category for these rows would be elevated by one level if HCP had extensive body contact with the patients (e.g., rolling the patient).
- b The risk category for these rows would be elevated by one level if HCP performed or were present for a procedure likely to generate higher concentrations of respiratory secretions or aerosols (e.g., cardiopulmonary resuscitation, intubation, extubation, bronchoscopy, nebulizer therapy, sputum induction). For example, HCP who were wearing a gown, gloves, eye protection and a facemask (instead of a respirator) during an aerosol-generating procedure would be considered to have a medium-risk exposure.

Additional Scenarios:

- Refer to the footnotes above for scenarios that would elevate the risk level for exposed HCP. For example, HCP who were wearing a gown, gloves, eye protection and a facemask (instead of a respirator) during an aerosol-generating procedure would be considered to have a medium-risk exposure.

- Proper adherence to currently recommended infection control practices, including all recommended PPE, should protect HCP having prolonged close contact with patients infected with COVID-19. However, to account for any inconsistencies in use or adherence that could result in unrecognized exposures, HCP should still perform self-monitoring with delegated supervision.
- HCP not using all recommended PPE who have only brief interactions with a patient regardless of whether patient was wearing a facemask are considered low-risk. Examples of brief interactions include: brief conversation at a triage desk; briefly entering a patient room but not having direct contact with the patient or the patient's secretions/excretions; entering the patient room immediately after the patient was discharged.
- HCP who walk by a patient or who have no direct contact with the patient or their secretions/excretions and no entry into the patient room are considered to have no identifiable risk.

III. Recommendations for Monitoring Based on COVID-19 Exposure Risk

HCP in any of the risk exposure categories who develop signs or symptoms compatible with COVID-19 must contact their established point of contact (public health authorities or their facility's occupational health program) for medical evaluation prior to returning to work

1. High- and Medium-risk Exposure Category

HCP in the high- or medium-risk category should undergo active monitoring, including restriction from work in any healthcare setting until 14 days after their last exposure. If they develop any fever (measured temperature $>100.0^{\circ}\text{F}$ or subjective fever) OR respiratory symptoms consistent with COVID-19 (e.g., cough, shortness of breath, sore throat)* they should immediately self-

isolate (separate themselves from others) and notify their local or state public health authority and healthcare facility promptly so that they can coordinate consultation and referral to a healthcare provider for further evaluation.

2. Low-risk Exposure Category

HCP in the low-risk category should perform self-monitoring with delegated supervision until 14 days after the last potential exposure. Asymptomatic HCP in this category are not restricted from work. They should check their temperature twice daily and remain alert for respiratory symptoms consistent with COVID-19 (e.g., cough, shortness of breath, sore throat)*. They should ensure they are afebrile and asymptomatic before leaving home and reporting for work. If they do not have fever or respiratory symptoms they may report to work. If they develop fever (measured temperature > 100.0 oF or subjective fever) OR respiratory symptoms they should immediately self-isolate (separate themselves from others) and notify their local or state public health authority or healthcare facility promptly so that they can coordinate consultation and referral to a healthcare provider for further evaluation. On days HCP are scheduled to work, healthcare facilities could consider measuring temperature and assessing symptoms prior to starting work. Alternatively, facilities could consider having HCP report temperature and symptoms to occupational health prior to starting work. Modes of communication may include telephone calls or any electronic or internet-based means of communication.

3. HCP who Adhere to All Recommended Infection Prevention and Control Practices

Proper adherence to currently recommended infection control practices, including all recommended PPE, should protect HCP having prolonged close contact with patients infected with COVID-19. However, to account for any inconsistencies in use or adherence that could result in unrecognized exposures, HCP

should still perform self-monitoring with delegated supervision as described under the low-risk exposure category.

4. No Identifiable risk Exposure Category

HCP in the no identifiable risk category do not require monitoring or restriction from work.

5. Community or travel-associated exposures

HCP with potential exposures to COVID-19 in community settings, should have their exposure risk assessed according to CDC guidance. HCP should inform their facility's occupational health program that they have had a community or travel-associated exposure. HCP who have a community or travel-associated exposure should undergo monitoring as defined by that guidance. Those who fall into the high- or medium- risk category described there should be excluded from work in a healthcare setting until 14 days after their exposure. HCP who develop signs or symptoms compatible with COVID-19 should contact their established point of contact (public health authorities or their facility's occupational health program) for medical evaluation prior to returning to work.

Additional Considerations and Recommendations:

While contact tracing and risk assessment, with appropriate implementation of HCP work restrictions, of potentially exposed HCP remains the recommended strategy for identifying and reducing the risk of transmission of COVID-19 to HCP, patients, and others, it is not practical or achievable in all situations. Community transmission of COVID-19 in the United States has been reported in multiple areas. This development means some recommended actions (e.g., contact tracing and risk assessment of all potentially exposed HCP) are impractical for implementation by healthcare facilities. In the setting of community transmission, all HCP are at some risk for exposure to COVID-19, whether in the workplace or in the community. Devoting resources to contact tracing and retrospective risk assessment could divert resources from other important infection prevention and control activities. Facilities

should shift emphasis to more routine practices, which include asking HCP to report recognized exposures, regularly monitor themselves for fever and symptoms of respiratory infection and not report to work when ill. Facilities should develop a plan for how they will screen for symptoms and evaluate ill HCP. This could include having HCP report absence of fever and symptoms prior to starting work each day.

Facilities could consider allowing asymptomatic HCP who have had an exposure to a COVID-19 patient to continue to work after options to improve staffing have been exhausted and in consultation with their occupational health program. These HCP should still report temperature and absence of symptoms each day prior to starting work. Facilities could have exposed HCP wear a facemask while at work for the 14 days after the exposure event if there is a sufficient supply of facemasks. If HCP develop even mild symptoms consistent with COVID-19, they must cease patient care activities, don a facemask (if not already wearing), and notify their supervisor or occupational health services prior to leaving work.

Resources for Hospitals and Healthcare Professionals Preparing for Patients with Suspected or Confirmed COVID-19

To aid healthcare professionals and hospitals, CDC has developed two checklists that identify key actions that can be taken now to enhance preparedness for potential or confirmed patients with coronavirus disease 2019 (COVID-19).

Healthcare Providers Preparedness Checklist

A checklist to aid healthcare providers in identifying key actions to enhance preparedness for patients potentially infected with SARS-CoV-2.

Hospital Preparedness Tool

A checklist to highlight important areas for hospitals to review in preparation for potential arrivals of COVID-19 patients.

Healthcare Professional Preparedness Checklist For Transport and Arrival of Patients With Confirmed or Possible COVID- 19

Healthcare Personnel Preparedness Checklist for COVID-19[PDF]

Front-line healthcare personnel in the United States should be prepared to evaluate patients for coronavirus disease 2019 (COVID-19). The following checklist highlights key steps for healthcare personnel in preparation for transport and arrival of patients with confirmed or possible COVID-19.

- ☐ Stay up to date on the latest information about signs and symptoms, diagnostic testing, and case definitions for coronavirus disease 2019.
- ☐ Review your infection prevention and control policies and CDC

infection control recommendations for COVID-19 for:

- ☐ Assessment and triage of patients with acute respiratory symptoms
- ☐ Patient placement
- ☐ Implementation of Standard, Contact, and Airborne Precautions, including the use of eye protection
- ☐ Visitor management and exclusion
- ☐ Source control measures for patients (e.g., put facemask on suspect patients)
- ☐ Requirements for performing aerosol generating procedures
- ☐ Be alert for patients who meet the persons under investigation (PUI) definition
- ☐ Know how to report a potential COVID-19 case or exposure to facility infection control leads and public health officials
- ☐ Know who, when, and how to seek evaluation by occupational health following an unprotected exposure (i.e., not wearing recommended PPE) to a suspected or confirmed coronavirus disease 2019 patient
- ☐ Remain at home, and notify occupational health services, if you are ill
- ☐ Know how to contact and receive information from your state or local public health agency

Coronavirus Disease 2019 (COVID-19) Hospital Preparedness Assessment Tool

Coronavirus Disease 2019 (COVID-19) Hospital Preparedness Tool

Coronavirus Disease 2019 (COVID-19)
Hospital Preparedness Assessment Tool



All U.S. hospitals should be prepared for the possible arrival of patients with Coronavirus Disease 2019 (COVID-19). All hospitals should ensure their staff are trained, equipped and capable of practices needed to:

- Prevent the spread of respiratory diseases including COVID-19 within the facility
- Promptly identify and isolate diseases with possible COVID-19 and inform the correct facility staff and public health authorities
- Care for a limited number of patients with confirmed or suspected COVID-19 as part of routine operations
- Potentially care for a larger number of patients in the context of an escalating outbreak
- Monitor and manage any healthcare personnel that might be exposed to COVID-19
- Communicate effectively within the facility and plan for appropriate external communication related to COVID-19

The following checklist does not describe mandatory requirements or standards; rather, it highlights important areas for hospitals to review in preparation for potential arrivals of COVID-19 patients.

Elements to be assessed

1. Infection prevention and control policies and training for healthcare personnel (HCP):

- Facility leadership including the Chief Medical Officer, quality officers, hospital epidemiologist, and heads of services (e.g., infection control, emergency department, environmental services, pediatrics, critical care) has reviewed the Centers for Disease Control and Prevention's COVID-19 guidance. <https://www.cdc.gov/coronavirus/2019-nCoV/guidance-hcp.html> ☐
- Facility provides education and job-specific training to HCP regarding COVID-19 including:
 - Signs and symptoms of infection
 - How to safely collect a specimen
 - Correct infection control practices and personnel protective equipment (PPE) use
 - Triage procedures including patient placement
 - HCP sick leave policies and recommended actions for unprotected exposures (e.g., not using recommended PPE, an unrecognized infectious patient contact)
 - How and to whom COVID-19 cases should be reported☐

All U.S. hospitals should be prepared for the possible arrival of patients with Coronavirus Disease 2019 (COVID-19).

All hospitals should ensure their staff are trained, equipped and capable of practices needed to:

- Prevent the spread of respiratory diseases including COVID-19 within the facility
- Promptly identify and isolate patients with possible COVID-19 and inform the correct facility staff and public health authorities

- Care for a limited number of patients with confirmed or suspected
- COVID-19 as part of routine operations
- Potentially care for a larger number of patients in the context of an escalating outbreak
- Monitor and manage any healthcare personnel that might be exposed to COVID-19
- Communicate effectively within the facility and plan for appropriate external communication related to COVID-19

The following checklist does not describe mandatory requirements or standards; rather, it highlights important areas for hospitals to review in preparation for potential arrivals of COVID-19 patients.

Coronavirus Disease 2019 (COVID-19) Hospital Preparedness Tool



On February 11, 2020 the World Health Organization announced an official name for the disease that is causing the current outbreak of coronavirus disease, COVID-19. CDC will be updating our website and other CDC materials to reflect the updated name.

Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for Coronavirus Disease 2019 (COVID-19)

This interim guidance is for staff at local and state health departments, infection prevention and control professionals, and healthcare personnel who are coordinating the home care and isolation¹ of people with confirmed or suspected COVID-19 infection, including persons under investigation (see Criteria to Guide Evaluation of Persons Under Investigation (PUI) for COVID-19). This includes patients evaluated in an outpatient setting who do not require hospitalization (i.e., patients who are medically stable and can receive care at home) or patients who are discharged home following a hospitalization with confirmed COVID-19 infection.

In general, people should adhere to home isolation until the risk of secondary transmission is thought to be low. Visit the Preventing the Spread of Coronavirus Disease 2019 in Homes and Residential Communities page for more information.



Preventing COVID-19 from Spreading in Homes and Communities: Interim guidance that may help prevent COVID-19 from spreading among people in homes and in communities.

This document does not apply to patients in healthcare settings. For interim healthcare infection prevention and control recommendations, see Interim Infection Prevention and Control Recommendations for Patients with Known or Suspected COVID-19 in a Healthcare Setting. CDC will update this interim guidance as needed and as more information becomes available.

Assess the Suitability of the Residential Setting for Home Care

In consultation with state or local health department staff, a healthcare professional should assess whether the residential setting is appropriate for home care. Considerations for care at home include whether:

- The patient is stable enough to receive care at home.
- Appropriate caregivers are available at home.
- There is a separate bedroom where the patient can recover without sharing immediate space with others.
- Resources for access to food and other necessities are available.
- The patient and other household members have access to appropriate, recommended personal protective equipment (at a minimum, gloves and facemask) and are capable of adhering to precautions recommended as part of home care or isolation (e.g., respiratory hygiene and cough etiquette, hand hygiene);
- There are household members who may be at increased risk of complications from COVID-19 infection (.e.g., people >65 years old, young children, pregnant women, people who are immunocompromised or who have chronic heart, lung, or kidney conditions).

Provide Guidance for Precautions to Implement during Home Care

A healthcare professional should

- Provide CDC's Interim Guidance for Preventing Coronavirus Disease 2019 (COVID-19) from Spreading to Others in Homes and Communities to the patient, caregiver, and household members; and
- Contact their state or local health department to discuss criteria for discontinuing any such measures.

Preventing the Spread of Coronavirus Disease 2019 in Homes and Residential Communities

Interim Guidance

(This guidance provides clarification regarding evaluation for home isolation and a new section with information regarding preventative steps for household members, intimate partners, and caregivers in a nonhealthcare setting of a person with symptomatic, laboratory-confirmed COVID-19.)

This interim guidance is based on what is currently known about the epidemiology of COVID-19 and the transmission of other viral respiratory diseases. CDC will update this interim guidance as needed and as additional information becomes available.

Coronaviruses are a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats, and bats. Rarely, animal coronaviruses can infect people exposed to infected animals, and then spread among people, as has been seen with MERS-CoV and SARS-CoV, and likely now with SARS-CoV-2, the virus that causes COVID-19. This interim guidance may help prevent this virus from spreading among people in their homes and in other residential communities.

This interim guidance is intended for:

- People with confirmed or suspected COVID-19, including persons under investigation, who do not need to be hospitalized and who can receive care at home (see Interim Guidance for Implementing

Home Care of People Not Requiring Hospitalization for Coronavirus Disease 2019 (COVID-19));

- People with confirmed COVID-19, who were hospitalized and then determined to be medically stable to go home (see Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for Coronavirus Disease 2019 (COVID-19));
- Household members, intimate partners, and caregivers in a nonhealthcare setting of a person with symptomatic, laboratory-confirmed COVID-19.

Prevention steps for

People with confirmed or suspected COVID-19 (including persons under investigation) who do not need to be hospitalized

and

People with confirmed COVID-19 who were hospitalized and determined to be medically stable to go home

Your healthcare provider and public health staff will evaluate whether you can be cared for at home. If it is determined that you do not need to be hospitalized and can be isolated at home, you will be monitored by staff from your local or state health department. You should follow the prevention steps below until a healthcare provider or local or state health department says you can return to your normal activities.

Stay home except to get medical care

People who are mildly ill with COVID-19 are able to isolate at home

during their illness. You should restrict activities outside your home, except for getting medical care. Do not go to work, school, or public areas. Avoid using public transportation, ride-sharing, or taxis.

Separate yourself from other people and animals in your home

People: As much as possible, you should stay in a specific room and away from other people in your home. Also, you should use a separate bathroom, if available.

Animals: You should restrict contact with pets and other animals while you are sick with COVID-19, just like you would around other people. Although there have not been reports of pets or other animals becoming sick with COVID-19, it is still recommended that people sick with COVID-19 limit contact with animals until more information is known about the virus. When possible, have another member of your household care for your animals while you are sick. If you are sick with COVID-19, avoid contact with your pet, including petting, snuggling, being kissed or licked, and sharing food. If you must care for your pet or be around animals while you are sick, wash your hands before and after you interact with pets and wear a facemask. See COVID-19 and Animals for more information.

Call ahead before visiting your doctor

If you have a medical appointment, call the healthcare provider and tell them that you have or may have COVID-19. This will help the healthcare provider's office take steps to keep other people from getting infected or exposed.

Wear a facemask

You should wear a facemask when you are around other people (e.g., sharing a room or vehicle) or pets and before you enter a healthcare provider's office. If you are not able to wear a facemask (for example, because it causes trouble breathing), then people who live with you should not stay in the same room with you, or they should wear a facemask if they enter your room.

Cover your coughs and sneezes

Cover your mouth and nose with a tissue when you cough or sneeze. Throw used tissues in a lined trash can. Immediately wash your hands with soap and water for at least 20 seconds or, if soap and water are not available, clean your hands with an alcohol-based hand sanitizer that contains at least 60% alcohol.

Clean your hands often

Wash your hands often with soap and water for at least 20 seconds, especially after blowing your nose, coughing, or sneezing; going to the bathroom; and before eating or preparing food. If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry.

Soap and water are the best option if hands are visibly dirty. Avoid touching your eyes, nose, and mouth with unwashed hands.

Avoid sharing personal household items

You should not share dishes, drinking glasses, cups, eating utensils, towels, or bedding with other people or pets in your home. After using these items, they should be washed thoroughly with soap and water.

Clean all “high-touch” surfaces everyday

High touch surfaces include counters, tabletops, doorknobs, bathroom fixtures, toilets, phones, keyboards, tablets, and bedside tables. Also, clean any surfaces that may have blood, stool, or body fluids on them. Use a household cleaning spray or wipe, according to the label instructions. Labels contain instructions for safe and effective use of the cleaning product including precautions you should take when applying the product, such as wearing gloves and making sure you have good ventilation during use of the product.

Monitor your symptoms

Seek prompt medical attention if your illness is worsening (e.g., difficulty breathing). Before seeking care, call your healthcare provider and tell them that you have, or are being evaluated for, COVID-19. Put on a facemask before you enter the facility. These steps will help the healthcare provider’s office to keep other people in the office or waiting room from getting infected or exposed. Ask your healthcare provider to call the local or state health department. Persons who are placed under active monitoring or facilitated self-monitoring should follow instructions provided by their local health department or occupational health professionals, as appropriate.

If you have a medical emergency and need to call 911, notify the dispatch personnel that you have, or are being evaluated for COVID-19. If possible, put on a facemask before emergency medical services arrive.

Discontinuing home isolation

Patients with confirmed COVID-19 should remain under home isolation precautions until the risk of secondary transmission to others is thought to be low. The decision to discontinue home isolation precautions should be made on a case-by-case basis, in consultation with healthcare providers and state and local health departments.

Recommended precautions for household members, intimate partners, and caregivers in a nonhealthcare setting¹ of

A patient with symptomatic laboratory-confirmed COVID-19

or

A patient under investigation

Household members, intimate partners, and caregivers in a nonhealthcare setting may have close contact² with a person with symptomatic, laboratory-confirmed COVID-19 or a person under investigation. Close contacts should monitor their health; they should call their healthcare provider right away if they develop symptoms suggestive of COVID-19 (e.g., fever, cough, shortness of breath) (see Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease 2019 (COVID-19) Exposure in Travel-associated or Community Settings.)

Close contacts should also follow these recommendations:

- Make sure that you understand and can help the patient follow their

healthcare provider's instructions for medication(s) and care. You should help the patient with basic needs in the home and provide support for getting groceries, prescriptions, and other personal needs.

- Monitor the patient's symptoms. If the patient is getting sicker, call his or her healthcare provider and tell them that the patient has laboratory-confirmed COVID-19. This will help the healthcare provider's office take steps to keep other people in the office or waiting room from getting infected. Ask the healthcare provider to call the local or state health department for additional guidance. If the patient has a medical emergency and you need to call 911, notify the dispatch personnel that the patient has, or is being evaluated for COVID-19.
- Household members should stay in another room or be separated from the patient as much as possible. Household members should use a separate bedroom and bathroom, if available.
- Prohibit visitors who do not have an essential need to be in the home.
- Household members should care for any pets in the home. Do not handle pets or other animals while sick. For more information, see COVID-19 and Animals.
- Make sure that shared spaces in the home have good air flow, such as by an air conditioner or an opened window, weather permitting.
- Perform hand hygiene frequently. Wash your hands often with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer that contains 60 to 95% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry. Soap and water should be used preferentially if hands are visibly dirty.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- The patient should wear a facemask when you are around other people. If the patient is not able to wear a facemask (for example,

because it causes trouble breathing), you, as the caregiver, should wear a mask when you are in the same room as the patient.

- Wear a disposable facemask and gloves when you touch or have contact with the patient's blood, stool, or body fluids, such as saliva, sputum, nasal mucus, vomit, urine.
 - Throw out disposable facemasks and gloves after using them. Do not reuse.
 - When removing personal protective equipment, first remove and dispose of gloves. Then, immediately clean your hands with soap and water or alcohol-based hand sanitizer. Next, remove and dispose of facemask, and immediately clean your hands again with soap and water or alcohol-based hand sanitizer.
- Avoid sharing household items with the patient. You should not share dishes, drinking glasses, cups, eating utensils, towels, bedding, or other items. After the patient uses these items, you should wash them thoroughly (see below "Wash laundry thoroughly").
- Clean all "high-touch" surfaces, such as counters, tabletops, doorknobs, bathroom fixtures, toilets, phones, keyboards, tablets, and bedside tables, every day. Also, clean any surfaces that may have blood, stool, or body fluids on them.
 - Use a household cleaning spray or wipe, according to the label instructions. Labels contain instructions for safe and effective use of the cleaning product including precautions you should take when applying the product, such as wearing gloves and making sure you have good ventilation during use of the product.
- Wash laundry thoroughly.
 - Immediately remove and wash clothes or bedding that have blood, stool, or body fluids on them.

- Wear disposable gloves while handling soiled items and keep soiled items away from your body. Clean your hands (with soap and water or an alcohol-based hand sanitizer) immediately after removing your gloves.
- Read and follow directions on labels of laundry or clothing items and detergent. In general, using a normal laundry detergent according to washing machine instructions and dry thoroughly using the warmest temperatures recommended on the clothing label.
- Place all used disposable gloves, facemasks, and other contaminated items in a lined container before disposing of them with other household waste. Clean your hands (with soap and water or an alcohol-based hand sanitizer) immediately after handling these items. Soap and water should be used preferentially if hands are visibly dirty.
- Discuss any additional questions with your state or local health department or healthcare provider.

Interim Guidance for Discontinuation of In-Home Isolation for Patients with COVID-19

Summary Page

Who this is for: Healthcare providers and public health officials managing patients with coronavirus disease (COVID-19) under in-home isolation.

What this is for: To help prevent the spread of COVID-19 in the

community.

How to use: Reference to guide healthcare staff and public health officials before discontinuing in-home isolation of patients with COVID-19.

Summary of Recent Changes

Revisions were made on February 11, 2020, to use of laboratory testing results:

- Negative rRT-PCR results from at least 2 consecutive sets of nasopharyngeal and throat swabs collected at least 24 hours apart from a patient with COVID-19 are needed before discontinuing in-home isolation is considered. A total of four negative specimens are needed to meet this requirement.

Limited information is available to characterize the spectrum of clinical illness, transmission efficiency, and the duration of viral shedding for patients with novel coronavirus disease (COVID-19). This guidance is based on available information about COVID-19 and what is known about similar diseases caused by related coronaviruses (MERS-CoV and SARS-CoV). This guidance is subject to change as additional information becomes available.

For Hospitalized Patients, see (Interim Guidance for Discontinuation of Transmission-Based Precautions Among Hospitalized Patients with COVID-19).

For Patients with COVID-19 Under In-Home Isolation:

- The decision to discontinue in-home isolation for patients with COVID-19 should be made on a case-by-case basis in consultation with clinicians and public health officials. This

decision should consider disease severity, illness signs and symptoms, and results of laboratory testing for COVID-19 in respiratory specimens. Guidance for discontinuation of in-home isolation precautions is the same as that to discontinue Transmission-Based Precautions for hospitalized patients with COVID-19. Considerations to discontinue in-home isolation include all of the following:

- Resolution of fever, without use of antipyretic medication
- Improvement in illness signs and symptoms
- Negative results of an FDA Emergency Use Authorized molecular assay for COVID-19 from at least two consecutive sets of paired nasopharyngeal and throat swabs specimens collected ≥ 24 hours apart* (total of four negative specimens—two nasopharyngeal and two throat). See Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Patients Under Investigation (PUIs) for 2019 Novel Coronavirus (2019-nCoV) for specimen collection guidance.

Footnote

- * Initial guidance is based upon limited information and is subject to change as more information becomes available. In persons with a persistent productive cough, SARS-CoV-2-RNA might be detected for longer periods in sputum specimens than in upper respiratory tract (nasopharyngeal swab and throat swab) specimens.

Additional Resources

- Interim Guidance for Implementing Home Care of People Not

Requiring Hospitalization for 2019 Novel Coronavirus (2019-nCoV)

- Interim guidance for persons who may have 2019 Novel Coronavirus (2019-nCoV) to prevent spread in homes and residential communities

References

- Al-Abdely HM, Midgley CM, Alkhamis AM, et al. Middle East respiratory syndrome coronavirus infection dynamics and antibody responses among clinically diverse patients, Saudi Arabia. *Emerg Infect Dis.* 2019 Apr;25(4):753–66.
- Al-Abdely HM, Midgley CM, Alkhamis AM, et al. Infectious MERS-CoV isolated from a mildly ill patient, Saudi Arabia. *Open Forum Infect Dis.* 2018 May 15;5(6):ofy111.
- Chan JF, Yuan S, Kok KH, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *Lancet.* 2020 Jan 24; 395(10223):514–23. doi: 10.1016/S0140-6736(20)30154-9.
- Chan KH, Poon LL, Cheng VC, et al. Detection of SARS coronavirus in patients with suspected SARS. *Emerg Infect Dis.* 2004 Feb;10(2):294–9.
- Cheng PK, Wong DA, Tong LK, et al. Viral shedding patterns of coronavirus in patients with probable severe acute respiratory syndrome. *Lancet.* 2004 May 22;363(9422):1699–700.
- Corman VM, Albarrak AM, Omrani AS, et al. Viral shedding and antibody response in 37 patients with Middle East respiratory syndrome coronavirus infection. *Clin Infect Dis.* 2016 Feb 15;62(4):477–83.
- Holshue ML, DeBolt C, Lindquist S, et al. First case of 2019 novel

coronavirus in the United States. *N Engl J Med*. 2020 Jan 31. doi: 10.1056/NEJMoa2001191. [Epub ahead of print]

- Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020 Jan 24;395(10223):497–506. doi: 10.1016/S0140-6736(20)30183-5
- Hung IF, Cheng VC, Wu AK, et al. Viral loads in clinical specimens and SARS manifestations. *Emerg Infect Dis*. 2004 Sep;10(9):1550–7.
- Liu W, Tang F, Fontanet A, et al. Long-term SARS coronavirus excretion from patient cohort, China. *Emerg Infect Dis*. 2004 Oct;10(10):1841–3.
- Memish ZA, Assiri AM, Al-Tawfiq JA. Middle East respiratory syndrome coronavirus (MERS-CoV) viral shedding in the respiratory tract: an observational analysis with infection control implications. *Int J Infect Dis*. 2014 Dec;29:307–8.
- Zhu N, Zhang D, Wang W, et al. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med*. 2020 Jan 24. doi: 10.1056/NEJMoa2001017 [Epub ahead of print]

Healthcare Supply of Personal Protective Equipment

FAQ about Personal Protective Equipment

Strategies for Optimizing the Supply of N95 Respirators

Checklist for Healthcare Facilities

Release of Stockpiled N95 Respirators Beyond the Manufacturer-Designated Shelf Life

Personal Protective Equipment Recommendations

Based on the current COVID-19 situation and availability of personal protective equipment (PPE), CDC has specific recommendations, summarized below. As we learn more about COVID-19 and as the needs of the response or availability of PPE within U.S. healthcare facilities changes, we will update our guidance.



Who needs PPE:

Patients with confirmed or possible SARS-CoV-2 infection should wear a facemask when being evaluated medically.

Healthcare personnel should adhere to Standard, Contact, and Airborne Precautions, including the use of eye protection (e.g., goggles or a face shield) when caring for patients with SARS-CoV-2 infection. These precautions include the use of PPE, including NIOSH-approved N95 respirators, gowns, gloves, face shield/eye protection, etc. This includes, but is not limited to, surgical N95 respirators.



Who does not need PPE:

CDC does NOT currently recommend the general public use facemasks. Instead, CDC recommends following everyday preventive actions, such as washing your hands, covering your cough, and staying home when you are sick.



Manufacturers and Distributors:

Cases of COVID-19 are being reported in China as well as other countries. Given decreases in exports from select countries (e.g., China, India, Taiwan) and increases in demand due to the outbreak, manufacturers of select types of PPE are reporting increased volume of orders and challenges in meeting order demands. Plans to surge manufacturing globally are underway.

Webinar for Healthcare Professionals

Strategies for Healthcare Systems Preparedness and Optimizing N95 Supplies.

Find more information on supplies of personal protective equipment

[View presentation slides](#)

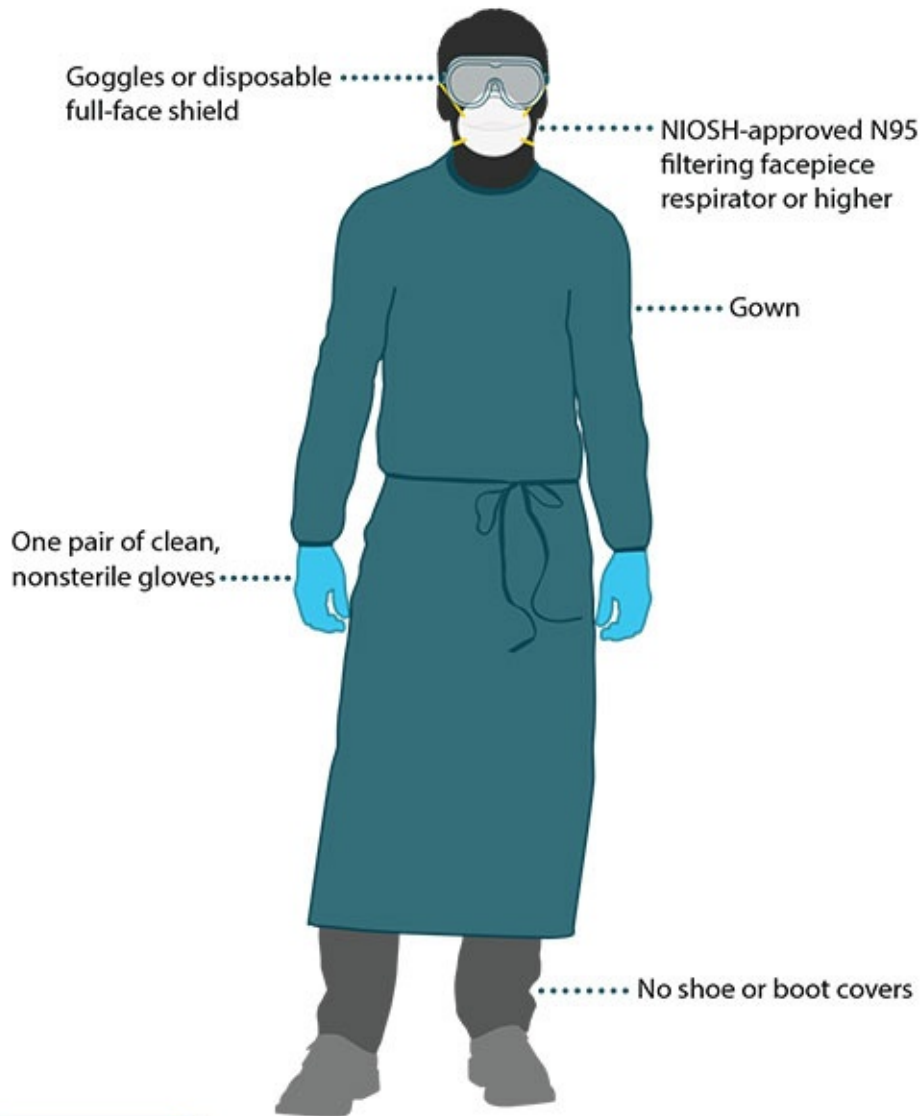
Frequently Asked Questions about Personal Protective Equipment

This document is intended to address frequently asked questions about personal protective equipment (PPE).

Gowns



COVID-19 Personal Protective Equipment (PPE) for Healthcare Personnel



CS175461-A 4/21/2020

For more information: www.cdc.gov/COVID19

- What testing and standards should I consider when looking for CDC-recommended protective clothing?
 - CDC's guidance for Considerations for Selecting Protective

Clothing used in Healthcare for Protection against Microorganisms in Blood and Body Fluids outlines the scientific evidence and information on national and international standards, test methods, and specifications for fluid-resistant and impermeable gowns and coveralls used in healthcare.

- Many organizations have published guidelines for the use of personal protective equipment (PPE) in medical settings. The American National Standards Institute (ANSI) and the Association of the Advancement of Medical Instrumentation (AAMI): ANSI/AAMI PB70:2012 describes the liquid barrier performance and a classification of surgical and isolation gowns for use in health care facilities.
- As with any type of PPE, the key to proper selection and use of protective clothing is to understand the hazards and the risk of exposure. Some of the factors important to assessing the risk of exposure in health facilities include source, modes of transmission, pressures and types of contact, and duration and type of tasks to be performed by the user of the PPE. (Technical Information Report (TIR) 11 [AAMI 2005]).
- For gowns, it is important to have sufficient overlap of the fabric so that it wraps around the body to cover the back (ensuring that if the wearer squats or sits down, the gown still protects the back area of the body).
- What type of gown is recommended for patients with suspected or confirmed COVID-19?
 - Nonsterile, disposable patient isolation gowns, which are used for routine patient care in healthcare settings, are appropriate for use by patients with suspected or confirmed COVID-19.
- What types of gowns are available for healthcare personnel to protect from COVID-19?

- While the transmissibility of COVID-19 is not fully understood, gowns are available that protect against microorganisms. The choice of gown should be made based on the level of risk of contamination. Certain areas of surgical and isolation gowns are defined as “critical zones” where direct contact with blood, body fluids, and/or other potentially infectious materials is most likely to occur. (ANSI/AAMI PB70).
- If there is a medium to high risk of contamination and need for a large critical zone, isolation gowns that claim moderate to high barrier protection (ANSI/AAMI PB70 Level 3 or 4) can be used.
- For healthcare activities with low, medium, or high risk of contamination, surgical gowns (ANSI/AAMI PB70 Levels 1-4), can be used. These gowns are intended to be worn by healthcare personnel during surgical procedures.
- If the risk of bodily fluid exposure is low or minimal, gowns that claim minimal or low levels of barrier protection (ANSI/AAMI PB70 Level 1 or 2) can be used. These gowns should not be worn during surgical or invasive procedures, or for medium to high risk contamination patient care activities.
- What is the difference between gowns and coveralls?
 - CDC’s guidance for Considerations for Selecting Protective Clothing used in Healthcare for Protection against Microorganisms in Blood and Body Fluids provides additional comparisons between gowns and coveralls.
 - Gowns are easier to put on and, in particular, to take off. They are generally more familiar to healthcare workers and hence more likely to be used and removed correctly. These factors also facilitate training in their correct use.
 - Coveralls typically provide 360-degree protection because they are designed to cover the whole body, including the back

and lower legs, and sometimes the head and feet as well. Surgical/isolation gowns do not provide continuous whole-body protection (e.g., they have possible openings in the back, and typically provide coverage to the mid-calf only).

- The level of heat stress generated due to the added layer of clothing is also expected to be less for gowns when compared to coveralls due to several factors, such as the openings in the design of gowns and total area covered by the fabric.
- How do I put on (don) and take off (doff) my gown?
 - Check to see if your facility has guidance on how to don and doff PPE. The procedure to don and doff should be tailored to the specific type of PPE that you have available at your facility.
 - If your facility does not have specific guidance, the CDC has recommended sequences for donning and doffing of PPE.
 - It is important for Health Care Providers (HCP) to perform hand hygiene before and after removing PPE. Hand hygiene should be performed by using alcohol-based hand sanitizer that contains 60-95% alcohol or washing hands with soap and water for at least 20 seconds. If hands are visibly soiled, soap and water should be used before returning to alcohol-based hand sanitizer.
- Is it acceptable for emergency medical services to wear coveralls as an alternative to gowns when COVID-19 is suspected in a patient needing emergency transport?
 - Unlike patient care in the controlled environment of a healthcare facility, care and transport by EMS present unique challenges because of the nature of the setting. Coveralls are an acceptable alternative to gowns when caring for and transporting suspect COVID-19 patients. While no clinical studies have been done to compare gowns and coveralls,

both have been used effectively by healthcare workers in clinical settings during patient care. CDC's Considerations for Selecting Protective Clothing used in Healthcare for Protection against Microorganisms in Blood and Body Fluids guidance provides a comparison between gowns and coveralls, including test methods and performance requirements. Coveralls typically provide 360-degree protection because they are designed to cover the whole body, including the back and lower legs, and sometimes the head and feet as well. This added coverage may be necessary for some work tasks involved in medical transport. However, coveralls may lead to increased heat stress compared to gowns due to the total area covered by the fabric. Training on how to properly remove (doff) a coverall is important to prevent self-contamination. Comparatively, gowns are easier to put on and, in particular, to take off.

Gloves

- What type of glove is recommended to care for suspected or confirmed COVID-19 patients in healthcare settings?
 - Nonsterile disposable patient examination gloves, which are used for routine patient care in healthcare settings, are appropriate for the care of patients with suspected or confirmed COVID-19.
- What standards should be considered when choosing gloves?
 - The American Society for Testing and Materials (ASTM) has developed standards for patient examination gloves.
 - Standard specifications for nitrile gloves, natural rubber gloves, and polychloroprene gloves indicate higher minimum tensile strength and elongation requirements compared to

vinyl gloves.^{1,2,3,4}

- The ASTM has developed standards for patient examination gloves. Length requirements for patient exam gloves must be a minimum of 220mm-230mm depending on glove size and material type.^{1,2,3,4}
- Is double gloving necessary when caring for suspected or confirmed CoVID-19 patients in healthcare settings?
 - CDC Guidance does not recommend double gloves when providing care to suspected or confirmed 2019-COVID patients.
- Are extended length gloves necessary when caring for suspected or confirmed COVID-19 patients in healthcare settings?
 - According to CDC Guidance, extended length gloves are not necessary when providing care to suspected or confirmed COVID-19 patients. Extended length gloves can be used, but CDC is not specifically recommending them at this time.
- How I do put on (don) and take off (doff) my gloves?
 - Check to see if your facility has guidance on how to don and doff PPE. The procedure to don and doff should be tailored to the specific type of PPE that you have available at your facility.
 - If your facility does not have specific guidance, the CDC has recommended sequences for donning and doffing of PPE.
 - It is important for HCP to perform hand hygiene after removing PPE. Hand hygiene should be performed by using an alcohol-based hand sanitizer that contains 60-95% alcohol or washing hands with soap and water for at least 20 seconds. If hands are visibly soiled, soap and water should be used before returning to alcohol-based hand sanitizer.

Footnotes

- 1 ASTM D6319-Standard Specification for Nitrile Examination Gloves for Medical Applications
- 2 ASTM D3578 Standard Specification for Rubber Examination Gloves
- 3 ASTM D5250 Standard Specification for Poly(vinyl chloride) Gloves for Medical Application
- 4 ASTM D6977 Standard Specification for Polychloroprene Examination Gloves for Medical Application

Respirators

- Should I wear a respirator in public?
 - CDC does not recommend the routine use of respirators outside of workplace settings (in the community). Most often, spread of respiratory viruses from person-to-person happens among close contacts (within 6 feet). CDC recommends everyday preventive actions to prevent the spread of respiratory viruses, such as avoiding people who are sick, avoiding touching your eyes or nose, and covering your cough or sneeze with a tissue. People who are sick should stay home and not go into crowded public places or visit people in hospitals. Workers who are sick should follow CDC guidelines and stay home when they are sick.
- What is a respirator?
 - A respirator is a personal protective device that is worn on the face or head and covers at least the nose and mouth. A respirator is used to reduce the wearer's risk of inhaling hazardous airborne particles (including infectious agents), gases or vapors. Respirators, including those intended for use in healthcare settings, are certified by the CDC/NIOSH.

- What is an N95 filtering facepiece respirator (FFR)?
 - An N95 FFR is a type of respirator which removes particles from the air that are breathed through it. These respirators filter out at least 95% of very small (0.3 micron) particles. N95 FFRs are capable of filtering out all types of particles, including bacteria and viruses.
- What makes N95 respirators different from facemasks (sometimes called a surgical mask)?
 - Infographic: Understanding the difference between surgical masks and N95 respirators
 - N95 respirators reduce the wearer's exposure to airborne particles, from small particle aerosols to large droplets. N95 respirators are tight-fitting respirators that filter out at least 95% of particles in the air, including large and small particles.
 - Not everyone is able to wear a respirator due to medical conditions that may be made worse when breathing through a respirator. Before using a respirator or getting fit-tested, workers must have a medical evaluation to make sure that they are able to wear a respirator safely.
 - Achieving an adequate seal to the face is essential. United States regulations require that workers undergo an annual fit test and conduct a user seal check each time the respirator is used. Workers must pass a fit test to confirm a proper seal before using a respirator in the workplace.
 - When properly fitted and worn, minimal leakage occurs around edges of the respirator when the user inhales. This means almost all of the air is directed through the filter media.
 - Unlike NIOSH-approved N95s, facemasks are loose-fitting and provide only barrier protection against droplets, including large respiratory particles. No fit testing or seal check is necessary with facemasks. Most facemasks do not effectively

filter small particles from the air and do not prevent leakage around the edge of the mask when the user inhales.

- The role of facemasks is for patient source control, to prevent contamination of the surrounding area when a person coughs or sneezes. Patients with confirmed or suspected COVID-19 should wear a facemask until they are isolated in a hospital or at home. The patient does not need to wear a facemask while isolated.
- What is a Surgical N95 respirator and who needs to wear it?
 - A surgical N95 (also referred as a medical respirator) is recommended only for use by healthcare personnel (HCP) who need protection from both airborne and fluid hazards (e.g., splashes, sprays). These respirators are not used or needed outside of healthcare settings. In times of shortage, only HCP who are working in a sterile field or who may be exposed to high velocity splashes, sprays, or splatters of blood or body fluids should wear these respirators, such as in operative or procedural settings. Most HCP caring for confirmed or suspected COVID-19 patients should not need to use surgical N95 respirators and can use standard N95 respirators.
 - If a surgical N95 is not available for use in operative or procedural settings, then an unvalved N95 respirator may be used with a faceshield to help block high velocity streams of blood and body fluids.
- My employees complain that Surgical N95 respirators are hot and uncomfortable – what can I do?
 - The requirements for surgical N95 respirators that make them resistant to high velocity streams of body fluids and help protect the sterile field can result in a design that has a higher breathing resistance (makes it more difficult to breath) than a typical N95 respirator. Also, surgical N95 respirators are

designed without exhalation valves which are sometimes perceived as warmer inside the mask than typical N95 respirators. If you are receiving complaints, you may consider having employees who are not doing surgery, not working in a sterile field, or not potentially exposed to high velocity streams of body fluids wear a standard N95 with an exhalation valve.

- My N95 respirator has an exhalation valve, is that okay?
 - An N95 respirator with an exhalation valve does provide the same level of protection to the wearer as one that does not have a valve. The presence of an exhalation valve reduces exhalation resistance, which makes it easier to breathe (exhale). Some users feel that a respirator with an exhalation valve keeps the face cooler and reduces moisture build up inside the facepiece. However, respirators with exhalation valves should not be used in situations where a sterile field must be maintained (e.g., during an invasive procedure in an operating or procedure room) because the exhalation valve allows unfiltered exhaled air to escape into the sterile field.
- How can I tell if a respirator is NIOSH-approved?
 - The NIOSH approval number and approval label are key to identifying NIOSH-approved respirators. The NIOSH approval label can be found on or within the packaging of the respirator or sometimes on the respirator itself. The required labeling of NIOSH-Approved N95 filtering facepiece respirators includes the NIOSH name, the approval number, filter designations, lot number, and model number to be printed on the respirator. You can verify that your respirator approvals are valid by checking the NIOSH Certified Equipment List (CEL).
- How do I know if my respirator is expired?
 - NIOSH does not require approved N95 filtering facepiece respirators (FFRs) be marked with an expiration date. If an FFR does not have an assigned expiration date, you should

refer to the user instructions or seek guidance from the specific manufacturer on whether time and storage conditions (such as temperature or humidity) are expected to have an effect on the respirator's performance and if the respirators are nearing the end of their shelf life.

- What do I do with an expired respirator?
 - In times of increased demand and decreased supply, consideration can be made to use N95 respirators past their intended shelf life. However, the potential exists that the respirator will not perform to the requirements for which it was certified. Over time, components such as the strap and nose bridge may degrade, which can affect the quality of the fit and seal. Prior to use of N95 respirators, the HCP should inspect the respirator and perform a seal check. Additionally, expired respirators may potentially no longer meet the certification requirements set by NIOSH. For further guidance, visit [Release of Stockpiled N95 Filtering Facepiece Respirators Beyond the Manufacturer-Designated Shelf Life: Considerations for the COVID-19 Response](#).
- What methods should healthcare facilities consider in order to avoid unintentional loss of PPE during COVID-19?
 - Monitoring PPE supply inventory and maintaining control over PPE supplies may help prevent unintentional product losses that may occur due to theft, damage, or accidental loss. Inventory systems should be employed to track daily usage and identify areas of higher than expected use. This information can be used to implement additional conservation strategies tailored to specific patient care areas such as hospital units or outpatient facilities. Inventory tracking within a health system may also assist in confirming PPE deliveries and optimizing distribution of PPE supplies to specific facilities.

Healthcare Professionals: Frequently Asked Questions and Answers

See also the general COVID-19 Novel Coronavirus FAQ.

Q: What are the clinical features of COVID-19?

A: The clinical spectrum of COVID-19 ranges from mild disease with non-specific signs and symptoms of acute respiratory illness, to severe pneumonia with respiratory failure and septic shock. There have also been reports of asymptomatic infection with COVID-19. See also Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease 2019 (COVID-19).

Q: Who is at risk for COVID-19?

A: Currently, those at greatest risk of infection are persons who have had prolonged, unprotected close contact with a patient with symptomatic, confirmed COVID-19 and those who live in or have recently been to areas with sustained transmission.

Q: Who is at risk for severe disease from COVID-19?

The available data are currently insufficient to identify risk factors for severe clinical outcomes. From the limited data that are available for COVID-19 infected patients, and for data from related coronaviruses such as SARS-CoV and MERS-CoV, it is possible that older adults, and persons who have underlying chronic medical conditions, such as immunocompromising conditions, may be at risk for more severe outcomes. See also See also Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease 2019 (COVID-19).

Q: When is someone infectious?

A: The onset and duration of viral shedding and period of infectiousness for COVID-19 are not yet known. It is possible that SARS-CoV-2 RNA may be detectable in the upper or lower respiratory tract for weeks after illness onset, similar to infection with MERS-CoV and SARS-CoV. However, detection of viral RNA does not necessarily mean that infectious virus is present. Asymptomatic infection with SARS-CoV-2 has been reported, but it is not yet known what role asymptomatic infection plays in transmission. Similarly, the role of pre-symptomatic transmission (infection detection during the incubation period prior to illness onset) is unknown. Existing literature regarding SARS-CoV-2 and other coronaviruses (e.g. MERS-CoV, SARS-CoV) suggest that the incubation period may range from 2–14 days.

Q: Which body fluids can spread infection?

A: Very limited data are available about detection of SARS-CoV-2 and infectious virus in clinical specimens. SARS-CoV-2 RNA has been detected from upper and lower respiratory tract specimens, and SARS-CoV-2 has been isolated from upper respiratory tract specimens and bronchoalveolar lavage fluid. SARS-CoV-2 RNA has been detected in blood and stool specimens, but whether infectious virus is present in extrapulmonary specimens is currently unknown. The duration of SARS-CoV-2 RNA detection in upper and lower respiratory tract specimens and in extrapulmonary specimens is not yet known but may be several weeks or longer, which has been observed in cases of MERS-CoV or SARS-CoV infection. While viable, infectious SARS-CoV has been isolated from respiratory, blood, urine, and stool specimens, in contrast – viable, infectious MERS-CoV has only been isolated from respiratory tract specimens. It is not yet known whether other non-respiratory body fluids from an infected person including vomit, urine, breast milk, or semen can contain viable, infectious SARS-CoV-2.

Q: Can people who recover from COVID-19 be infected again?

A: The immune response to COVID-19 is not yet understood. Patients with MERS-CoV infection are unlikely to be re-infected shortly after they

recover, but it is not yet known whether similar immune protection will be observed for patients with COVID-19.

Q: How should healthcare personnel protect themselves when evaluating a patient who may have COVID-19?

A: Although the transmission dynamics have yet to be determined, CDC currently recommends a cautious approach to persons under investigation (PUI) for COVID-19. Healthcare personnel evaluating PUI or providing care for patients with confirmed COVID-19 should use Standard Precautions, Contact Precautions, Airborne Precautions, and use eye protection (e.g., goggles or a face shield). See the Interim Infection Prevention and Control Recommendations for Patients with Known or Patients Under Investigation for Coronavirus Disease 2019 (COVID-19) in Healthcare Settings.

Q: Should any diagnostic or therapeutic interventions be withheld due to concerns about transmission of COVID-19?

A: Patients should receive any interventions they would normally receive as standard of care. Patients with suspected or confirmed COVID-19 should be asked to wear a surgical mask as soon as they are identified and be evaluated in a private room with the door closed, ideally an airborne infection isolation room, if available. Healthcare personnel entering the room should use Standard Precautions, Contact Precautions, Airborne Precautions, and use eye protection (e.g., goggles or a face shield).

Q: How do you test a patient for SARS-CoV-2, the virus that causes COVID-19?

A: See recommendations for reporting, testing, and specimen collection at Interim Guidance for Healthcare Professionals.

Q: Will existing respiratory virus panels, such as those manufactured by Biofire or Genmark, detect SARS-CoV-2, the virus that causes COVID-19?

A: No. These multi-pathogen molecular assays can detect a number of human respiratory viruses, including other coronaviruses that can cause acute respiratory illness, but they do not detect COVID-19.

Q: How is COVID-19 treated?

Not all patients with COVID-19 will require medical supportive care. Clinical management for hospitalized patients with COVID-19 is focused on supportive care of complications, including advanced organ support for respiratory failure, septic shock, and multi-organ failure. Empiric testing and treatment for other viral or bacterial etiologies may be warranted.

Corticosteroids are not routinely recommended for viral pneumonia or ARDS and should be avoided unless they are indicated for another reason (e.g., COPD exacerbation, refractory septic shock following Surviving Sepsis Campaign Guidelines).

There are currently no antiviral drugs licensed by the U.S. Food and Drug Administration (FDA) to treat COVID-19. Some in-vitro or in-vivo studies suggest potential therapeutic activity of some agents against related coronaviruses, but there are no available data from observational studies or randomized controlled trials in humans to support recommending any investigational therapeutics for patients with confirmed or suspected COVID-19 at this time. Remdesivir, an investigational antiviral drug, was reported to have in-vitro activity against COVID-19. A small number of patients with COVID-19 have received intravenous remdesivir for compassionate use outside of a clinical trial setting. A randomized placebo-controlled clinical trial of remdesivir for treatment of hospitalized patients with COVID-19 respiratory disease has been implemented in China. A randomized open label trial of combination lopinavir-ritonavir treatment has been also been conducted in patients with COVID-19 in China, but no results are available to date. trials of other potential therapeutics for COVID-19 are being planned. For information on specific clinical trials underway for treatment of patients with COVID-19 infection, see clinicaltrials.gov.

See Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease 2019 (COVID-19)

Q: Should post-exposure prophylaxis be used for people who may have been exposed to COVID-19?

A: There is currently no FDA-approved post-exposure prophylaxis for people who may have been exposed to COVID-19. For more information on movement restrictions, monitoring for symptoms, and evaluation after possible exposure to COVID-19 See Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease 2019 (COVID-19) Exposure in Travel-associated or Community Settings and Interim U.S Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease 2019 (COVID-19).

Q: Whom should healthcare providers notify if they suspect a patient has COVID-19?

A: Healthcare providers should consult with local or state health departments to determine whether patients meet criteria for a Persons Under Investigation (PUI). Providers should immediately notify infection control personnel at their facility if they suspect COVID-19 in a patient.

Q: Do patients with confirmed or suspected COVID-19 need to be admitted to the hospital?

A: Not all patients with COVID-19 require hospital admission. Patients whose clinical presentation warrants in-patient clinical management for supportive medical care should be admitted to the hospital under appropriate isolation precautions. Some patients with an initial mild clinical presentation may worsen in the second week of illness. The decision to monitor these patients in the inpatient or outpatient setting should be made on a case-by-case basis. This decision will depend not only on the clinical presentation, but also on the patient's ability to engage in monitoring, the ability for safe isolation at home, and the risk of

transmission in the patient's home environment. For more information, see Interim Infection Prevention and Control Recommendations for Patients with Known or Patients Under Investigation for Coronavirus Disease 2019 (COVID-19) in a Healthcare Setting and Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for Coronavirus Disease 2019 (COVID-19).

Q: When can patients with confirmed COVID-19 be discharged from the hospital?

A: Patients can be discharged from the healthcare facility whenever clinically indicated. Isolation should be maintained at home if the patient returns home before the time period recommended for discontinuation of hospital Transmission-Based Precautions described below.

Decisions to discontinue Transmission-Based Precautions or in-home isolation can be made on a case-by-case basis in consultation with clinicians, infection prevention and control specialists, and public health based upon multiple factors, including disease severity, illness signs and symptoms, and results of laboratory testing for COVID-19 in respiratory specimens.

Criteria to discontinue Transmission-Based Precautions can be found in: Interim Considerations for Disposition of Hospitalized Patients with COVID-19

Q: What do I need to know if a patient with confirmed or suspected COVID-19 asks about having a pet or other animal in the home?

A: See COVID-19 and Animals.

Waste Management QAs

Q: What do waste management companies need to know about wastewater and sewage coming from a healthcare facility or community setting with either a known COVID-19 patient or person under

investigation (PUI)?

A: Waste generated in the care of PUIs or patients with confirmed COVID-19 does not present additional considerations for wastewater disinfection in the United States. Coronaviruses are susceptible to the same disinfection conditions in community and healthcare settings as other viruses, so current disinfection conditions in wastewater treatment facilities are expected to be sufficient. This includes conditions for practices such as oxidation with hypochlorite (i.e., chlorine bleach) and peracetic acid, as well as inactivation using UV irradiation.

Q: Do wastewater and sewage workers need any additional protection when handling untreated waste from healthcare or community setting with either a known COVID-19 patient or PUI?

A: Wastewater workers should use standard practices including basic hygiene precautions and wear the recommended PPE as prescribed for their current work tasks when handling untreated waste. There is no evidence to suggest that employees of wastewater plants need any additional protections in relation to COVID-19.

Q: Should medical waste or general waste from healthcare facilities treating PUIs and patients with confirmed COVID-19 be handled any differently or need any additional disinfection?

A: Medical waste (trash) coming from healthcare facilities treating COVID-2019 patients is no different than waste coming from facilities without COVID-19 patients. CDC's guidance states that management of laundry, food service utensils, and medical waste should be performed in accordance with routine procedures. There is no evidence to suggest that facility waste needs any additional disinfection.

More guidance about environmental infection control is available in section 7 of CDC's Interim Infection Prevention and Control Recommendations for Patients with Confirmed COVID-19 or Persons Under Investigation for COVID-19 in Healthcare Settings.

Footnotes

- ¹ Fever may be subjective or confirmed
- ² For healthcare personnel, testing may be considered if there has been exposure to a person with suspected COVID-19 without laboratory confirmation. Because of their often extensive and close contact with vulnerable patients in healthcare settings, even mild signs and symptoms (e.g., sore throat) of COVID-19 should be evaluated among potentially exposed healthcare personnel. Additional information is available in CDC's Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease 2019 (COVID-19).

- ³ Close contact is defined as—

a) being within approximately 6 feet (2 meters) of a COVID-19 case for a prolonged period of time; close contact can occur while caring for, living with, visiting, or sharing a healthcare waiting area or room with a COVID-19 case

– or –

b) having direct contact with infectious secretions of a COVID-19 case (e.g., being coughed on)

If such contact occurs while not wearing recommended personal protective equipment or PPE (e.g., gowns, gloves, NIOSH-certified disposable N95 respirator, eye protection), criteria for PUI consideration are met.

Additional information is available in CDC's updated Interim Infection Prevention and Control Recommendations for Patients with Confirmed COVID-19 or Persons Under Investigation for COVID-19 in Healthcare Settings.

Data to inform the definition of close contact are limited. Considerations when assessing close contact include the duration

of exposure (e.g., longer exposure time likely increases exposure risk) and the clinical symptoms of the person with COVID-19 (e.g., coughing likely increases exposure risk as does exposure to a severely ill patient). Special consideration should be given to healthcare personnel exposed in healthcare settings as described in CDC's Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with COVID-19.

- 4 Documentation of laboratory-confirmation of COVID-19 may not be possible for travelers or persons caring for COVID-19 patients in other countries.
- 5 Affected areas are defined as geographic regions where sustained community transmission has been identified. For a list of relevant affected areas, see CDC's Coronavirus Disease 2019 Information for Travel.
1. Fever may not be present in some patients, such as those who are very young, elderly, immunosuppressed, or taking certain medications. Clinical judgement should be used to guide testing of patients in such situations.
- * Note: In addition to cough and shortness of breath, nonspecific symptoms such as sore throat, myalgia, fatigue, nausea, and diarrhea have been noted as initial symptoms in some cases of COVID-19. These symptoms can have several alternative explanations; however, failure to identify and implement proper precautions in a healthcare setting for persons infected with COVID-19 can contribute to widespread transmission in that facility due to the presence of susceptible patients and close interactions with healthcare personnel. For this reason, a lower temperature of 100.0oF and the inclusion of mild and non-specific symptoms should be used by healthcare settings evaluating these patients to increase the ability to detect even mild cases of COVID-19.
- * Fever is either measured temperature >100.0oF or subjective fever.

Note that fever may be intermittent or may not be present in some patients, such as those who are elderly, immunosuppressed, or taking certain medications (e.g., NSAIDs). Clinical judgement should be used to guide testing of patients in such situations. Respiratory symptoms consistent with COVID-19 are cough, shortness of breath, and sore throat. Medical evaluation may be recommended for lower temperatures (>100.0oF) or other symptoms (e.g., muscle aches, nausea, vomiting, diarrhea, abdominal pain headache, runny nose, fatigue) based on assessment by public health authorities.

- ¹ Isolation is defined as the separation or restriction of activities of an ill person with a contagious disease from those who are well.
- ¹ Home healthcare personnel should refer to Interim Infection Prevention and Control Recommendations for Patients with Known or Patients Under Investigation for Coronavirus Disease 2019 (COVID-19) in a Healthcare Setting.
- ² Close contact is defined as—
 - a) being within approximately 6 feet (2 meters) of a COVID-19 case for a prolonged period of time; close contact can occur while caring for, living with, visiting, or sharing a health care waiting area or room with a COVID-19 case
 - or –
 - b) having direct contact with infectious secretions of a COVID-19 case (e.g., being coughed on).

Resources for Healthcare Facilities

Steps Healthcare Facilities Can Take

Interim Guidance for Healthcare Facilities

Strategies to Prevent the Spread of COVID-19 in Long-Term Care Facilities (LTCF)

Steps Healthcare Facilities Can Take Now to Prepare for Coronavirus Disease 2019 (COVID-19)

The true impact of a COVID-19 outbreak in a U.S. community cannot be predicted. However, all healthcare facilities can take steps now to prepare for such an outbreak and protect both their patients and staff.

Be prepared:

- Stay informed about the local COVID-19 situation. Know where to turn for reliable, up-to-date information in your local community. Monitor the CDC COVID-19 website and your state and local health department websites for the latest information.
- Develop, or review, your facility's emergency plan. A COVID-19 outbreak in your community could lead to staff absenteeism. Prepare alternative staffing plans to ensure as many of your facility's staff are available as possible.
- Establish relationships with key healthcare and public health partners in your community. Make sure you know about healthcare and public health emergency planning and response activities in your community. Learn about plans to manage patients, accept transfers, and share supplies. Review any memoranda of understanding (MOUs) with affiliates, your healthcare coalition, and other partners to provide support or assistance during emergencies.
- Create an emergency contact list. Develop and continuously update emergency contact lists for key partners and ensure the lists are accessible in key locations in your facility. For example, know how to reach your local or state health department in an emergency.

Communicate with staff and patients:

- Communicate about COVID-19 with your staff. Share information about what is currently known about COVID-19, the potential for surge, and your facility's preparedness plans.
- Communicate about COVID-19 with your patients. Provide updates about changes to your policies regarding appointments, providing non-urgent patient care by telephone,

and visitors. Consider using your facility's website or social media pages to share updates.

Protect your workforce:

- Screen patients and visitors for symptoms of acute respiratory illness (e.g., fever, cough, difficulty breathing) before entering your healthcare facility. Keep up to date on the recommendations for preventing spread of COVID-19 on CDC's website.
- Ensure proper use of personal protection equipment (PPE). Healthcare personnel who come in close contact with confirmed or possible patients with COVID-19 should wear the appropriate personal protective equipment.
- Conduct an inventory of available PPE. Consider conducting an inventory of available PPE supplies. Explore strategies to optimize PPE supplies.
- Encourage sick employees to stay home. Personnel who develop respiratory symptoms (e.g., cough, shortness of breath) should be instructed not to report to work. Ensure that your sick leave policies are flexible and consistent with public health guidance and that employees are aware of these policies.

Protect your patients:

- Stay up-to-date on the best ways to manage patients with COVID-19.
- Separate patients with respiratory symptoms so they are not waiting among other patients seeking care. Identify a separate,

well-ventilated space that allows waiting patients and visitors to be separated.

- Consider the strategies to prevent patients who can be cared for at home from coming to your facility potentially exposing themselves or others to germs, like:
 - Using your telephone system to deliver messages to incoming callers about when to seek medical care at your facility, when to seek emergency care, and where to go for information about caring for a person with COVID at home.
 - Adjusting your hours of operation to include telephone triage and follow-up of patients during a community outbreak.
 - Leveraging telemedicine technologies and self-assessment tools.

Interim Guidance for Healthcare Facilities: Preparing for Community Transmission of COVID-19 in the United States

Key Considerations for Healthcare Facilities:

Currently there are no medications to treat or vaccines to prevent COVID-19. Therefore, community approaches to slowing transmission including appropriate hand hygiene, cough etiquette, social distancing, and reducing face-to-face contact with potential

COVID-19 cases are needed to slow disease transmission and reduce the number of people who get sick. In each healthcare facility, the primary goals include:

- Provision of the appropriate level of medical care
- Protecting healthcare personnel and non-COVID-19 patients accessing healthcare from infection
- Preparing for a potential surge in patients with respiratory infection
- Preparing for potential personal protective equipment supply and staff shortages

Purpose of this document: This interim guidance outlines goals and strategies for all U.S. healthcare facilities to prepare for and respond to community spread of coronavirus disease-2019 (COVID-19). Although it is not possible to predict the future course of the outbreak, planning for a scenario in which many persons become ill and seek care at the same time is an important part of preparedness and can improve outcomes if an outbreak occurs. Therefore, preserving healthcare system functioning is paramount. It is critical for healthcare facilities to continue to provide care for all patients, irrespective of COVID-19 infection status, at the appropriate level (e.g., home-based care, outpatient, urgent care, emergency room, or hospitalization). Facilities may need to respond to a surge in patients requiring care. Concentrated efforts will be required to mobilize all aspects of healthcare to reduce transmission of disease, direct people to the right level of care, and decrease the burden on the healthcare system.

Public health guidance will shift as the COVID-19 outbreak evolves. All healthcare facilities should be aware of any updates to local and state public health recommendations.

Key Goals for the U.S. healthcare system in response to the COVID-19 outbreak are to:

1. Reduce morbidity and mortality
2. Minimize disease transmission
3. Protect healthcare personnel
4. Preserve healthcare system functioning

Actions to take now to prepare for an outbreak of COVID-19

1. Designate a time to meet with your staff to educate them on COVID-19 and what they may need to do to prepare. The following may be useful resources to share information about COVID-19:
 - How COVID-19 spreads
 - Clinical management of COVID-19 patients
 - Infection prevention and control recommendations for COVID-19
2. Explore alternatives to face-to-face triage and visits. The following options can reduce unnecessary healthcare visits and prevent transmission of respiratory viruses in your facility:
 - Instruct patients to use available advice lines, patient portals, on-line self-assessment tools, or call and speak to an office/clinic staff if they become ill with symptoms such as fever, cough, or shortness of breath.
 - Identify staff to conduct telephonic and telehealth interactions with patients. Develop protocols so that staff can triage and assess patients quickly.
 - Determine algorithms to identify which patients can be managed by telephone and advised to stay home, and which patients will need to be sent for emergency care or come to your facility.
 - Instruct patients that if they have respiratory symptoms they should call before they leave home, so staff can be prepared to care for them when they arrive.

3. Plan to optimize your facility's supply of personal protective equipment in the event of shortages. Identify flexible mechanisms to procure additional supplies when needed.
4. Prepare your facility to safely triage and manage patients with respiratory illness, including COVID-19. Become familiar with infection prevention and control guidance for managing COVID-19 patients.
 - Visual alerts (signs, posters) at entrances and in strategic places providing instruction on hand hygiene, respiratory hygiene, and cough etiquette
 - Ensure supplies are available (tissues, waste receptacles, alcohol-based hand sanitizer)
 - Facemasks are available at triage for patients with respiratory symptoms
 - Create an area for spatially separating patients with respiratory symptoms. Ideally patients would be >6 feet apart in waiting areas.

Plan to Take the Following Actions if COVID-19 is spreading in your community

1. Work with local and state public health organizations, healthcare coalitions, and other local partners to understand the impact and spread of the outbreak in your area.
2. Designate staff who will be responsible for caring for suspected or known COVID-19 patients. Ensure they are trained on the infection prevention and control recommendations for COVID-19 and proper use of personal protective equipment.
3. Monitor healthcare workers and ensure maintenance of essential healthcare facility staff and operations:
 - Ensure staff are aware of sick leave policies and are encouraged to stay home if they are ill with respiratory

symptoms.

- Be aware of recommended work restrictions and monitoring based on staff exposure to COVID-19 patients.
- Advise employees to check for any signs of illness before reporting to work each day and notify their supervisor if they become ill.
- Do not require a healthcare provider's note for employees who are sick with respiratory symptoms before returning to work.
- In settings of widespread transmission, your facility may consider screening staff for fever or respiratory symptoms before entering the facility.
- Make contingency plans for increased absenteeism caused by employee illness or illness in employees' family members that would require them to stay home. Planning for absenteeism could include extending hours, cross-training current employees, or hiring temporary employees.

4. When possible, manage mildly ill COVID-19 patients at home.

- Assess the patient's ability to engage in home monitoring, the ability for safe isolation at home, and the risk of transmission in the patient's home environment.
- Caregivers and sick persons should have clear instructions regarding home care and when and how to access the healthcare system for face-to-face care or urgent/emergency conditions.
- If possible, identify staff who can monitor those patients at home with daily "check-ins" using telephone calls, text, patient portals or other means.
- Engage local public health, home health services, and community organizations to assist with support services (such

as delivery of food, medication and other goods) for those treated at home.

Considerations for specific settings (In addition to above)

1. Outpatient facilities

- Reschedule non-urgent outpatient visits as necessary.
- Consider reaching out to patients who may be a higher risk of COVID-19-related complications (e.g., elderly, those with medical co-morbidities, and potentially other persons who are at higher risk for complications from respiratory diseases, such as pregnant women) to ensure adherence to current medications and therapeutic regimens, confirm they have sufficient medication refills, and provide instructions to notify their provider by phone if they become ill.
- Consider accelerating the timing of high priority screening and intervention needs for the short-term, in anticipation of the possible need to manage an influx of COVID-19 patients in the weeks to come.
- Symptomatic patients who need to be seen in a clinical setting should be asked to call before they leave home, so staff are ready to receive them using appropriate infection control practices and personal protective equipment.
- Eliminate patient penalties for cancellations and missed appointments related to respiratory illness.

2. Inpatient facilities

- Reschedule elective surgeries as necessary.
- Shift elective urgent inpatient diagnostic and surgical procedures to outpatient settings, when feasible.
- Limit visitors to COVID-19 patients.
- Plan for a surge of critically ill patients and identify additional

space to care for these patients. Include options for:

- Using alternate and separate spaces in the ER, ICUs, and other patient care areas to manage known or suspected COVID-19 patients.
- Separating known or suspected COVID-19 patients from other patients (“cohorting”).
- Identifying dedicated staff to care for COVID-19 patients.

3. Long term care facilities

- Limit visitors to the facility
- Post visual alerts (signs, posters) at entrances and in strategic places providing instruction on hand hygiene, respiratory hygiene, and cough etiquette
- Ensure supplies are available (tissues, waste receptacles, alcohol-based hand sanitizer)
- Take steps to prevent known or suspected COVID-19 patients from exposing other patients
- Limit the movement of COVID-19 patients (e.g., have them remain in their room)
- Identify dedicated staff to care for COVID-19 patients.
- Observe newly arriving patients/residents for development of respiratory symptoms.

Shifting Healthcare Delivery Modes during a COVID-19 Outbreak in the United States

Several major impacts can be anticipated during a severe outbreak that could affect the operations of healthcare facilities. These include

surges in patients seeking care, the potential for workforce absenteeism from personal or family illness, and effects from social distancing measures such as school closures. Healthcare facilities will likely need to adjust the way they triage, assess and care for patients using methods that do not rely on face-to-face care.

Shifting practices to triaging and assessing ill patients (including those affected by COVID-19 and patients with other conditions) remotely using nurse advice lines, provider “visits” by telephone, text monitoring system, video conference, or other telehealth and telemedicine methods can reduce exposure of ill persons with staff and minimize surge on facilities. Many clinics and medical offices already use these methods to triage and manage patients after hours and as part of usual practices. Recent reports suggest that approximately 80% of COVID-19 patients (of all ages) have experienced mild illness[i]. Managing persons at home who are ill with mild disease can reduce the strain on healthcare systems—however, these patients will need careful triage and monitoring.

Promoting the increased use of telehealth

- Healthcare facilities can increase the use of telephone management and other remote methods of triaging, assessing and caring for all patients to decrease the volume of persons seeking care in facilities.
- If a formal “telehealth” system is not available, healthcare providers can still communicate with patients by telephone (instead of visits), reducing the number of those who seek face-to-face care.
- Health plans, healthcare systems and insurers/payors should message beneficiaries to promote the availability of covered telehealth, telemedicine, or nurse advice line services

Shifts in the way that healthcare is delivered during a COVID-19 outbreak response will be complex. Thorough and consistent communications

between all components of the public health and healthcare system will be needed in every community. For example, providers in medical offices, clinics, and other outpatient settings must be informed and know their roles. Pre-hospital care by emergency management services (EMS) and public-safety answering points (PSAPs) will also need to be aware of any altered transport guidance so they can conduct in-home assessments and triage per local guidance.

Reference:

[i] Wu Z, McGoogan JM. Characteristics of and Important Lessons from the Coronavirus Disease 2019 (COVID-19) Outbreak in China. JAMA [Internet] 2020; available from: <https://jamanetwork.com/journals/jama/fullarticle/2762130>

Strategies to Prevent the Spread of COVID-19 in Long-Term Care Facilities (LTCF)

A new respiratory disease – coronavirus disease 2019 (COVID-19) – is spreading globally and there have been instances of COVID-19 community spread in the United States. The general strategies CDC recommends to prevent the spread of COVID-19 in LTCF are the same strategies these facilities use every day to detect and prevent the spread of other respiratory viruses like influenza.

Long-term care facilities concerned that a resident, visitor, or employee may be a COVID-2019 patient under investigation should contact their local or state health department immediately for consultation and guidance.

Prevent the introduction of respiratory germs INTO your facility

- Post signs at the entrance instructing visitors not to visit if they have symptoms of respiratory infection.
- Ensure sick leave policies allow employees to stay home if they have symptoms of respiratory infection.
- Assess residents symptoms of respiratory infection upon admission to the facility and implement appropriate infection prevention practices for incoming symptomatic residents.

Symptoms of respiratory infection, including COVID-19:

- Fever
- Cough
- Shortness of breath

Prevent the spread of respiratory germs WITHIN your facility

- Keep residents and employees informed.
 - Describe what actions the facility is taking to protect them, including answering their questions and explaining what they can do to protect themselves and their fellow residents.
- Monitor residents and employees for fever or respiratory symptoms.

- Restrict residents with fever or acute respiratory symptoms to their room. If they must leave the room for medically necessary procedures, have them wear a facemask (if tolerated).
- In general, for care of residents with undiagnosed respiratory infection use Standard, Contact, and Droplet Precautions with eye protection unless suspected diagnosis requires Airborne Precautions (e.g., tuberculosis).
- Healthcare personnel should monitor their local and state public health sources to understand COVID-19 activity in their community to help inform their evaluation of individuals with unknown respiratory illness. If there is transmission of COVID-19 in the community, in addition to implementing the precautions described above for residents with acute respiratory infection, facilities should also consult with public health authorities for additional guidance.
- Support hand and respiratory hygiene, as well as cough etiquette by residents, visitors, and employees.
 - Ensure employees clean their hands according to CDC guidelines, including before and after contact with residents, after contact with contaminated surfaces or equipment, and after removing personal protective equipment (PPE).
 - Put alcohol-based hand rub in every resident room (ideally both inside and outside of the room).
 - Make sure tissues are available and any sink is well-stocked with soap and paper towels for hand washing.
- Identify dedicated employees to care for COVID-19 patients and provide infection control training.

- Guidance on implementing recommended infection prevention practices is available in CDC's free online course – The Nursing Home Infection Preventionist Training – which includes resources checklists for facilities and employees to use.
- Provide the right supplies to ensure easy and correct use of PPE.
 - Post signs on the door or wall outside of the resident room that clearly describe the type of precautions needed and required PPE.
 - Make PPE, including facemasks, eye protection, gowns, and gloves, available immediately outside of the resident room.
 - Position a trash can near the exit inside any resident room to make it easy for employees to discard PPE.

Prevent the spread of respiratory germs BETWEEN facilities

- Notify facilities prior to transferring a resident with an acute respiratory illness, including suspected or confirmed COVID-19, to a higher level of care.
- Report any possible COVID-19 illness in residents and employees to the local health department, including your state HAI/AR coordinator.

For the most up-to-date information, visit www.cdc.gov/covid19.

Resources for State, Local, Territorial and Tribal Health Departments

This page includes information and resources about coronavirus disease 2019 (COVID-19) for state, local, territorial and tribal health departments.

Interim Guidance for Risk Assessment and Monitoring

Interim Guidance for Public Health Personnel Evaluating Persons Under Investigation (PUIs) and Asymptomatic Close Contacts of Confirmed Cases at Their Home or Non-Home Residential Settings – This guidance is intended to address recommended infection prevention and control practices when these activities are performed at a home or non-home residential settings, which warrant additional considerations beyond those described for healthcare settings.

Reporting a Person Under Investigation (PUI) or Laboratory-Confirmed Case for COVID-19 – Information for health departments on reporting and specimen referral for Persons Under Investigation (PUIs) and laboratory-confirmed cases.

Risk Assessment and Public Health Management of Persons with Potential 2019 Novel Coronavirus (COVID-19) Exposure – Interim guidance for assessing risk of potential exposures to COVID-19 and implementing public health actions.

What's New

Updated Guidance on Evaluating and Testing Persons for

Coronavirus Disease 2019 (COVID-19) Sunday, March 8, 2020

Resources for Institutes of Higher Education Sunday, March 8, 2020

COVID-19 and Cruise Ship Travel Sunday, March 8, 2020

Environmental Cleaning and Disinfection Recommendations
Sunday, March 8, 2020

People at Risk for Serious Illness from COVID-19 Sunday,
March 8, 2020

Communication Resources for Travelers Sunday, March 8,
2020

What Law Enforcement Personnel Need to Know about
Coronavirus Disease 2019 (COVID-19) Saturday, March 7,
2020

Preventing COVID-19 Spread in Communities Saturday, March
7, 2020

If you have returned from Hubei Province within the last 14
days, Check and Report Everyday Wednesday, March 4, 2020

Healthcare Professionals

Information for Healthcare Professionals All current interim guidance, and resources on PUIs, clinical care, infection control, home care, and personal protective equipment supplies.

Businesses and Employers

Information for Businesses and Employers to Plan and Response to COVID-19

Travelers

Information for Travel: Information about coronavirus disease 2019 (COVID-19) for travelers

- Travelers to China
- Travelers from China arriving in the U.S.
- Travelers from Countries with Widespread Sustained (Ongoing) Transmission Arriving in the US

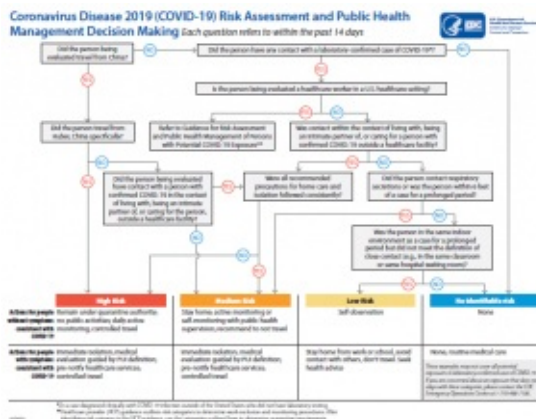
Travel Industry

Interim Recommendations for Airlines and Airline Crew: COVID-19 in China

Interim Guidance for Ships on Managing Suspected COVID-2019

Frequently Asked Questions and Answers About:

- Coronavirus Disease 2019
- Travel
- Information for Healthcare Professionals
- Respirators and their Use
- Laboratory Requests for Diagnostic Panels and Virus
- Pregnant Women and COVID-19
- Healthcare Infection Prevention and Control



COVID-19 Risk Assessment and Public Health Management Decision Making Algorithm

Additional Resources

- Health Alert Network (HAN) Messages: Primary method of sharing cleared information about urgent public health incidents with public information officers; federal, state, territorial, tribal, and local public health practitioner; clinicians; and public health laboratories.
- CDC Newsroom: CDC Media Telebriefing: Update on COVID-19: CDC provides an update periodically to media on the COVID-19 response.
- Clinician Outreach and Communication Activity (COCA) Calls/Webinars: Subject matter experts present key emergency preparedness and response topics, followed by meaningful Q&A with participants.
- Pandemic Preparedness Resources – Pandemic influenza resources that can be adapted for preparedness for a potential COVID-19 outbreak.

- Stigma and COVID-19 – Resources and information on how to counter stigma associated to COVID-19
- COVID-2019 Publications
- Households with Pets

Interim Guidance for Public Health Personnel Evaluating Persons Under Investigation (PUIs) and Asymptomatic Close Contacts of Confirmed Cases at Their Home or Non-Home Residential Settings

As part of the risk assessment and public health management of persons with potential COVID-19, public health personnel will typically conduct interviews and assess these individuals for fever or other symptoms of COVID-19. In certain circumstances they will also obtain respiratory specimens. This guidance is intended to address recommended infection prevention and control practices when these activities are performed at a home or non-home residential settings, which warrant additional considerations beyond those described for healthcare settings.

For recommendations on the evaluation of PUIs in healthcare settings refer to the Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.

Interviewing and assessing persons with symptoms

(PUIs for COVID-19):

- Make every effort to interview the PUI by telephone, text monitoring system, or video conference.
 - Temperature monitoring could be reported by phone or shown to a provider via video conferencing.
- If public health personnel must interview a PUI in their home, the public health personnel should wear recommended personal protective equipment (PPE), including a gown, gloves, eye protection (e.g., goggles, a disposable face shield that covers the front and sides of the face), and respiratory protection that is at least as protective as a NIOSH-approved N95 filtering facepiece respirator, as recommended in the Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.
 - Hand hygiene should be performed before putting on and after removing PPE using alcohol-based hand sanitizer that contains 60 to 95% alcohol.
 - PPE should ideally be put on outside of the home prior to entry into the home.
 - If unable to put on all PPE outside of the home, it is still preferred that face protection (i.e., respirator and eye protection) be put on before entering the home. Alert persons within the home that the public health personnel will be entering the home and ask them to move to a different room, if possible, or keep a 6-foot distance in the same room. Once the entry area is clear, enter the home and put on a gown and gloves.
 - Ask PUI if an external trash can is present at the home, or if one can be left outside for the disposal of PPE.
 - PPE should ideally be removed outside of the home and

discarded by placing in external trash can before departing location. PPE should not be taken from the PUI's home in public health personnel's vehicle.

- If unable to remove all PPE outside of the home, it is still preferred that face protection (i.e., respirator and eye protection) be removed after exiting the home. If gown and gloves must be removed in the home, ask persons within the home to move to a different room, if possible, or keep a 6-foot distance in the same room. Once the entry area is clear, remove gown and gloves and exit the home. Once outside the home, perform hand hygiene with alcohol-based hand sanitizer that contains 60 to 95% alcohol, remove face protection and discard PPE by placing in external trash can before departing location. Perform hand hygiene again.

Interviewing and assessing persons without symptoms (asymptomatic close contacts who have been exposed to a lab-confirmed case of COVID-19):

- Make every effort to interview the asymptomatic close contact by telephone, text monitoring system, or video conference.
 - Temperature monitoring could be reported by phone or shown to a provider via video conferencing.
- If public health personnel must interview the asymptomatic close contact in person, the public health personnel should stay at least 6 feet away from the asymptomatic close contact and ask them if they have had fevers or respiratory symptoms. If the interview and assessment is occurring in the home environment, the public health personnel should not enter the home until these questions have been asked and the asymptomatic close contact has been determined to be afebrile by temperature measurement.

- If the asymptomatic close contact reports fever or symptoms, they should be considered a PUI and referred for further medical evaluation as appropriate. Public health personnel should document temperature measurement and description of symptoms.
- If the asymptomatic close contact does not report fever or symptoms, they should be instructed to take their own temperature and report the result. If the asymptomatic close contact denies symptoms and fever is not detected, it remains appropriate to stay at least 6 feet away during further interactions even if entering the home environment. If they are not able to take their own temperature, the public health personnel should:
 - Perform hand hygiene
 - Put on a facemask and eye protection (consider adding gloves if entering the asymptomatic close contact's home)
 - Proceed with checking the asymptomatic close contact's temperature
 - Remove and discard PPE
 - Perform hand hygiene using alcohol-based hand sanitizer that contains 60 to 95% alcohol

Diagnostic respiratory specimen collection for all individuals (i.e., PUIs for COVID-19 or asymptomatic) at home:

- Testing for the virus that causes COVID-19 should be conducted outdoors if climate allows. If conducted in the home, specimen collection should be performed in the area of the house where the individual being tested self-isolates.
 - Only the public health personnel and individual being tested should be in the room when testing is performed.

- Collecting diagnostic respiratory specimens (e.g., nasopharyngeal swab) is likely to induce cough or sneezing.
 - Non-aerosol-generating procedures should be performed before aerosol-generating procedures. Aerosol-generating procedures should be the last activity performed just before leaving the home.
- Public health personnel collecting specimens should wear recommended PPE, including a gown, gloves, eye protection, and respiratory protection that is at least as protective as a NIOSH-approved N95 filtering facepiece respirator, as recommended in the Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.
 - Hand hygiene should be performed before putting on and after removing PPE using alcohol-based hand sanitizer that contains 60 to 95% alcohol.
 - PPE should ideally be put on outside of the home prior to entry into the home
 - If unable to put on all PPE outside of the home, it is still preferred that face protection (i.e., respirator and eye protection) be put on before entering the home. Alert persons within the home that the public health personnel will be entering the home and ask them to move to a different room, if possible, or keep a 6-foot distance in the same room. Once the entry area is clear, enter the home and put on a gown and gloves.
 - Ask person being tested if an external trash can is present at the home, or if one can be left outside for the disposal of PPE.
 - PPE should ideally be removed outside of the home and discarded by placing in external trash can before departing location. PPE should not be taken from the home of the

person being tested in public health personnel's vehicle.

- If unable to remove all PPE outside of the home, it is still preferred that face protection (i.e., respirator and eye protection) be removed after exiting the home. If gown and gloves must be removed in the home, ask persons within the home to move to a different room, if possible, or keep a 6-foot distance in the same room. Once the entry area is clear, remove gown and gloves and exit the home. Once outside the home, perform hand hygiene with alcohol-based hand sanitizer that contains 60 to 95% alcohol, remove face protection and discard PPE by placing in external trash can before departing location. Perform hand hygiene again.

Information for Health Departments on Reporting a Person Under Investigation (PUI), or Presumptive Positive and Laboratory-Confirmed Cases of COVID-19

Coronavirus Disease (COVID-19) is a disease caused by the newly emerged coronavirus SARS-CoV-2. To prevent further spread of SARS-CoV-2 and to collect information to better understand the virus and its impact on health outcomes, CDC is working with state and local health departments to identify persons under investigation (PUI) in the United States and test them for the virus that causes COVID-19. To assist our partners, CDC has developed a form that provides a standardized approach to reporting PUIs, presumptive positive cases (individuals with at least one respiratory specimen that tested positive for the virus that

causes COVID-19 at a state or local laboratory) and laboratory-confirmed COVID-19 cases (individuals with at least one respiratory specimen that tested positive for the virus that causes COVID-19 at a CDC laboratory). These data are needed to track the impact of the outbreak and inform public health response.

The COVID-19 Persons under Investigation and Case Report Form is designed to collect key information on PUIs, presumptive positive cases, and laboratory-confirmed COVID-19 case-patients, including:

- Demographic, clinical, and epidemiologic characteristics
- Exposure and contact history
- Course of clinical illness and care received

Additional resources to assist in the completion and analysis of the COVID-19 Persons under Investigation and Case Report Form are available:

- COVID-19 Persons Under Investigation and Case Report Form Instructions
- Data dictionary

Tips to submit a report on a PUI, Presumptive Positive Case, or Laboratory-Confirmed Case

Healthcare providers who are concerned that a patient may have COVID-19 should contact their local or state health department immediately for consultation and guidance.

CDC is working closely with state and local health departments around the country to support follow-up of PUI, referral of specimens for testing, and follow-up of any presumptive positive or laboratory-confirmed COVID-19 cases. At this time, the following steps should be taken for

specimens being tested by CDC:

For jurisdictions that have the capacity to do their own laboratory testing:

For reporting jurisdictions who are able to assign nCoV IDs and monitor PUIs at the jurisdictional level: The jurisdiction should enter all PUIs or Presumptive Cases (persons with a positive test performed locally without CDC lab confirmation) into CDC's electronic reporting system with the jurisdiction-issued nCoV ID, unless other arrangements to transmit data have been made and approved by CDC. If a specimen is tested locally and is negative, please update the person's disposition in CDC's electronic reporting system. If a specimen is tested locally and is positive, please call the CDC EOC Watch desk at 770-488-7100 and notify CDC of the positive result. The specimen will be identified as 'presumptive positive' until the result is confirmed at CDC; send the specimen to CDC for confirmatory testing and update the person's disposition in CDC's electronic reporting system.

For reporting jurisdictions who are not yet able to assign nCoV IDs and monitor PUIs at the jurisdictional level: The jurisdiction should call the CDC EOC Watch desk at 770-488-7100 to receive a CDC-issued nCoV ID, and to complete a PUI and Case Report Form. If the specimen is tested locally and is positive, please call the CDC EOC Watch desk at 770-488-7100 and notify of the positive result. The specimen will be identified as 'presumptive positive' until the result is confirmed at CDC; send the specimen to CDC for confirmatory testing.

For jurisdictions that do not have capacity to do their own testing and are sending specimens to CDC for testing:

For reporting jurisdictions who are able to assign nCoV IDs and monitor PUIs at the jurisdictional level: The jurisdiction should enter all PUIs into CDC's electronic reporting system with the jurisdiction-issued nCoV IDs, unless other arrangements to transmit data have been made and approved by CDC. Testing results will be returned to the state lab per current protocol.

For reporting jurisdictions who are not yet able to assign nCoV IDs and monitor PUIs at the jurisdictional level: The jurisdiction should call the CDC EOC Watch Desk at 770-488-7100 to obtain a CDC-issued nCoV ID number, and complete a PUI and Case Report Form. Testing results will be returned to the state lab per current protocol.

The nCoV ID should be included on all PUI and Case Report Forms and shipping labels.

Please contact your state or territorial health department for more information on submitting reports of PUI, presumptive positive cases, and laboratory-confirmed COVID-19 cases. State or territorial health departments with questions about investigating COVID-19 PUI or cases should contact eocevent118@cdc.gov.

Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease 2019 (COVID-19) Exposures: Geographic Risk and Contacts of Laboratory-confirmed Cases

Recommendations in this document for actions by public health authorities apply primarily to US jurisdictions that are not experiencing sustained community transmission. CDC will provide separate guidance for US jurisdictions with sustained community transmission.

CDC has provided separate guidance for healthcare settings.

Summary of changes

Revisions were made on March 7, 2020, to reflect the following:

- Definitions for congregate settings and social distancing were revised

Revisions were made on March 5, 2020, to reflect the following:

- Clarified that in jurisdictions without sustained community transmission, decisions for public health action should be based priorities of public health authorities (e.g., surveillance, contact tracing)., In jurisdictions with sustained community transmission, travelers and other potentially exposed individuals should follow local guidance. Also provided a rationale for these changes.
- Updated definitions for self-observation, self-monitoring, and self-monitoring with public health supervision
- Provided exposure risk definitions and recommended management for countries other than China
- Updated recommendations for Crews on Passenger or Cargo Flights
- Removed Workplace section
- Added links to information on discontinuation of isolation for patients with laboratory-confirmed COVID-19
- Clarified that a potentially exposed person's risk level does not change if symptoms develop
- Reorganized tables

Background

CDC is closely monitoring an epidemic of respiratory illness (COVID-19) caused by a novel (new) coronavirus (SARS-CoV-2) that was first detected in Wuhan, Hubei Province, China. Chinese health officials have reported tens of thousands of illnesses with COVID-19 in China and the virus is spreading from person-to-person in many parts of that country. Cases of COVID-19 are also being reported in a growing number of international locations, several of which are experiencing sustained community-level or widespread person-to-person transmission. Cases of COVID-19 without direct links to travel have been reported in the United States and sustained transmission is occurring in some US communities.

Purpose

The purpose of this interim guidance is to provide public health authorities and other partners in US jurisdictions that are not experiencing sustained community transmission of COVID-19 with a framework for assessing and managing risk of potential exposures to SARS-CoV-2 and implementing public health actions based on a person's risk level and clinical presentation. Public health actions may include monitoring or the application of movement restrictions, including isolation and quarantine, when needed to delay the introduction and spread of SARS-CoV-2 in these communities.

The recommendations in this guidance apply to US-bound travelers who may have been exposed to SARS-CoV-2 and people identified through contact investigations of laboratory-confirmed cases. CDC acknowledges that state and local jurisdictions may make risk management decisions that differ from those recommended here. Public health management decisions should be based on the situation in the jurisdiction and the priorities of public health authorities. The guidance will be updated based on the evolving circumstances of the epidemic.

Rationale

The guidance was designed for a “containment” approach in the absence of sustained SARS-CoV-2 transmission in US communities in order to delay introduction and spread of SARS-CoV-2. It focuses on decreasing the risk of unrecognized case importation from international locations with sustained transmission and managing contacts of laboratory-confirmed cases. In US jurisdictions that are not experiencing sustained community transmission, these activities are still important; however, a resource-intensive containment approach that focuses on international travelers poses a risk of diverting public health resources from other priority activities, including surveillance and case finding, contact tracing, and preparing for community mitigation measures. Allowing health departments the flexibility to prioritize public health actions in their jurisdictions enables prudent deployment of public health resources where they can have the most benefit based on the local situation. State and local health departments are best positioned to make such decisions within their jurisdictions.

In US jurisdictions with sustained community transmission, shifting from containment to mitigation conserves public health resources and directs them to where they can have the most benefit. In such jurisdictions, residents may have the same exposure risk as international travelers from countries with sustained transmission; therefore, applying stringent containment measures to international travelers (e.g., staying home for 14 days) no longer has a public health benefit and would be arbitrary in the context of similar risk among others in the community. Applying such containment measures (e.g., asking people to stay home) community-wide would have severe detrimental effects on community infrastructure. When SARS-CoV-2 is spreading in a community, it is also not feasible to identify all people with symptoms compatible with COVID-19 or identify all potentially exposed contacts. Applying stringent containment measures to people who are tested and have laboratory confirmation and their contacts, but not to others who are not tested and their contacts, would have no public health benefit. Such an approach could hamper surveillance efforts and ability of public health authorities to make data-driven decisions for the implementation of community mitigation

measures. Separate CDC guidance is in development that harmonizes recommendations for people who are tested and confirmed positive for COVID-19 and others in the community who are symptomatic but not tested, as well as their contacts.

Definitions Used in this Guidance

Symptoms compatible with COVID-19, for the purpose of these recommendations, include subjective or measured fever, cough, or difficulty breathing.

Self-observation means people should remain alert for subjective fever, cough, or difficulty breathing. If they feel feverish or develop cough or difficulty breathing during the self-observation period, they should take their temperature, self-isolate, limit contact with others, and seek advice by telephone from a healthcare provider or their local health department to determine whether medical evaluation is needed.

Self-monitoring means people should monitor themselves for fever by taking their temperatures twice a day and remain alert for cough or difficulty breathing. If they feel feverish or develop measured fever, cough, or difficulty breathing during the self-monitoring period, they should self-isolate, limit contact with others, and seek advice by telephone from a healthcare provider or their local health department to determine whether medical evaluation is needed.

Self-monitoring with delegated supervision means, for certain occupational groups (e.g., some healthcare or laboratory personnel, airline crew members), self-monitoring with oversight by the appropriate occupational health or infection control program in coordination with the health department of jurisdiction. The occupational health or infection control personnel for the employing organization should establish points of contact between the organization, the self-monitoring personnel, and the local or state health departments with jurisdiction for the location

where personnel will be during the self-monitoring period. This communication should result in agreement on a plan for medical evaluation of personnel who develop fever, cough, or difficulty breathing during the self-monitoring period. The plan should include instructions for notifying occupational health and the local public health authority, and transportation arrangements to a pre-designated hospital, if medically necessary, with advance notice if fever, cough, or difficulty breathing occur. The supervising organization should remain in contact with personnel through the self-monitoring period to oversee self-monitoring activities.

Self-monitoring with public health supervision means public health authorities assume the responsibility for oversight of self-monitoring for certain groups of people. The ability of jurisdictions to initiate or provide continued oversight will depend on other competing priorities (e.g., contact tracing, implementation of community mitigation strategies). Depending on local priorities, CDC recommends that health departments consider establishing initial communication with these people, provide a plan for self-monitoring and clear instructions for notifying the health department before the person seeks health care if they develop fever, cough, or difficulty breathing. As resources allow, health authorities may also check in intermittently with these people over the course of the self-monitoring period. If travelers for whom public health supervision is recommended are identified at a US port of entry, CDC will notify state and territorial health departments with jurisdiction for the travelers' final destinations.

Active monitoring means that the state or local public health authority assumes responsibility for establishing regular communication with potentially exposed people to assess for the presence of fever, cough, or difficulty breathing. For people with high-risk exposures, CDC recommends this communication occurs at least once each day. The mode of communication can be determined by the state or local public health authority and may include telephone calls or any electronic or internet-based means of communication.

Close contact is defined as:

a) being within approximately 6 feet (2 meters) of a COVID-19 case for a prolonged period of time; close contact can occur while caring for, living with, visiting, or sharing a healthcare waiting area or room with a COVID-19 case

– or –

b) having direct contact with infectious secretions of a COVID-19 case (e.g., being coughed on)

Public health orders are legally enforceable directives issued under the authority of a relevant federal, state, or local entity that, when applied to a person or group, may place restrictions on the activities undertaken by that person or group, potentially including movement restrictions or a requirement for monitoring by a public health authority, for the purposes of protecting the public's health. Federal, state, or local public health orders may be issued to enforce isolation, quarantine or conditional release. The list of quarantinable communicable diseases for which federal public health orders are authorized is defined by Executive Order and includes "severe acute respiratory syndromes." COVID-19 meets the definition for "severe acute respiratory syndromes" as set forth in Executive Order 13295, as amended by Executive Order 13375 and 13674, and, therefore, is a federally quarantinable communicable disease.

Isolation means the separation of a person or group of people known or reasonably believed to be infected with a communicable disease and potentially infectious from those who are not infected to prevent spread of the communicable disease. Isolation for public health purposes may be voluntary or compelled by federal, state, or local public health order.

Quarantine in general means the separation of a person or group of people reasonably believed to have been exposed to a communicable disease but not yet symptomatic, from others who have not been so exposed, to prevent the possible spread of the communicable disease.

Conditional release defines a set of legally enforceable conditions under which a person may be released from more stringent public health movement restrictions, such as quarantine in a secure facility. These conditions may include public health supervision through in-person visits by a health official or designee, telephone, or any electronic or internet-based means of communication as determined by the CDC Director or state or local health authority. A conditional release order may also place limits on travel or require restriction of a person's movement outside their home.

Controlled travel involves exclusion from long-distance commercial conveyances (e.g., aircraft, ship, train, bus). For people subject to active monitoring, any long-distance travel should be coordinated with public health authorities to ensure uninterrupted monitoring. Air travel is not allowed by commercial flight but may occur via approved noncommercial air transport. CDC may use public health orders or federal public health travel restrictions to enforce controlled travel. CDC also has the authority to issue travel permits to define the conditions of interstate travel within the United States for people under certain public health orders or if other conditions are met.

Congregate settings are crowded public places where close contact with others may occur, such as shopping centers, movie theaters, stadiums.

Social distancing means remaining out of congregate settings, avoiding mass gatherings, and maintaining distance (approximately 6 feet or 2 meters) from others when possible.

Exposure Risk Categories

These categories are interim and subject to change.

CDC has established the following exposure risk categories to help guide public health management of people following potential SARS-CoV-2 exposure in jurisdictions that are not experiencing sustained community

transmission. These categories may not cover all potential exposure scenarios. They should not replace an individual assessment of risk for the purpose of clinical decision making or individualized public health management.

All exposures apply to the 14 days prior to assessment.

For country-level risk classifications, see Coronavirus Disease 2019 Information for Travel.

CDC has provided separate guidance for healthcare settings.

Table 1. Risk Categories for Exposures Associated with International Travel or Identified during Contact Investigations of Laboratory-confirmed Cases

Risk Level	Geographic (Travel-associated) Exposures*	Exposures Identified through Contact Investigation
High	Travel from Hubei Province, China	Living in the same household as, being an intimate partner of, or providing care in a nonhealthcare setting (such as a home) for a person with symptomatic laboratory-confirmed COVID-19 infection without using recommended precautions for home care and home isolation
Medium (assumes no exposures in the	• Travel from mainland China outside Hubei	• Close contact with a person with symptomatic laboratory-confirmed COVID-19

high-risk category)	Province or Iran • Travel from a country with widespread sustained transmission, other than China or Iran • Travel from a country with sustained community transmission	• On an aircraft, being seated within 6 feet (two meters) of a traveler with symptomatic laboratory-confirmed COVID-19 infection; this distance correlates approximately with 2 seats in each direction • Living in the same household as, an intimate partner of, or caring for a person in a nonhealthcare setting (such as a home) to a person with symptomatic laboratory-confirmed COVID-19 infection while consistently using recommended precautions for home care and home isolation
Low (assumes no exposures in the high-risk category)	Travel from any other country	Being in the same indoor environment (e.g., a classroom, a hospital waiting room) as a person with symptomatic laboratory-confirmed COVID-19 for a prolonged period of time but not meeting the definition of close contact
No identifiable	Not applicable	Interactions with a person with symptomatic laboratory-

risk		confirmed COVID-19 infection that do not meet any of the high-, medium- or low-risk conditions above, such as walking by the person or being briefly in the same room.
* In general, geographic exposure categories do not apply to travelers who only transit through an airport.		

Recommendations for Exposure Risk Management

State and local authorities have primary jurisdiction for isolation and other public health orders within their respective jurisdictions. Federal public health authority primarily extends to international arrivals at ports of entry and to preventing interstate communicable disease threats.

CDC recognizes that decisions and criteria to use such public health measures may differ by jurisdiction. Consistent with principles of federalism, state and local jurisdictions may choose to make decisions about isolation, other public health orders, and monitoring that exceed those recommended in federal guidance. As the domestic COVID-19 situation evolves, public health authorities should base their decisions about application of individual-level monitoring or movement restrictions on the situation in their jurisdictions, including whether sustained community transmission is occurring and competing priorities.

The issuance of public health orders should be considered in the context of other less restrictive means that could accomplish the same public health goals. People under public health orders must be treated with respect, fairness, and compassion, and public health authorities should take steps to reduce the potential for stigma (e.g., through outreach to

affected communities, public education campaigns). Considerable, thoughtful planning by public health authorities is needed to implement public health orders properly. Specifically, measures must be in place to provide shelter, food, water, and other necessities for people whose movement is restricted under public health orders, and to protect their dignity and privacy.

CDC's recommendations for public health management of international travelers with potential exposure to SARS-CoV-2 and people identified through contact investigations of laboratory-confirmed cases, including monitoring and the application of travel or movement restrictions, are summarized in Table 2.

Additional recommendations in specific groups or settings are provided below.

Crews on Passenger or Cargo Flights

For country-level risk classifications, see Coronavirus Disease 2019 Information for Travel. Regardless of residence or travel history, crew members who have known exposure to persons with COVID-19 should be assessed and managed on a case-by-case basis.

Air carriers have the authority to adopt occupational health policies for their own employees that exceed CDC's recommendations.

US-based crews who have layovers in countries with sustained (community or widespread) transmission or other international locations

US-based crew members who are on layovers in countries with sustained (community or widespread) transmission should limit their activities in public and their interactions with local populations and practice social distancing while in those countries. Crew members who follow these recommendations, and who have no known exposure to persons with COVID-19, are assessed as low risk. These crew members should self-

monitor for 14 days after their layovers under the supervision of the air carrier's occupational health program. These crew members have no movement restrictions while in the United States and may continue to work on passenger or cargo flights as long as they remain asymptomatic. Air carriers should coordinate with health departments of jurisdiction for crew members' residences to establish plans for managing crew members identified as symptomatic. If individualized planning with health departments is infeasible based on volume of crew members or priorities of health departments, air carriers should at a minimum ensure crew members know how to contact their local health departments. If they develop fever, cough, or difficulty breathing, crew members should self-isolate and be excluded from work on flights immediately until cleared by public health authorities.

At this time, CDC recommends that US-based flight crews consider practicing social distancing during layovers or other travel at all international destinations and self-observation at all times.

Crews based in countries without sustained (community or widespread) transmission who have had layovers in countries with sustained (community or widespread) transmission

Crew members who are based in other countries not known to have sustained transmission and who practice social distancing during layovers in a country with sustained transmission in the past 14 days are assessed as low risk. The crew members should self-monitor for 14 days after their layovers under the supervision of the air carrier's occupational health program while on layovers in the United States. These crew members have no movement restrictions while in the United States and may continue to work on passenger or cargo flights as long as they remain asymptomatic. Air carriers should coordinate with health departments of jurisdiction for airports where they operate to establish plans for managing crew members identified as symptomatic while in the

United States. If they develop fever, cough, or difficulty breathing, crew members should self-isolate and be excluded from work on commercial flights immediately until cleared by public health authorities.

Crews based in countries with sustained community transmission

Crew members who are based in countries with sustained community transmission and who are in the United States for layovers are assessed as medium risk but may continue to work on passenger or cargo flights to and within the United States as long as they remain asymptomatic. The crew members should self-monitor under the supervision of the air carrier's occupational health program. These crew members are also recommended practice social distancing while in the United States. Air carriers should coordinate with health departments of jurisdiction for airports where they operate to establish plans for managing crew members identified as symptomatic while in the United States. If they develop fever, cough, or difficulty breathing, crew members should self-isolate and be excluded from work on commercial flights immediately until cleared by public health authorities.

Crews based in countries with widespread sustained transmission

Crew members who are based in countries with widespread sustained transmission and who are in the United States for layovers are assessed as medium risk but may continue to work on passenger or cargo flights to and within the United States as long as they remain asymptomatic. These crew members should self-monitor under the supervision of the air carrier's occupational health program. These crew members are also recommended to remain in their hotel rooms, limit activities in public, and practice social distancing while in the United States. Air carriers should coordinate with health departments of jurisdiction for airports where they operate to establish plans for managing crew members identified as

symptomatic while in the United States. If they develop fever, cough, or difficulty breathing, crew members should self-isolate and be excluded from work on commercial flights immediately until cleared by public health authorities.

People with Laboratory-Confirmed COVID-19 and Symptomatic People Under Investigation for COVID-19

CDC has established criteria for determining when an individual can be considered non-infectious to guide discontinuation of transmission-based precautions for hospitalized patients or home isolation. While individuals are considered infectious, local or long-distance travel should occur only by medical transport (e.g., ambulance or air medical transport) or private vehicle. Isolation and travel restrictions are removed upon determination by public health authorities that the person is no longer considered to be infectious.

Symptomatic people who meet CDC's definition of Persons Under Investigation (PUI) should be evaluated by healthcare providers in conjunction with local health authorities. PUIs awaiting results of rRT-PCR testing for COVID-19 should remain in isolation at home or in a healthcare facility until their test results are known. Depending on the clinical suspicion of COVID-19, PUIs for whom an initial rRT-PCR test is negative may be candidates for removal of any isolation and travel restrictions specific to symptomatic people, but any restrictions for asymptomatic people according to the assigned risk level should still apply. Management decisions of PUIs who are not tested should be made on a case-by-case basis, using available epidemiologic and clinical information, in conjunction with CDC guidance.

Contacts of Asymptomatic People Exposed to COVID-19

CDC does not recommend testing, symptom monitoring or special

management for people exposed to asymptomatic people with potential exposures to SARS-CoV-2 (such as in a household), i.e., “contacts of contacts,” these people are not considered exposed to SARS-CoV-2.

Table 2. Summary of CDC Recommendations for Management of Exposed Persons with by Risk Level and Presence of Symptoms

The public health actions recommended in the table below apply to people who have been determined to have at least some risk for COVID-19. People who are being managed as asymptomatic in a particular risk level who develop signs or symptoms compatible with COVID-19 should be moved immediately into the symptomatic category in the same risk level and be managed accordingly. The risk level does not change if symptoms develop.

Risk Level	Management Asymptomatic	if Management Symptomatic ¹
High risk	• Quarantine (voluntary or under public health orders) in a location to be determined by public health authorities. • No public activities. • Daily active monitoring, if possible based on local priorities • Controlled travel	• Immediate isolation with consideration of public health orders • Public health assessment to determine the need for medical evaluation; if medical evaluation warranted, diagnostic testing should be guided by CDC’s PUI definition • If medical evaluation is needed, it should

		occur with pre-notification to the receiving HCF and EMS, if EMS transport indicated, and with all recommended infection control precautions in place. Controlled travel: Air travel only via air medical transport. Local travel is only allowed by medical transport (e.g., ambulance) or private vehicle while symptomatic person is wearing a face mask.
Medium risk	Close contacts in this category: - Recommendation to remain at home or in a comparable setting Practice social distancing - Active monitoring as determined by local priorities - Recommendation to postpone long-distance travel on	- Self-isolation - Public health assessment to determine the need for medical evaluation; if medical evaluation warranted, diagnostic testing should be guided by CDC's PUI definition - If medical evaluation is

	commercial conveyances	
	Travelers from mainland China (outside Hubei Province) or Iran • Recommendation to remain at home or in a comparable setting Practice social distancing • Self-monitoring with public health supervision as determined by local priorities • Recommendation to postpone additional long-distance travel on commercial conveyances after they reach their final destination	needed, it should ideally occur with pre-notification to the receiving HCF and EMS, if EMS transport indicated, and with all recommended infection control precautions in place. • Controlled travel: Air travel only via air medical transport. Local travel is only allowed by medical transport (e.g., ambulance) or private vehicle while symptomatic person is wearing a face mask.
	Travelers from other country with widespread transmission • Recommendation to remain at home or in a comparable	

	setting, • Practice social distancing • Self-monitoring • Recommendation to postpone additional long-distance travel on commercial conveyances after they reach their final destination	
	Travelers from country with sustained community transmission • Practice social distancing • Self-observation	
Low risk	• No restriction on movement • Self-observation	• Self-isolation, social distancing • Person should seek health advice to determine if medical evaluation is needed. • If sought, medical evaluation and care should be guided by clinical presentation; diagnostic testing

		for COVID-19 should be guided by CDC's PUI definition. • Travel on commercial conveyances should be postponed until no longer symptomatic.
No identifiable risk	None	• Self-isolation, social distancing • Person should seek health advice to determine if medical evaluation is needed. • If sought, medical evaluation and care should be guided by clinical presentation; diagnostic testing for COVID-19 should be guided by CDC's PUI definition. • Travel on commercial conveyances should be postponed until no longer symptomatic.

EMS = emergency medical services; HCF = healthcare facility;
PUI = Person Under Investigation for COVID-19

¹ For the purpose of this document: subjective or measured fever, cough, or difficulty breathing

Note: The public health management recommendations made above are primarily intended for jurisdictions not experiencing sustained community transmission. In jurisdictions not experiencing sustained community transmission, CDC recommends that post-exposure public health management for asymptomatic exposed individuals continue until 14 days after the last potential exposure; however, these decisions should be made based on the local situation, available resources, and competing priorities. These factors should also guide decisions about managing symptomatic exposed individuals.

International travelers and other potentially exposed individuals in jurisdictions experiencing sustained community transmission should follow local guidance.

For country-level risk classifications, see Coronavirus Disease 2019 Information for Travel.

CDC has provided separate guidance for healthcare settings.

Pandemic Preparedness Resources

While the content at the links provided below was developed to prepare for, or respond to, an influenza (“flu”) pandemic, the newly emerged coronavirus disease 2019 (COVID-19) is a respiratory disease that seems to be spreading much like flu. Guidance and tools developed for pandemic influenza planning and preparedness can serve as appropriate resources for health departments in the event the current COVID-19 outbreak triggers a pandemic.

- Pandemic Planning and Preparedness Resources
- Pandemic Influenza Plan (UPDATED 2017)[1 MB, 52 pages]
- Community Mitigation Guidelines to Prevent Pandemic Influenza — United States, 2017
- Nonpharmaceutical Interventions (NPIs)
- NPI 101: An Introduction to Nonpharmaceutical Interventions (NPIs) for Pandemic Influenza CDC TRAIN course

Interim Guidance for Public Health Professionals Managing People With COVID-19 in Home Care and Isolation Who Have Pets or Other Animals

Purpose:

This interim guidance is for public health professionals managing the home care and isolation of people with COVID-19 who have pets or other animals (including service or working animals) in the same home. The intent of this guidance is to facilitate preparedness and establish practices that can help people and animals stay safe and healthy. At this time, there is no evidence that companion animals, including pets, can spread COVID-19. States may have their own specific requirements for these circumstances; this guidance provides recommendations for a conservative approach due to the unknown risks to pets and other animals. Guidance is based on the limited available data and general recommendations for zoonotic disease infection prevention and control.

This is a rapidly evolving situation. Guidance will be updated as new information becomes available.

Considerations for COVID-19 patients under home care and isolation who have pets or other animals:

People with COVID-19 should be advised to tell their public health point of contact that they have pets or other animals in their home.

In addition to other prevention measures, people with COVID-19 who are identified by public health officials as requiring home care and isolation should be advised to limit interaction with pets and other animals. Specifically, while these people are symptomatic, they should maintain separation from pets as they would with other household members, and avoid direct contact with pets, including petting, snuggling, being kissed or licked, and sharing food. Service animals should be permitted to remain with their handlers.

If possible, a household member should be designated to care for pets in the home. If the individual in home care and isolation must care for pet(s), including service animals, they should ensure they wash their hands before and after caring for pets and wear a facemask while interacting with pets, until they are medically cleared to return to normal activities.

At this point there is no evidence that companion animals, including pets, can spread COVID-19.

When a public health professional is notified of a pet, or other animal, in

the home of a person with COVID-19, they should notify the state public health veterinarian or other designated animal health professional.

State public health veterinarians who have been contacted about pets or other animals potentially exposed to COVID-19 can consult with the CDC One Health Team 24/7 by calling CDC's Emergency Operations Center at 770-488-7100.

This is a rapidly evolving situation and information will be updated as it becomes available.

Resources

CDC's up-to-date information on COVID-19:

- Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential 2019 Novel Coronavirus (COVID-19) Exposure in Travel-associated or Community Settings
- Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for 2019 Novel Coronavirus (COVID-19)
- Frequently Asked Questions (including COVID-19 and Animals)

NASPHV Compendium of Veterinary Standard Precautions for Zoonotic Disease Prevention in Veterinary

CDC's Healthy Pets, Healthy People Website

World Health Organization (WHO) Website

World Organisation for Animal Health (OIE) Q & A Website

Publications

- Burke RM, Midgley CM, Dratch A, et al. Active Monitoring of Persons Exposed to Patients with Confirmed COVID-19 — United

States, January–February 2020. MMWR Morb Mortal Wkly Rep 2020;69:245–246. DOI:

<http://dx.doi.org/10.15585/mmwr.mm6909e1>.

- Guan WJ, Ni ZY, Hu Y, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. N Engl J Med. February 28, 2020. DOI: 10.1056/NEJMoa2002032.
- Morens DM, Daszak P, Taubenberger JK. Escaping Pandora's Box – Another Novel Coronavirus. N Engl J Med. February 26, 2020. DOI: 10.1056/NEJMp2002106.
- Rasmussen SA, Smulian JC, Lednicky JA, et al. Coronavirus Disease 2019 (COVID-19) and Pregnancy: What obstetricians need to know. Amer J Ob Gyn. Available online February 24, 2020. DOI: <https://doi.org/10.1016/j.ajog.2020.02.017>.
- Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention. JAMA. Published online: February 24, 2020. DOI:10.1001/jama.2020.2648.
- Yang X, Yu Y, Xu J, et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. The Lancet. Published online: February 24, 2020. DOI: [https://doi.org/10.1016/S2213-2600\(20\)30079-5](https://doi.org/10.1016/S2213-2600(20)30079-5).
- Shi H, Han X, Jiang N, et al. Radiological findings from 81 patients with COVID-19 pneumonia in Wuhan, China: a descriptive study. The Lancet. Published online February 24, 2020. DOI: [https://doi.org/10.1016/S1473-3099\(20\)30086-4](https://doi.org/10.1016/S1473-3099(20)30086-4).
- Xu XW, Wu XX, Jiang XG, et al. Clinical findings in a group of patients infected with the 2019 novel coronavirus (SARS-Cov-2) outside of Wuhan, China: retrospective case series. BMJ 2020;368:m606. DOI: <https://doi.org/10.1136/bmj.m606>.

- Zou L, Ruan F, Huang M, et al. SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients. *N Engl J Med*. February 19, 2020. DOI: 10.1056/NEJMc2001737.
- Xu Z, Shi L, Wang Y, et al. Pathological findings of COVID-19 associated with acute respiratory distress syndrome. *The Lancet*. Published online February 18, 2020. DOI: [https://doi.org/10.1016/S2213-2600\(20\)30076-X](https://doi.org/10.1016/S2213-2600(20)30076-X).
- Ping Y, Jiang Z, Zhengdong Z, et al. A familial cluster of infection associated with the 2019 novel coronavirus indicating potential person-to-person transmission during the incubation period. *The Journal of Infectious Diseases*, jiaa077. February 18, 2020. DOI: <https://doi.org/10.1093/infdis/jiaa077>.
- Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. [The Epidemiological Characteristics of an Outbreak of 2019 Novel Coronavirus Diseases (COVID-19) in China]. *Zhonghua Liu Xing Bing Xue Za Zhi*. 2020;41(2):145–151. DOI:10.3760/cma.j.issn.0254-6450.2020.02.003.
- Qiao J. What are the risks of COVID-19 infection in pregnant women? *The Lancet*. February 12, 2010. DOI: [https://doi.org/10.1016/S0140-6736\(20\)30365-2](https://doi.org/10.1016/S0140-6736(20)30365-2)
- To KKW, Tsang OTY, Yip CCY, et al. Consistent detection of 2019 novel coronavirus in saliva. *Clinical Infectious Diseases*, ciaa149. February 12, 2020. DOI: <https://doi.org/10.1093/cid/ciaa149>
- Liu YC, Lio CH, Chang CF, et al. A Locally Transmitted Case of SARS-CoV-2 Infection in Taiwan. *N Engl J Med*. February 12, 2020. DOI: 10.1056/NEJMc2001573.
- Pongpirul WA, Pongpirul K, Ratnarathon AC. Journey of a Thai Taxi Driver and Novel Coronavirus. *N Engl J Med*. February 12, 2020. DOI: 10.1056/NEJMc2001621.
- Huijun C, Guo, J, Wang, C, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in

nine pregnant women: a retrospective review of medical records. *The Lancet*. Published online February 12, 2020. DOI: [https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3).

- Ki M, -nCoV TFF. Epidemiologic characteristics of early cases with 2019 novel coronavirus (2019-nCoV) disease in Republic of Korea. *Epidemiol Health*. February 9, 2020:e2020007. doi: 10.4178/epih.e2020007.
- Bajema KL, Oster AM, McGovern OL, et al. Persons Evaluated for 2019 Novel Coronavirus — United States, January 2020. *MMWR Morb Mortal Wkly Rep*. ePub: February 7, 2020. DOI: [dx.doi.org/10.15585/mmwr.mm6906e1](https://doi.org/10.15585/mmwr.mm6906e1).
- Wang D, Hu B, Hu C, et al. Clinical Characteristics of 138 Hospitalized Patients with 2019 Novel Coronavirus-Infected Pneumonia in Wuhan, China. *JAMA*. Published online February 7, 2020.
- Chang D, Lin M, Wei L, et al. Epidemiologic and Clinical Characteristics of Novel Coronavirus Infections Involving 13 Patients Outside Wuhan, China. *JAMA*. Published online February 7, 2020. DOI:10.1001/jama.2020.1623.
- Kampf G, Todt D, Pfaender S, Steinmann E. Persistence of coronaviruses on inanimate surfaces and its inactivation with biocidal agents. *J Hosp Infect*. February 6, 2020. pii: S0195-6701(20)30046-3. doi: 10.1016/j.jhin.2020.01.022.
- Patel A, Jernigan DB. Initial Public Health Response and Interim Clinical Guidance for the 2019 Novel Coronavirus Outbreak — United States, December 31, 2019–February 4, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:140–146. DOI: [dx.doi.org/10.15585/mmwr.mm6905e1](https://doi.org/10.15585/mmwr.mm6905e1).
- Holshue M, DeBolt C, Lindquist S, et al. First Case of 2019 Novel Coronavirus in the United States. *N Engl J Med*. January 31, 2020. DOI: 10.1056/NEJMoa2001191.

- Lu R, Zhao X, Li J, et al. Genomic characterization and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding [1.35 MB, 10 pages]. The Lancet. Published online January 29, 2020. [https://doi.org/10.1016/S0140-6736\(20\)30251-8](https://doi.org/10.1016/S0140-6736(20)30251-8)
- Chen N, Zhou M, Dong X, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study [7 pages]. The Lancet. Published online January 29, 2020. [https://doi.org/10.1016/S0140-6736\(20\)30211-7](https://doi.org/10.1016/S0140-6736(20)30211-7)
- Phan L, Nguyen T, Luong Q, et al. Importation and Human-to-Human Transmission of a Novel Coronavirus in Vietnam. N Engl J Med. January 28, 2020. DOI: 10.1056/NEJMc2001272
- The Lancet. Emerging understandings of 2019-nCoV [1 page]. The Lancet. Published online January 24, 2020. [https://doi.org/10.1016/S0140-6736\(20\)30186-0](https://doi.org/10.1016/S0140-6736(20)30186-0)
- Heymann D. Data sharing and outbreaks: best practice exemplified [2 pages]. The Lancet. Published online January 24, 2020. [https://doi.org/10.1016/S0140-6736\(20\)30184-7](https://doi.org/10.1016/S0140-6736(20)30184-7)
- Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China [1.5 MB, 10 pages]. The Lancet. Published online January 24, 2020. [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5)
- Chan JF, Yuan S, Kok K, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster[1.4 MB, 10 pages]. The Lancet. Published online January 24, 2020. [https://doi.org/10.1016/S0140-6736\(20\)30154-9](https://doi.org/10.1016/S0140-6736(20)30154-9)
- Wang C, Horby P, Hayden F, Gao G. A novel coronavirus outbreak of global health concern [4 pages]. The Lancet. Published online January 24, 2020. [https://doi.org/10.1016/S0140-6736\(20\)30185-9](https://doi.org/10.1016/S0140-6736(20)30185-9)

- Paules C, Marston H, Fauci A. Coronavirus Infections – More Than Just the Common Cold [2 pages]. JAMA. Published online January 23, 2020. doi:10.1001/jama.2020.0757

Information for Laboratories

Interim Guidance for Laboratories



- [Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens](#)
- [Interim Laboratory Biosafety Guidelines](#)
- [Laboratory Biosafety Frequently Asked Questions](#)

Real-Time RT-PCR Resources

- [Processing of Sputum Specimens for Nucleic Acid Extraction \[1 page\]](#)
- [CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel Instructions for Use](#)
- [FAQ for Diagnostic Tools and Virus](#)
- [Information about COVID-19 diagnostic tests under FDA Emergency Use Authorization](#)

- To request rRT-PCR kits, CDC's International Reagent Resource (IRR)
- To request 2019-nCoV grown in cell culture, NIH's BEI Resources Repository

Requests for COVID-19 Diagnostic Tools and Virus



CDC COVID-19 Lab Work

- CDC Tests for COVID-19
- CDC Grows SARS-CoV-2 in Cell Culture
- Serology Test for COVID-19

Fact Sheets to Accompany 2019-nCoV Real-Time RT-PCR Diagnostic Panel Test Results

- Fact Sheet for Patients
- Fact Sheet for Healthcare Providers

Frequently Asked Questions on COVID-19 Testing at Laboratories

Q. Where do public health laboratories get access to testing supplies to detect the virus that causes Coronavirus Disease 2019 (COVID-19)?

- a. CDC provides the test reagents for public health laboratories (PHLs) to perform real-time RT-polymerase chain reaction (rRT-PCR) detection of the SARS-CoV-2 virus (the virus that causes COVID-19) in respiratory specimens. CDC received authorization from the Food and Drug Administration (FDA) on February 4, 2020 for use of this rRT-PCR test to detect the virus in upper and lower respiratory specimens. These test reagents are available through the International Reagent Resource (IRR). For over ten years, CDC has provided test reagents to PHLs through the IRR. This resource was established to support state and local public health laboratories, Department of Defense laboratories, and other qualified laboratories participating in public health surveillance and studies. Clinical and commercial laboratories conducting COVID-19 testing access test reagents from commercial reagent manufacturers which have received authorization from the Food and Drug Administration (FDA).

Q. What is the CDC's International Reagent Resource (IRR)?

- a. The International Reagent Resource (IRR) was established by the Centers for Disease Control and Prevention (CDC) to provide registered users with reagents, tools and information for studying and detection of Influenza and other pathogens, including the SARS-CoV-2 virus (the virus that causes COVID-19). The IRR

acquires, authenticates, and produces reagents that scientists need to carry out basic research and develop improved diagnostic tests, vaccines, and detection methods. By centralizing these functions within the IRR, access to and use of these materials in the scientific and public health community is monitored and quality control of the reagents is assured. The International Reagent Resource is managed under a CDC contract by American Type Culture Collection (ATCC).

Q. What reagents do public health laboratories need to perform testing to detect the virus that causes Coronavirus Disease 2019 (COVID-19)?

a. Public health laboratories in the U.S. performing COVID-19 testing of respiratory specimens are provided the following reagents from the CDC's International Reagent Resource (IRR):

i. Equipment and Extraction Kits – These kits are used in the preparation of specimens

1. QIAGEN with QIAmp DSP Viral RNA Mini Kit (obtained from IRR)

2. QIAGEN EZ1 Advanced XL with EZ1 DSP Virus Kit (obtained from IRR)

3. QIAGEN QIAcube with QIAmp DSP Viral RNA Mini Kit (obtained from IRR))

4. Roche MagNA Pure LC with Total Nucleic Acid Kit

5. Roche MagNA Pure Compact with Nucleic Acid Isolation Kit
I

6. Roche MagNA Pure 96 with DNA and Viral NA Small Volume Kit

ii. rRT-PCR Test Kits (CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel) – These kits include vials of test reagents

that detect the virus that causes COVID-19 in respiratory specimens (obtained from IRR)

iii. Reagents –

1. Master Mix Kits (rRT-PCR Enzyme Mastermix (TaqPath™ 1-Step RT-qPCR Master Mix, CG) – These kits contain the enzymes and other components needed to run the PCR test. (obtained from IRR)
2. Human Specimen Control (HSC) (obtained from IRR)
3. EUA Positive Control (obtained from IRR)

Q. How do clinicians get access to COVID-19 testing?

- a. As availability of diagnostic testing for COVID-19 increases, clinicians will be able to access laboratory tests for diagnosing COVID-19 through clinical laboratories performing tests authorized by FDA under an Emergency Use Authorization (EUA). Clinicians should consult with the laboratories that routinely perform their diagnostic services to see how best to access testing for COVID-19.
- b. A list of Coronavirus Disease 2019 (COVID-19) Emergency Use Authorizations provided by FDA are available at <https://www.fda.gov/medical-devices/emergency-situations-medical-devices/emergency-use-authorizations#coronavirus2019>
- c. Clinicians are also able to access laboratory testing through public health laboratories in their A list of available public health laboratory testing locations is provided by the Association of Public Health Laboratories (APHL). Questions about testing can be directed to a clinician's state health department.

Q. Where can additional information about laboratory testing guidance from CDC be found?

- a. CDC has published the following interim guidelines, but this is a very dynamic response so please check CDC's website for the most up to date information:
- i. Frequently Asked Questions about Biosafety and COVID-19
 - ii. 2019-nCoV Real Time RT-PCR Diagnostic Panel Instructions for Use
 - iii. Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Patients Under Investigation for 2019-nCoV
 - iv. Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with 2019-nCoV

Laboratory Work

On February 11, 2020, the International Committee on Taxonomy of Viruses, charged with naming new viruses, named the virus causing coronavirus disease 2019 (COVID-19), severe acute respiratory syndrome coronavirus 2, shortened to SARS-CoV-2.

As the name indicates, the virus is related to the sars-associated coronavirus (SARS-CoV) that caused an outbreak of severe acute respiratory syndrome (SARS) in 2002-2003, however it is not the same virus.

CDC Tests for COVID-19

CDC Grows SARS-CoV-2 Virus in Cell Culture

CDC Tests for COVID-19

CDC has developed a new laboratory test kit for use in testing patient specimens for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19. The test kit is called the “Centers for Disease Control and Prevention (CDC) 2019-Novel Coronavirus (2019-nCoV) Real-Time Reverse Transcriptase (RT)-PCR Diagnostic Panel.” It is intended for use with the Applied Biosystems 7500 Fast DX Real-Time PCR Instrument with SDS 1.4 software. This test is intended for use with upper and lower respiratory specimens collected from persons who meet CDC criteria for COVID-19 testing. CDC’s test kit is intended for use by laboratories designated by CDC as qualified, and in the United States, certified under the Clinical Laboratory Improvement Amendments (CLIA) to perform high complexity tests. The test kits also will be shipped to qualified international laboratories, such as World Health Organization (WHO) Global Influenza Surveillance Response System (GISRS) laboratories. The test will not be available in U.S. hospitals or other primary care settings. The kits will be distributed through the International Reagent Resource (IRR)

On Monday, February 3, 2020, CDC submitted an Emergency Use Authorization (EUA) package to the U.S. Food and Drug Administration (FDA) in order to expedite FDA permitted use of the CDC diagnostic panel in the United States. The EUA process enables FDA to consider and authorize the use of unapproved, but potentially life-saving medical or diagnostic products during a public health emergency. The U.S. Secretary of Health and Human Services declared the SARS-CoV-2 virus a U.S. public health emergency on Friday, January 31, 2020. FDA issued the EUA on February 4, 2020. IRR began distribution of the test kits to states, but shortly thereafter performance issues were identified related to a problem in the manufacturing of one of the reagents which led to

laboratories not being able to verify the test performance. CDC is remanufacturing the reagents with more robust quality control measures. New tests will be distributed once this issue has been addressed. CDC continues to perform initial and confirmatory testing.



This is a picture of CDC's laboratory test kit for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). CDC is shipping the test kits to laboratories CDC has designated as qualified, including U.S. state and local public health laboratories, Department of Defense (DOD) laboratories and select international laboratories. The test kits are bolstering global laboratory capacity for detecting SARS-CoV-2.

Serology Test for COVID-19

CDC is working to develop a new laboratory test to assist with efforts to determine how much of the U.S. population has been exposed to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19.

The serology test will look for the presence of antibodies, which are specific proteins made in response to infections. Antibodies can be found in the blood and in other tissues of those who are tested after infection. The antibodies detected by this test indicate that a person had an immune response to SARS-CoV-2, whether symptoms developed from infection or the infection was asymptomatic. Antibody test results are important in detecting infections with few or no symptoms.

Initial work to develop a serology test for SARS-CoV-2 is underway at CDC. In order to develop the test, CDC needs blood samples from people who had COVID-19 at least 21 days after their symptoms first started. Researchers are currently working to develop the basic parameters for the test, which will be refined as more samples become available. Once the test is developed, CDC will need additional samples to evaluate whether the test works as intended.

Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons Under Investigation (PUIs) for Coronavirus Disease 2019 (COVID-19)

Revisions were made on March 9, 2020. to reflect the following:

Updates to all specimen storage guidelines for consistency with EUA IFU.

Recommendation to include combined NP/OP specimens as an option for upper respiratory specimen collection.

March 9, 2020

Health care providers should contact their local/state health department immediately to notify them of patients with fever and lower respiratory illness who live in or have recently traveled to an affected area with sustained transmission or have been in close contact with a confirmed COVID-19 patient. Local and state public health staff will determine if the patient meets the criteria for a person under investigation (PUI) for COVID-19. Clinical specimens should be collected from PUIs for routine testing of respiratory pathogens at either clinical or public health labs. Note that clinical laboratories should NOT attempt viral isolation from specimens collected from COVID-19 PUIs.

Now that the CDC's diagnostic test has been authorized by FDA under the EUA, the International Reagent Resource (IRR) has begun to distribute the test to requesting laboratories.

Clinicians who have identified a potential PUI should immediately notify their state or local health department. Local and state public health staff will determine if the person is a PUI and whether testing for COVID-19 is indicated. The state and local health department will then assist clinicians to collect, store, and ship specimens appropriately, including during afterhours or on weekends/holidays.

Testing for other pathogens by the provider should be done as part of the initial evaluation and should not delay specimen shipping.

If a PUI tests positive for another respiratory pathogen, after clinical evaluation and consultation with public health authorities, they may no

longer be considered a PUI. This may evolve as more information becomes available on possible COVID-19 co-infections.

Specimen Type and Priority

For initial diagnostic testing for COVID-19, CDC recommends collecting and testing upper respiratory (nasopharyngeal AND oropharyngeal swabs), and lower respiratory (sputum, if possible) for those patients with productive coughs. Induction of sputum is not recommended. Specimens should be collected as soon as possible once a PUI is identified, regardless of the time of symptom onset. Maintain proper infection control when collecting specimens.

General Guidelines

Store specimens at 2-8°C and ship overnight to CDC on ice pack. Label each specimen container with the patient's ID number (e.g., medical record number), unique specimen ID (e.g., laboratory requisition number), specimen type (e.g., serum) and the date the sample was collected. Complete a CDC Form 50.34 for each specimen submitted. In the upper left box of the form, 1) for test requested select "Respiratory virus molecular detection (non-influenza) CDC-10401" and 2) for At CDC, bring to the attention of enter "Stephen Lindstrom: 2019-nCoV PUI".

I. Respiratory Specimens

A. Lower respiratory tract

Bronchoalveolar lavage, tracheal aspirate

Collect 2-3 mL into a sterile, leak-proof, screw-cap sputum collection cup

or sterile dry container.

Sputum

Have the patient rinse the mouth with water and then expectorate deep cough sputum directly into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container.

B. Upper respiratory tract

Nasopharyngeal swab AND oropharyngeal swab (NP/OP swab)

Use only synthetic fiber swabs with plastic shafts. Do not use calcium alginate swabs or swabs with wooden shafts, as they may contain substances that inactivate some viruses and inhibit PCR testing. Place swabs immediately into sterile tubes containing 2-3 ml of viral transport media. NP and OP specimens may be kept in separate vials or combined at collection into a single vial.

Nasopharyngeal swab: Insert a swab into the nostril parallel to the palate. Leave the swab in place for a few seconds to absorb secretions.

Oropharyngeal swab (e.g., throat swab): Swab the posterior pharynx, avoiding the tongue.

Nasopharyngeal wash/aspirate or nasal aspirate

Collect 2-3 mL into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container.

II. Storage

Store specimens at 2-8°C for up to 72 hours after collection. If a delay in testing or shipping is expected, store specimens at -70°C or below.

III. Shipping

Specimens PUI's must be packaged, shipped, and transported according to the current edition of the International Air Transport Association (IATA) Dangerous Goods Regulations. Store specimens at 2-8°C and ship overnight to CDC on ice pack. If a specimen is frozen at -70°C ship overnight to CDC on dry ice. Additional useful and detailed information on packing, shipping, and transporting specimens can be found at Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Coronavirus Disease 2019 (COVID-19).

Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Coronavirus Disease 2019 (COVID-19)

Summary of Recent Changes

Revisions were made on February 10, 2020, to reflect the following:

- The term “certified” was added to clarify that a certified Class II Biological Safety Cabinet (BSC) should be used for any laboratory procedure with the potential to generate aerosols or droplets.
- Additional details were provided for any laboratory procedures

that are performed outside of a BSC.

- Additional details were provided about the use of EPA-registered hospital disinfectants.
- Additional details were provided for handling COVID-19 laboratory waste.
- The need for both site- and activity-specific risk assessments was added to determine if additional laboratory biosafety control measures are necessary.

February 10, 2020

Until more information becomes available, precautions should be taken in collecting and handling specimens that may contain SARS-CoV-2. Timely communication between clinical and laboratory staff is essential to minimize the risk incurred in handling specimens from patients with possible SARS-CoV-2 infection. Such specimens should be labeled accordingly, and the laboratory should be alerted to ensure proper specimen handling. General and specific biosafety guidelines for handling SARS-CoV-2 specimens are provided below.

For additional detailed instructions please refer to the following:

- Biosafety in Microbiological and Biomedical Laboratories (BMBL) – Fifth Edition
- Laboratory Biosafety Manual – Third Edition

General Guidelines (for working with potentially infectious materials)

Laboratory workers should wear appropriate personal protective equipment (PPE) which includes disposable gloves, laboratory coat/gown and eye protection when handling potentially infectious specimens.

Any procedure with the potential to generate aerosols or droplets (e.g., vortexing) should be performed in a certified Class II Biological Safety Cabinet (BSC). Appropriate physical containment devices (e.g., centrifuge safety buckets; sealed rotors) should be used for centrifugation. Ideally, rotors and buckets should be loaded and unloaded in a BSC. For any procedures outside of a BSC, eye and face protection (e.g. goggles, mask, face shield) or other physical barriers (e.g. splash shield) should be used to minimize the risk of exposure to laboratory staff.

After specimens are processed, decontaminate work surfaces and equipment with appropriate disinfectants. Use EPA-registered hospital disinfectants with label claims to be effective against other respiratory pathogens, such as seasonal influenza and other human coronaviruses. Follow manufacturer's recommendations for use – dilution (i.e., concentration), contact time, and care in handling.

For SARS-CoV-2 laboratory waste, follow standard procedures associated with other respiratory pathogens, such as seasonal influenza and other human coronaviruses.

Specific Guidelines

Virus isolation in cell culture and initial characterization of viral agents recovered in cultures of SARS-CoV-2 specimens are NOT recommended at this time, except in a BSL3 laboratory using BSL3 work practices.

The following activities may be performed in BSL-2 facilities using standard BSL-2 work practices:

- Pathologic examination and processing of formalin-fixed or otherwise inactivated tissues
- Molecular analysis of extracted nucleic acid preparations
- Electron microscopic studies with glutaraldehyde-fixed grids

- Routine examination of bacterial and mycotic cultures
- Routine staining and microscopic analysis of fixed smears
- Final packaging of specimens for transport to diagnostic laboratories for additional testing. Specimens should already be in a sealed, decontaminated primary container.
- Inactivated specimens (e.g., specimens in nucleic acid extraction buffer)

The following activities involving manipulation of potentially infected specimens should be, at a minimum, performed as above and in a certified Class II BSC in a BSL-2 facility. Site- and activity-specific risk assessments should be performed to determine if enhanced biosafety precautions are warranted based on situational needs (e.g. high testing volumes):

- Aliquoting and/or diluting specimens
- Inoculating bacterial or mycological culture media
- Performing diagnostic tests that do not involve propagation of viral agents in vitro or in vivo
- Nucleic acid extraction procedures involving potentially infected specimens
- Preparation and chemical- or heat-fixing of smears for microscopic analysis

Clinical Laboratory Testing

Clinical laboratories performing routine hematology, urinalysis, and

clinical chemistry studies, and microbiology laboratories performing diagnostic tests on serum, blood, or urine specimens should follow standard laboratory practices, including Standard Precautions, when handling potential COVID-19 patient specimens. For additional information, see Biosafety in Microbiological and Biomedical Laboratories (BMBL) – Fifth Edition (page 225).

Packing, Shipping and Transport

Packaging, shipping, and transport of specimens from suspect cases or PUI's of COVID-19 must follow the current edition of the International Air Transport Association (IATA) Dangerous Goods Regulations.

Follow shipping regulations for UN 3373 Biological Substance, Category B when sending potential COVID-19 patient specimens.

Resources

- Packaging Checklist, see Category B Saf-T-Pak
- Packing Instructions 650 for UN 3373
 - Click on “Infectious substances” and there is an option to download the packing instructions.
- Labels for UN 3373
 - When using cold pack – Include the name and telephone number of the person who will be available during normal business hours who knows the content of the shipment (can be someone at CDC). Place the label on one side of the box and cover the label completely with clear tape (do not tape just the edges of the label).
 - When using dry ice – Include the name and telephone number of the person who will be available during normal

business hours who knows the content of the shipment (can be someone at CDC). Place the label on one side of the box and cover the label completely with clear tape (do not tape just the edges of the label).

- Schematic for packaging, UN 3373 Category B

FAQ for Diagnostic Tools and Virus

How do I learn more about the CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel?

- The diagnostic panel's FDA-authorized instructions for use contain information about the test, its intended use, test procedure and performance characteristics. FDA's EUA website has published the FDA Letter of Authorization for the diagnostic panel, which defines the authorized use and the conditions of authorization that apply to CDC and to testing laboratories.

How do I order a reagent diagnostic panel?

The International Reagent Resource (IRR) will distribute the diagnostic panel and most of the associated reagents.

Which labs will receive the diagnostic panel?

The Food and Drug Administration (FDA) authorized the Emergency Use Authorization (EUA) on February 4, 2020.

- CDC's diagnostic panel is intended for use by laboratories designated by CDC as qualified, and in the United States, certified under the Clinical Laboratory Improvement Amendments (CLIA) to perform high complexity tests. This includes U.S. state and local public health laboratories and Department of Defense (DoD) laboratories. The test kits also will be shipped to qualified international laboratories, such as World Health Organization

(WHO) Global Influenza Surveillance Response System (GISRS) laboratories For more information, see the section labeled CDC Laboratory Test Kit Distribution (general audiences).

- Each laboratory that places an order will receive one diagnostic panel initially, and each panel can test 700-800 patient specimens.



This is a picture of CDC's laboratory test kit for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). CDC is shipping the test kits to laboratories CDC has designated as qualified, including U.S. state and local public health laboratories, Department of Defense (DOD) laboratories and select international laboratories. The test kits are bolstering global laboratory capacity for detecting SARS-CoV-2.

What does the diagnostic panel include?

The CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel contains the following:

- 2019-nCoV_N1, 2019-nCoV_N2 and 2019-nCoV_N3 primers and probes that target the nucleocapsid (N) gene and are designed for both universal detection of SARS-like coronavirus as well as specific detection of the 2019-nCoV;
- RP primers and probes that target the Human RNase P gene; and
- nCoVPC, the 2019-nCoV positive control used in the assay.

What other equipment will labs need to perform tests using the diagnostic panel?

The CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel also requires the use of additional authorized materials and authorized ancillary reagents that are not included with the test but are commonly used in clinical laboratories and are described in the authorized CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel Instructions for Use Package Insert.

The CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel requires the following control materials, or other authorized control materials; all controls listed below must generate expected results for a test to be considered valid, as outlined in the CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel Instructions for Use:

- Human Specimen Control (HSC): A human cell culture preparation used as an extraction control and positive control for the RNase P primer and probe set that is extracted and tested concurrently with each specimen extraction run.
- Positive Control for COVID-19 (nCoVPC): Run with each batch of specimens. Monitors for failures of rRT-PCR reagents and reaction conditions.
- No Template Control (NTC): Nuclease-free water included in each run. Monitors for reagent and system contamination.

Should I be testing all patients for COVID-19?

At this time, CDC only recommends diagnostic testing of patients who meet the clinical criteria for a COVID-19 person under investigation (PUI), per Interim Guidelines for Collecting, Handling and Testing Clinical Specimens from Persons Under Investigation (PUIs) for Coronavirus Disease 2019 (COVID-19).

- People who have been in close contact with a confirmed COVID-19 patient, and people who live in or recently traveled from an area with sustained transmission, are at elevated risk of COVID-19.
- For more information about interpreting test results, see section labeled “Interpretation of test results from CDC 2019 novel coronavirus (2019-nCoV) Real-Time RT-PCR Diagnostic Panel.”

What safety equipment should labs use when using the diagnostic tool?

Use appropriate personal protective equipment when collecting and handling specimens from individuals suspected of being infected with COVID-19 as outlined in the CDC Interim Guidelines for Collecting, Handling and Testing Clinical Specimens from Persons Under Investigation (PUIs) for Coronavirus Disease 2019 (COVID-19).

How can my lab get the virus?

The National Institute of Health (NIH)’s Biodefense and Emerging Infections Research Resources Repository (BEI Resources) will provide laboratories with COVID-19.

I believe that I have found a treatment or vaccine for COVID-19. Is CDC the best place to submit my idea?

BARDA is providing a portal to support U.S. government medical countermeasure research and development. Interested stakeholders can learn more here.

Research Use Only Real-Time RT-

PCR Protocol for Identification of 2019-nCoV

NOT FOR DIAGNOSTIC USE

For CDC diagnostic testing guidance and information about CDC's FDA-authorized diagnostic testing panel, please visit [Information for Laboratories](#).

Instructions for Use

Table of Contents

- Introduction
- Specimens
- Reagents, Supplies and Equipment Requirements
- Nucleic Acid Extraction
- Quality Control
- rRT-PCR Assays
- Interpreting Test Results
- Assay Limitations
- Contact Information

Introduction

Purpose: This document describes the use of real-time RT PCR (rRT-PCR) assays for the in vitro qualitative detection of 2019-Novel Coronavirus (2019-nCoV) in respiratory specimens and sera. The 2019-nCoV primer and probe sets are designed for the universal detection of SARS-like coronaviruses (N3 assay) and for specific detection of 2019-nCoV (N1 and N2 assays).

Protocol Use Limitations: The rRT-PCR assays described here have not been validated for platforms or chemistries other than those described in this document.

Specimens

Biosafety Precautions

Wear appropriate personal protective equipment (e.g. gowns, gloves, eye protection) when working with clinical specimens. Specimen processing should be performed in a certified class II biological safety cabinet following biosafety level 2 or higher guidelines. For more information, refer to:

- Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons Under Investigation (PUIs) for 2019 Novel Coronavirus (2019-nCoV) <https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html>
- Biosafety in Microbiological and Biomedical Laboratories 5th edition available at <http://www.cdc.gov/biosafety/publications/>.

Acceptable Specimens

- Respiratory specimens including: nasopharyngeal or oropharyngeal aspirates or washes, nasopharyngeal or oropharyngeal swabs,

bronchoalveolar lavage, tracheal aspirates, and sputum.

- Swab specimens should be collected only on swabs with a synthetic tip (such as polyester or Dacron®) with aluminum or plastic shafts. Swabs with calcium alginate or cotton tips with wooden shafts are not acceptable.

Specimen Handling and Storage

- Specimens can be stored at 4°C for up to 72 hours after collection.
- If a delay in extraction is expected, store specimens at -70°C or lower.
- Extracted nucleic acids should be stored at -70°C or lower.

Specimen Rejection criteria:

- Specimens not kept at 2-4°C (≤4 days) or frozen at -70°C or below.
- Incomplete specimen labeling or documentation.
- Inappropriate specimen type.
- Insufficient specimen volume.

Reagents, Supplies and Equipment Requirements

Disclaimer: Names of vendors or manufacturers are provided as examples of suitable product sources. Inclusion does not imply endorsement by the Centers for Disease Control and Prevention.

Reagents and Supplies

- rRT-PCR primer/probe sets
- Positive template control
- TaqPath™ 1-Step RT-qPCR Master Mix, CG (ThermoFisher; cat # A15299 or A15300)
- Molecular grade water, nuclease-free

- Disposable powder-free gloves
- P2/P10, P200, and P1000 aerosol barrier tips
- Sterile, nuclease-free 1.5 mL microcentrifuge tubes
- 0.2 mL PCR reaction tube strips or 96-well real-time PCR reaction plates and optical 8-cap strips
- Laboratory marking pen
- Cooler racks for 1.5 microcentrifuge tubes and 96-well 0.2 mL PCR reaction tubes
- Racks for 1.5 ml microcentrifuge tubes
- Acceptable surface decontaminants
 - DNAZap™ (Life Technologies, cat. #AM9890)
 - DNA Away™ (Fisher Scientific; cat. #21-236-28)
 - RNase Away™ (Fisher Scientific; cat. #21-236-21)
 - 10% bleach (1:10 dilution of commercial 5.25-6.0% sodium hypochlorite)

Equipment

- PCR Work Station [UV lamp; Laminar flow (Class 100 HEPA filtered)]
- Vortex mixer
- Microcentrifuge
- Micropipettes (2 or 10 µl, 200 µl and 1000 µl)
- Multichannel micropipettes (5-50 µl)
- 2 x 96-well cold blocks
- -20°C (nonfrost-free) and -70°C freezers; 4°C refrigerator
- Real-time PCR detection system
- Nucleic acid extraction system

Nucleic Acid Extraction

- Performance of rRT-PCR amplification based assays depends on the amount and quality of sample template RNA. RNA extraction procedures should be qualified and validated for recovery and purity before testing specimens.
- Commercially available extraction procedures that have been shown to generate highly purified RNA when following manufacturer's recommended procedures for sample extraction include: bioMérieux NucliSens® systems, QIAamp® Viral RNA Mini Kit, QIAamp® MinElute Virus Spin Kit or RNeasy® Mini Kit (QIAGEN), EZ1 DSP Virus Kit (QIAGEN), Roche MagNA Pure Compact RNA Isolation Kit, Roche MagNA Pure Compact Nucleic Acid Isolation Kit, and Roche MagNA Pure 96 DNA and Viral NA Small Volume Kit, and Invitrogen ChargeSwitch® Total RNA Cell Kit.
- Retain residual specimen and nucleic extract and store immediately at -70oC
- Only thaw the number of specimen extracts that will be tested in a single day. Do not freeze/thaw extracts more than once before testing.

Quality Control

Due to the sensitivity of rRT-PCR, these assays should be conducted using strict quality control and quality assurance procedures. Following these guidelines will help minimize chance of false-positive amplification.

General Considerations

- Personnel must be familiar with the protocol and instruments used.
- Maintain separate areas and dedicated equipment (e.g., pipettes,

microcentrifuges) and supplies (e.g., microcentrifuge tubes, pipette tips, gowns and gloves) for assay reagent setup and handling of extracted nucleic acids.

- Work flow must always be from the clean area to the dirty area.
- Wear clean disposable gowns and new, previously unworn, powder-free gloves during assay reagent setup and handling of extracted nucleic acids. Change gloves whenever contamination is suspected.
- Store primer/probes and enzyme master mix at appropriate temperatures (see package inserts). Do not use reagents beyond their expiry dates.
- Keep reagent tubes and reactions capped as much as possible.
- Clean and decontaminate surfaces.
- Do not bring extracted nucleic acid or PCR products into the assay setup area.
- Use aerosol barrier (filter) pipette tips only.
- Use PCR plate strip caps only. Do not use PCR plate sealing film.

Assay Controls

- Assay controls should be run concurrently with all test samples.
- PTC – positive template control with an expected Ct value range
- NTC – negative template control added during rRT-PCR reaction set-up
- HSC – human specimen extraction control extracted concurrently with the test samples; provides a nucleic acid extraction procedural control and a secondary negative control that validates the nucleic acid extraction procedure and reagent integrity
- RP – all clinical samples should be tested for human RNase P (RNP) gene to assess specimen quality

- Note: Keep running logs of PTC performance. After each rRT-PCR run of clinical samples, the control Ct values should be recorded.

rRT-PCR Assays

Stock Reagent Preparation

rRT-PCR Primers/Probe Sets (see package insert if provided by CDC)

- Precautions: These reagents should only be handled in a clean area and stored at appropriate temperatures (see below) in the dark. Freeze-thaw cycles should be avoided. Maintain cold when thawed.
- Using aseptic technique, suspend dried reagents in 1.5 mL nuclease-free water and allow to rehydrate for 15 min at room temperature in the dark.
- Mix gently and aliquot primers/probe in 300 μ L volumes into 5 pre-labeled tubes. Store a single aliquot of primers/probe at 2-8°C in the dark. Do not refreeze (stable for up to 4 months). Store remaining aliquots at $\leq$ -20°C in a non-frost-free freezer.

Positive Template Control (PTC) (if using CDC positive control, nCoVPC, see package insert provided by CDC)

- Precautions: This reagent should be handled with caution in a dedicated nucleic acid handling area to prevent possible contamination. Freeze-thaw cycles should be avoided. Maintain on ice when thawed.
- Used to assess performance of rRT-PCR assays. Resuspend dried reagent in each tube in 1 mL of nuclease-free water to achieve the proper concentration. Make single use aliquots (approximately 30 μ L) and store at $\leq$ -70°C.
- Thaw a single aliquot of diluted positive control for each experiment

and hold on ice until adding to plate. Discard any unused portion of the aliquot.

- The nCoVPC also contains human DNA that serves as the positive control for the RP assay.

Equipment preparation

- Clean and decontaminate all work surfaces, pipets, centrifuges and other equipment prior to use using RNase Away® or 10% freshly prepared bleach.
- Turn on AB 7500 Fast DX and allow block to reach optimal temperature.
- Perform plate set up and select cycling protocol on the instrument.
- Instrument Settings: Detector (FAM); Quencher (None); Passive Reference: (None); Run Mode: (Standard); Sample Volume (20 µL)

Step	Cycles	Temp	Time
UNG Incubation	1	25°C	2 min
RT incubation	1	50°C	15 min
Enzyme activation	1	95°C	2 min
Amplification	45	95°C	3 sec
		55°C	30 sec
* Fluorescence data (FAM) should be collected during the 55°C incubation step.			

Reaction Master Mix and Plate Set-Up

Note: Plate set-up configuration can vary with the number of specimens and work day organization. NTCs and nCoVPCs must be included in each run.

1. In the reagent set-up room clean hood, place r4X Master Mix and primer/probes on ice or cold-block. Keep cold during preparation and use.
2. Thaw 4X Reaction Mix prior to use.
3. Mix 4X Master Mix and primer/probes by inversion 5 times.
4. Briefly centrifuge 4X Master Mix and primers/probes and return to cold block.
5. Label one 1.5 mL microcentrifuge tube for each primer/probe set.
6. Determine the number of reactions (N) to set up per assay. It is necessary to make excess reaction mix for the NTC, nCoVPC, and RP reactions and for pipetting error. Use the following guide to determine N:
 - If number of samples (n) including controls equals 1 through 14, then $N = n + 1$
 - If number of samples (n) including controls is 15 or greater, then $N = n + 2$
7. For each primer/probe set, calculate the amount of each reagent to be added for each reaction mixture ($N = \#$ of reactions).

TaqPath™ 1-Step RT-qPCR Master Mix

Step #	Reagent	Vol. of Reagent Added per Reaction
1	Nuclease-free Water	$N \times 8.5 \mu\text{L}$

2	Combined Primer/Probe Mix	N x 1.5 μ L
3	TaqPath™ 1-Step RT-qPCR Master Mix (4x)	N x 5.0 μ L
	Total Volume	N x 15.0 μ L

8. Dispense reagents into each respective labeled 1.5 mL microcentrifuge tube. After addition of the reagents, mix reaction mixtures by pipetting up and down. Do not vortex.
9. Centrifuge for 5 seconds to collect contents at the bottom of the tube, and then place the tube in a cold rack.
10. Set up reaction strip tubes or plates in a 96-well cooler rack.
11. Dispense 15 μ L of each master mix into the appropriate wells going across the row as shown below (Figure 1):

Figure 1: Example of Reaction Master Mix Plate Set-Up

	1	2	3	4	5	6	7	8	9	10	11	12
A	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1	N1
B	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2
C	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3	N3
D	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP
E												
F												
G												
H												

12. Prior to moving to the nucleic acid handling area, prepare the No Template Control (NTC) reactions for column #1 in the assay preparation area.
13. Pipette 5 μ L of nuclease-free water into the NTC sample wells.

Securely cap NTC wells before proceeding.

14. Cover the entire reaction plate and move the reaction plate to the specimen nucleic acid handling area.

Template Addition

1. Gently vortex nucleic acid sample tubes for approximately 5 seconds.
2. After centrifugation, place extracted nucleic acid sample tubes in the cold rack.
3. Samples should be added to column 2-11 (column 1 and 12 are for controls) to the specific assay that is being tested as illustrated in Figure 2. Carefully pipette 5.0 μ L of the first sample into all the wells labeled for that sample (i.e. Sample "S1" down column #2). Keep other sample wells covered during addition. Change tips after each addition.
4. Securely cap the column to which the sample has been added to prevent cross contamination and to ensure sample tracking.
5. Change gloves often and when necessary to avoid contamination.
6. Repeat steps #3 and #4 for the remaining samples.
7. If necessary, add 5 μ L of Human Specimen Control (HSC) extracted sample to the HSC wells (Figure 2, column 11). Securely cap wells after addition.
8. Cover the entire reaction plate and move the reaction plate to the positive template control handling area.

Assay Control Addition

1. Pipette 5 μ L of nCoVPC RNA to the sample wells of column 12

(Figure 2). Securely cap wells after addition of the control RNA.

NOTE: If using 8-tube strips, label the TAB of each strip to indicate sample position. DO NOT LABEL THE TOPS OF THE REACTION TUBES!

2. Briefly centrifuge reaction tube strips for 10-15 seconds. After centrifugation return to cold rack.

NOTE: If using 96-well plates, centrifuge plates for 30 seconds at 500 x g, 4°C.

Figure 2. 2019-nCoV rRT-PCR Diagnostic Panel: Example of Sample and Control Set-up

	1	2	3	4	5	6	7	8	9	10	11 ^a	12
A	NTC	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	nCoV PC
B	NTC	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	nCoV PC
C	NTC	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	nCoV PC
D	NTC	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	nCoV PC
E												
F												
G												
H												

^a Replace the sample in this column with extracted HSC if necessary

Data Analysis

1. After completion of the run, save and analyze the data following the instrument manufacturer's instructions. Analyses should be performed separately for each target using a manual threshold setting. Thresholds should be adjusted to fall within exponential phase of the fluorescence curves and above any background signal (refer to Figure 3). The procedure chosen for setting the threshold

should be used consistently.

Figure 3. Amplification Plot Window

Interpreting Test Results

- NTCs should be negative and not exhibit fluorescence growth curves that cross the threshold line.
 - If a false positive occurs with one or more of the primer and probe NTC reactions, sample contamination may have occurred.
 - Invalidate the run and repeat the assay with stricter adherence to the procedure guidelines.
- PTC reaction should produce a positive result with an expected Ct value for each target included in the test.
 - If expected positive reactivity is not achieved, invalidate the run and repeat the assay with stricter adherence to procedure guidelines.
 - Determine the cause of failed PTC reactivity, implement corrective actions, and document results of the investigation and corrective actions.
 - Do not use PTC reagents that do not generate expected result.
- RP should be positive at or before 35 cycles for all clinical samples and HSC, thus indicating the presence of sufficient nucleic acid from human RNase P gene and that the specimen is of acceptable quality.
 - Failure to detect RNase P in HSC may indicate:
 - Improper assay set up and execution

- Reagent or equipment malfunction
 - Detection of RNase P in HSC but failure to detect RNase P in any of the clinical samples may indicate:
 - Improper extraction of nucleic acid from clinical materials resulting in loss of nucleic acid or carry-over of PCR inhibitors from clinical specimens
 - Absence of sufficient human cellular material in sample to enable detection
- HSC should be negative for 2019-nCoV specific primer/probe sets.
 - If any 2019-nCoV specific primer/probes exhibit a growth curve that crosses the threshold line, interpret as follows:
 - Contamination of nucleic acid extraction reagents may have occurred. Invalidate the run and confirm reagent integrity of nucleic acid extraction reagents prior to further testing.
 - Cross contamination of samples occurred during nucleic acid extraction procedures or assay setup. Invalidate the run and repeat the assay with stricter adherence to procedure guidelines.
- When all controls exhibit the expected performance, a specimen is considered negative if all 2019-nCoV markers (N1, N2, N3) cycle threshold growth curves DO NOT cross the threshold AND the RNase P growth curve DOES cross the threshold line.
- When all controls exhibit the expected performance, a specimen is considered positive for 2019-nCoV if all markers (N1, N2, N3) cycle threshold growth curve crosses the threshold line. The RNase P may or may not be positive as described above, but the 2019-nCoV result is still valid.
- When all controls exhibit the expected performance and the growth curves for the 2019-nCoV markers (N1, N2, N3) AND the RNase P marker DO NOT cross the cycle threshold growth curve, the result

is invalid. The extracted RNA from the specimen should be re-tested. If residual RNA is not available, re-extract RNA from residual specimen and re-test. If the re-tested sample is negative for all markers and all controls exhibit the expected performance, the result is “Invalid.”

- When all controls exhibit the expected performance and the cycle threshold growth curve for any one or two markers, (N1, N2, N3) but not all three crosses the threshold line the result is inconclusive for 2019-nCoV. Re-extract RNA from residual specimen and re-test.

2019-nCoV rRT-PCR Diagnostic Panel Results Interpretation

2019 nCoV_N1	2019 nCoV_N2	2019 nCoV_N3	RP	Result Interpretation ^a
+	+	+	±	2019-nCoV detected
If only one, or two, of three targets is positive	±	Inconclusive Result		
–	–	–	+	2019-nCoV not detected
–	–	–	–	Invalid Result

Assay Limitations

- Analysts should be trained and familiar with testing procedures and interpretation of results prior to performing the assay.
- A false negative result may occur if inadequate numbers of organisms are present in the specimen due to improper collection,

transport or handling.

- RNA viruses in particular show substantial genetic variability. Although efforts were made to design rRT-PCR assays to conserved regions of the viral genomes, variability resulting in mismatches between the primers and probes and the target sequences can result in diminished assay performance and possible false negative results.

Contact Information

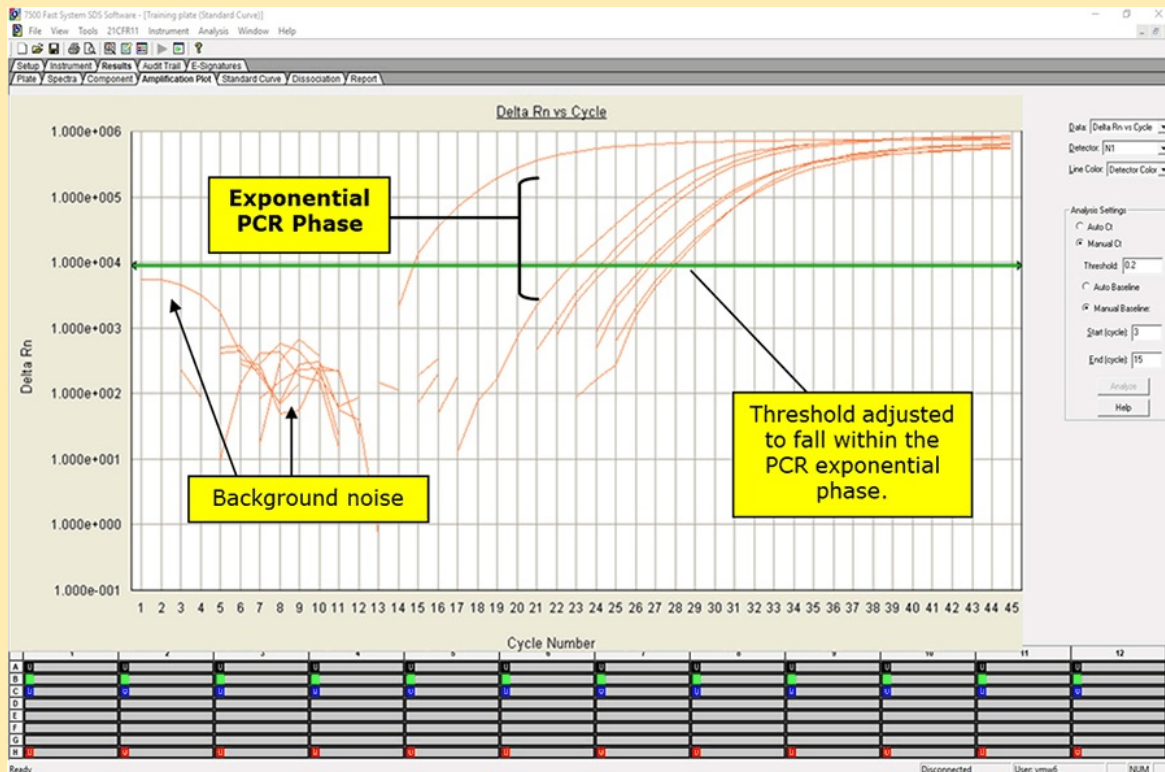
Suggestions and questions concerning this procedure may be sent to: respvirus@cdc.gov.

Research Use Only 2019-Novel Coronavirus (2019-nCoV) Real-time RT-PCR Primer and Probe Information

NOT FOR DIAGNOSTIC USE

Reagents manufactured from these sequences may not be used for diagnostic testing under FDA's authorization of the CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel.

Only primers and probes labeled for EUA use and distributed by the International Reagent Resource may be used for diagnostic testing with the CDC 2019-nCoV Real-Time RT-PCR Diagnostic Panel.



DISCLAIMER

These sequences are intended to be used for the purposes of respiratory virus surveillance and research. The recipient agrees to use them in compliance with all applicable laws and regulations. Every effort has been made to assure the accuracy of the sequences, but CDC cannot provide any warranty regarding their accuracy. The recipient can acknowledge the source of sequences in any oral presentations or written publications concerning the research project by referring to the Division of Viral Diseases, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, GA, USA.



Name	Description	Oligonucleotide Sequence (5'>3')	Label ¹	Working Conc.
2019-nCoV_N1-F	2019-nCoV_N1 Forward Primer	5'-GAC CCC AAA ATC AGC GAA AT-3'	None	20 µM
2019-nCoV_N1-R	2019-nCoV_N1 Reverse Primer	5'-TCT GGT TAC TGC CAG TTG AAT CTG-3'	None	20 µM
2019-nCoV_N1-P	2019-nCoV_N1 Probe	5'-FAM-ACC CCG CAT TAC GTT TGG TGG ACC-BHQ1-3'	FAM, BHQ-1	5 µM
2019-nCoV_N2-F	2019-nCoV_N2 Forward Primer	5'-TTA CAA ACA TTG GCC GCA AA-3'	None	20 µM
2019-nCoV_N2-R	2019-nCoV_N2 Reverse Primer	5'-GCG CGA CAT TCC GAA GAA-3'	None	20 µM
2019-nCoV_N2-P	2019-nCoV_N2 Probe	5'-FAM-ACA ATT TGC CCC CAG CGC TTC AG-BHQ1-3'	FAM, BHQ-1	5 µM
2019-nCoV_N3-F	2019-nCoV_N3 Forward Primer	5'-GGG AGC CTT GAA TAC ACC AAA A-3'	None	20 µM

2019-nCoV_N3-R	2019-nCoV_N3 Reverse Primer	5'-TGT AGC ACG ATT GCA GCA TTG-3'	None	20 μ M
2019-nCoV_N3-P	2019-nCoV_N3 Probe	5'-FAM-AYC ACA TTG GCA CCC GCA ATC CTG- BHQ1-3'	FAM, BHQ-1	5 μ M
RP-F	RNAse P Forward Primer	5'-AGA TTT GGA CCT GCG AGC G- 3'	None	20 μ M
RP-R	RNAse P Reverse Primer	5'-GAG CGG CTG TCT CCA CAA GT- 3'	None	20 μ M
RP-P	RNAse P Probe	5'-FAM – TTC TGA CCT GAA GGC TCT GCG CG – BHQ-1- 3'	FAM, BHQ-1	5 μ M

¹ TaqMan® probes are labeled at the 5'-end with the reporter molecule 6-carboxyfluorescein (FAM) and with the quencher, Black Hole Quencher 1 (BHQ-1) (Biosearch Technologies, Inc., Novato, CA) at the 3'-end.

Note: Oligonucleotide sequences are subject to future changes as the 2019-Novel Coronavirus evolves.

Communication Resources

CDC offers free resources including video, fact sheets, and posters. Below are links to current communication tools and resources available for use and distribution.

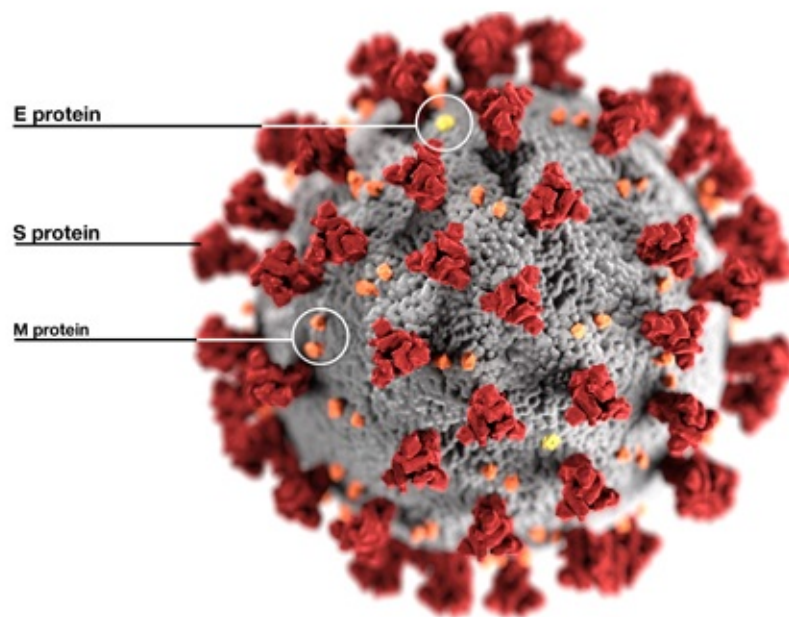
[Print Resources](#)

[Videos](#)

[Resources for Travelers](#)

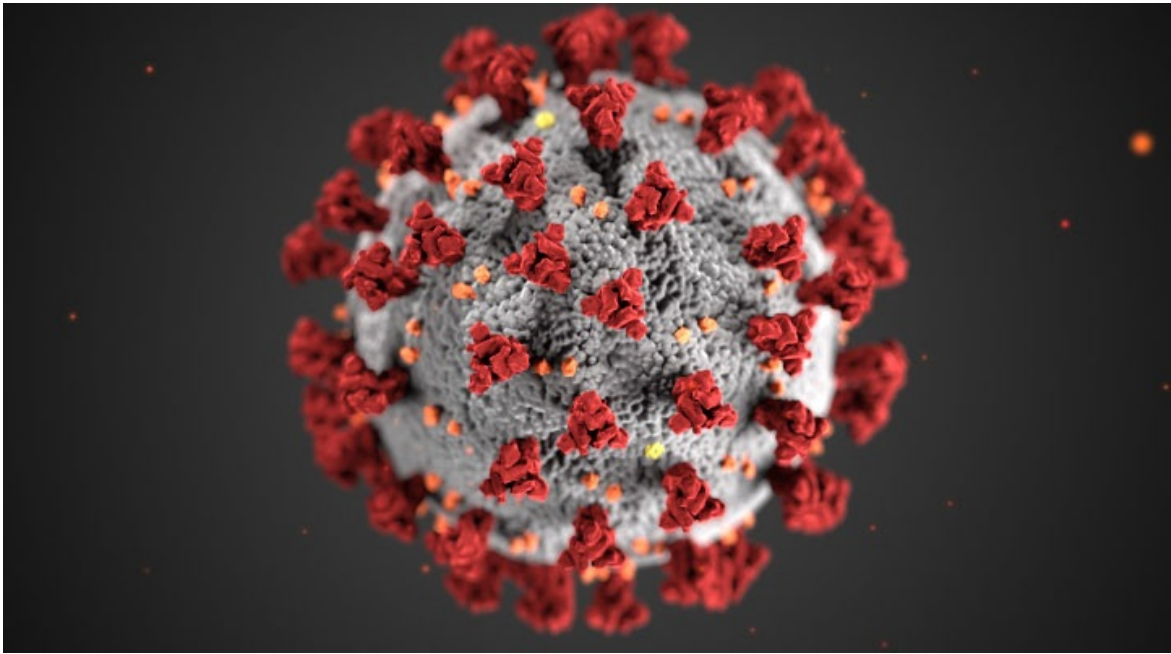
[Guidance for Public Health Communicators](#)

[Public Health Image Library \(PHIL\)](#)



Public Health Image Library (PHIL) – The Public Health Image Library, or PHIL, was designed to share CDC public health images. CDC welcomes public health professionals, the media, laboratory scientists, educators, students, and the public to use this material for reference, teaching, presentations, and public health messages.

COVID-19 Microsite



Add real-time COVID-19 information to your web site!

Images

**COVID
19**
CORONAVIRUS
DISEASE

CORONAVIRUS DISEASE 2019 (COVID-19)

**You can help prevent the spread of
respiratory illnesses with these actions:**

- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose & mouth.
- Wash hands often with soap & water for at least 20 seconds.



www.cdc.gov/COVID19

314705-A February 13, 2020 12:00 PM

English

Digital Press Kit

The CDC has a collection of media resources on COVID-19 response, published online.

COVID-19 Buttons and Badges

CDC has provided buttons and badges for public use. The graphic can be placed in any way that works best for your particular site. We are hoping to see this graphic on as many sites as possible to enhance access to up to date information on coronavirus disease 2019 (COVID-19).

Coronavirus Disease 2019 (COVID-19)
300x250



Print Resources

Handouts & Posters



Share Facts About COVID-19

Know the facts about coronavirus disease 2019 (COVID-19) and help stop the spread of rumors.

8.5×11

English



What you need to know

Coronavirus Disease 2019 is a new disease that causes respiratory illness in people and can spread from person to person. This virus was first identified during an investigation into an outbreak in Wuhan, China.

8.5×11

English



What to do if you are sick

If you are sick with Coronavirus Disease 2019, or suspected of being infected with it, follow the steps in this fact sheet to help prevent spreading it to people in your home and community.

8.5×11

English



Stop the spread of germs poster

Help prevent the spread of respiratory diseases, like Coronavirus Disease 2019 by avoiding close contact with people who are sick; covering cough and sneeze; avoiding touching eyes, nose and mouth; and washing your hands with soap and water.

8.5×11

English



Symptoms of Coronavirus Disease 2019 poster

Patients with COVID-19 have experienced mild to severe respiratory illness. Symptoms can include fever, cough and shortness of breath. Symptoms may appear 2-14 days after exposure.

8.5×11

English



CDC Protect and Prepares Communities

Learn how CDC is aggressively responding to the global outbreak of COVID-19 and preparing for the potential of community spread in the U.S.

8.5×11

English



Stay Healthy Wash Your Hands

Germs are all around you. Stay healthy by washing your hands often with soap and water for at least 20 seconds. If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol. Always wash hands with soap and water if hands are visibly dirty.

8.5×11

English

11×17

English



Wash Your Hands

Follow these steps for proper handwashing to prevent the spread of germs. Wash your hands with soap and water for at least 20 seconds.

11×17

English



Keep Calm and Wash Your Hands

Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing.

8.5×11

English

11×17

English

Videos

View more videos about coronavirus disease 2019 (COVID-19) on CDC's YouTube Channel

What is Coronavirus Disease 2019?

<https://youtu.be/3AozUnFbYJs>

Coronavirus Disease 2019 or COVID-19 is a new respiratory virus first identified in Wuhan, Hubei Province, China. A novel coronavirus is a new coronavirus that has not been previously identified. Coronavirus Disease 2019 is a new disease never seen before in humans. It is different from other human coronaviruses that cause the common cold.

What's my risk?

<https://youtu.be/aFXb3yiYA2E>

While CDC considers this a very serious public health threat, based on current information, the immediate health risk from Coronavirus Disease 2019 is considered low at this time. This is an emerging, rapidly evolving situation and CDC will continue to provide updated information as it becomes available.

How to protect myself?

<https://youtu.be/ANvNCk6546M>

CDC always recommends everyday preventive actions to help prevent the spread of respiratory viruses, including: Avoid close contact with people who are sick; avoid touching eyes, noses, and mouth; wash hand with soap and water for at least 20 seconds; clean and disinfect frequently touched objects and surfaces.

COVID-19 Stop the Spread of Germs

<https://youtu.be/7-IW0s2yJA0>

CDC always recommends everyday preventive actions to help prevent the spread of respiratory viruses, including: Avoid close contact with people who are sick; avoid touching eyes, nose, and mouth; wash hand with soap and water for at least 20 seconds; clean and disinfect frequently touched objects and surfaces.

What's New

You can also keep up with CDC updates on Coronavirus Disease 2019 by signing up for email updates, syndicating available content, and subscribing to Coronavirus Disease 2019 RSS Feed.

- Resources for Institutes of Higher Education Sunday, March 8, 2020
- COVID-19 and Cruise Ship Travel Sunday, March 8, 2020
- Environmental Cleaning and Disinfection Recommendations Sunday, March 8, 2020
- People at Risk for Serious Illness from COVID-19 Sunday, March 8, 2020
- Communication Resources for Travelers Sunday, March 8, 2020
What Law Enforcement Personnel Need to Know about Coronavirus Disease 2019 (COVID-19) Saturday, March 7, 2020
- Preventing COVID-19 Spread in Communities Saturday, March 7, 2020
- If you have returned from Hubei Province within the last 14 days, Check and Report Everyday Wednesday, March 4, 2020
- Interim Guidance for Public Health Professionals Managing People With COVID-19 in Home Care and Isolation Who Have Pets or Other Animals Wednesday, March 4, 2020
- Evaluating and Reporting Persons Under Investigation (PUI) Wednesday, March 4, 2020
- Active Monitoring of Persons Exposed to Patients with Confirmed COVID-19 — United States, January–February 2020 Tuesday, March 3, 2020
- Interim Guidance: Get Your Mass Gatherings or Large Community Events Ready for Coronavirus Disease 2019 (COVID-19) Tuesday,

March 3, 2020

- Recommended Precautions for Preventing Spread of COVID-19 in Election Polling Locations Monday, March 2, 2020
- Interim Guidance: Public Health Communicators Get Your Community Ready for Coronavirus Disease 2019 (COVID-19) Monday, March 2, 2020
- Resources for Healthcare Facilities Saturday, February 29, 2020
- Strategies for Optimizing the Supply of N95 Respirators Saturday, February 29, 2020
- Strategies to Prevent the Spread of COVID-19 in Long-Term Care Facilities (LTCF) Saturday, February 29, 2020
- Interim Guidance for Healthcare Facilities Saturday, February 29, 2020
- Steps Healthcare Facilities Can Take Saturday, February 29, 2020
- Community Mitigation Guidance for COVID-19 Response in the United States: Nonpharmaceutical Interventions for Community Preparedness and Outbreak Response Thursday, February 27, 2020
- Know the Facts About COVID-19 and Help Stop the Spread of Rumors Wednesday, February 26, 2020
- MMWR: Public Health Response to the Coronavirus Disease 2019 Outbreak— United States Tuesday, February 25, 2020
- Interim Guidance for Public Health Personnel Evaluating Persons Under Investigation (PUIs) and Asymptomatic Close Contacts of Confirmed Cases at Their Home or Non-Home Residential Settings Monday, February 24, 2020
- Coronavirus Disease 2019 Information for Travel (New Travel Alerts) Monday, February 24, 2020
- CDC in Action: Preparing Communities for Potential Spread of

COVID-19 Sunday, February 23, 2020

- Frequently Asked Questions and Answers: Coronavirus Disease-2019 (COVID-19) and Children Sunday, February 23, 2020
- Frequently Asked Questions and Answers: Coronavirus Disease 2019 (COVID-19) and Pregnancy Friday, February 21, 2020
- Stigma Related to COVID-19 Friday, February 21, 2020
- Resources for State, Local, Territorial and Tribal Health Departments Thursday, February 20, 2020
- Interim Guidance for Collection and Submission of Postmortem Specimens from Deceased Persons Under Investigation (PUI) for COVID-19 Wednesday, February 19, 2020
- Healthcare Infection Prevention and Control FAQs for COVID-19 Tuesday, February 18, 2020
- Interim Guidance for Ships on Managing Suspected Coronavirus Disease 2019 Tuesday, February 18, 2020
- How COVID-19 Spreads Monday, February 17, 2020
- Coronavirus Disease 2019 (COVID-19) Hospital Preparedness Assessment Tool Friday, February 14, 2020



THE CENTERS FOR DISEASE
CONTROL GUIDELINES TO
CONSIDER ALWAYS
IN CONSULTATION
WITH YOUR PHYSICIAN.

CORONAVIRUS

A GUIDE TO UNDERSTANDING THE VIRUS
AND WHAT IS KNOWN SO FAR

FROM THE CENTERS FOR DISEASE CONTROL'S WEBSITE