

Improve Fit and Filtration of Your Mask to Reduce the Spread of COVID-19 - CDC

Correct and consistent mask use is a critical step everyone can take to reduce their risk of getting and spreading COVID-19. Masks work best when everyone wears them, but not all masks provide the same protection. How well a mask fits, how well it filters the air, and how many layers it has are all important to consider when choosing which mask to wear. Wearing a mask around people who do not live with you or when someone in your house is sick is now even more critical with the increased spread of new COVID-19 variants, some of which appear to spread more easily and quickly than the original virus that causes COVID-19.

General Principles for Mask use

Masks should:

- Completely cover the nose and mouth
- Fit snugly against the sides of the face and not have any gaps
- Be handled only by the ear loops, cords, or head straps (not by the surface of the mask)

Masks should be worn:

- Any time you are in a public setting.
- Any time you are traveling on a plane, bus, train, or other form of public transportation traveling
 into, within, or out of the United States and in U.S. transportation hubs such as airports and
 stations.
- When you are around people who do not live with you, including inside your home or inside someone else's home.
- Inside your home if someone you live with is sick with symptoms of COVID-19 or has tested positive for COVID-19.

Masks should not be worn:

- By a child under 2 years of age.
- By someone who cannot wear a mask safely, such as someone who has a disability or an underlying medical condition that precludes wearing a mask.
- In a situation when wearing a mask would create a risk to workplace health, safety, or job duty as determined by the workplace risk assessment.

For more information on wearing a mask and personal protection equipment in healthcare workplaces, see https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html



Interim Guidance on Testing Healthcare Personnel for SARS-CoV-2

Key Points

Testing of healthcare personnel (HCP) can be considered in four situations:

- 1. Testing HCP with signs or symptoms consistent with COVID-19.
- 2. Testing asymptomatic HCP with known or suspected exposure to SARS-CoV-2
- 3. Testing asymptomatic HCP without known or suspected exposure to SARS-CoV-2 as part of expanded screening.
- 4. Testing HCP who have been diagnosed with SARS-CoV-2 infection to determine when they are no longer infectious.

Introduction

This document provides a summary of considerations and current Centers for Disease Control and Prevention (CDC) recommendations regarding testing HCP for SARS-CoV-2. This document does not apply to individuals who do not meet the definition of HCP as defined below.

Testing should be prioritized for HCP with signs and symptoms consistent with COVID-19 and HCP with high-risk exposures to SARS-CoV-2 as described below.

Viral tests (authorized nucleic acid or antigen detection assays) are recommended to diagnose acute infection. Testing practices should aim for rapid turnaround times (i.e., less than 24 hours) in order to facilitate effective interventions. Testing the same individual more than once in a 24-hour period is not recommended.

HCP undergoing testing should receive clear information on:

- The purpose of the test
- The reliability of the test and any limitations associated with the test
- Who will pay for the test and how the test will be performed
- How to interpret results and any next steps related to the results
- Who will receive the results
- How the results may be used
- Any consequences for declining testing

Recommended practices to prevent occupational exposure to SARS-CoV-2 are described in the <u>Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic</u>.

Guidance for assessing HCP exposure risk and determining the need for work restrictions is available in the <u>Interim U.S. Guidance for Risk Assessment and Work Restrictions for Healthcare Personnel with Potential Exposure to COVID-19</u>.

https://www.cdc.gov/coronavirus/2019-ncov/hcp/testing-healthcare-personnel.html February 16, 2021

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Ways to Increase Mask Protection: Improve Fit and Filtration

- **Improve fit** to help prevent air (potentially with respiratory droplets containing the virus) from flowing freely around the edges of the mask and instead forcing air to flow through the mask.
- **Improve filtration** to cause more respiratory droplets containing the virus to be captured by the mask.

How to Improve Fit

COVID-19 spreads mainly from person to person through respiratory droplets that come out of the nose and mouth when people breathe, cough, sneeze, talk, shout, or sing. These respiratory droplets travel in the air and can then land in the noses and mouths of others, which spreads COVID-19. Therefore, in order to be effective, masks must always be worn over the nose and mouth.

Ensuring that masks fit well on the face is very important to help prevent getting and spreading COVID-19. A common problem with some masks is that there can sometimes be gaps between the mask and the mask wearer's face. When there are gaps, air with respiratory droplets containing the virus can leak in and out around the edges of the mask (on the top or the sides). To help prevent air leakage, masks should fit snugly against the sides of the face and not have gaps.



Options to Improve Mask Fit

Nose Wires: Use cloth or medical procedure masks that have a nose wire (a metal strip along the top of the mask) to help prevent air leakage at the top of the mask. Nose wires can also help to prevent fogging of eyeglasses. To get a good fit, make sure to bend the nose wire over your nose to conform to your face.





Mask Fitters and Braces: These devices can be used over a medical procedure mask or a cloth mask to improve the fit by helping to reduce air leakage from around the edges of the mask.



Knotting and Tucking: Knot the ear loops of a 3-ply face mask where they join the edge of the mask, then fold and tuck the unneeded material under the edges. This method is called "knotting and tucking". For instructions click the link: https://youtu.be/UANi8Cc71A0

How to Check Mask Fit

- Check for gaps by cupping your hands around the outside edges of the mask. Make sure no air is flowing from the area near your eyes or from the sides of the mask.
- If the mask has a good fit, you will feel warm air come through the front of the mask and may be able to see the mask material move in and out with each breath.

How to Improve Filtration

Another important step to increase the protection offered by your mask is to improve filtration. Masks capture respiratory droplets containing the virus when the wearer breathes out, blocking them from reaching the outside air and protecting others. They also serve as a barrier to protect the wearer by capturing respiratory droplets containing the virus breathed out by others, so that the wearer does not breathe them in. A mask with improved filtration will stop more respiratory droplets containing the virus from getting inside your mask if others are sick or escaping from your mask if you are sick.

Layering

Adding more layers of material to a mask (layering) is a good way to reduce the number of respiratory droplets containing the virus that come through the mask. One layering strategy is to use a cloth mask that has multiple layers of fabric. Another strategy is to wear two masks or a "double mask."

Improve Mask Fit and Filtration by Wearing Two Masks (Wearing a "Double Mask")

Wearing a second mask on top of a first mask (to create a "double mask") can:

- Improve fit by pressing the inner mask closer to the face, thereby reducing the amount of air that leaks around the edges of the masks.
- Improve filtration by adding more layers of material to reduce the number of respiratory droplets containing the virus that come through the masks.

One way to do this is to wear a medical procedure mask underneath a cloth mask. A recent study conducted in a laboratory found that this "double mask" combination provided much better

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protection to the wearer and to others as compared with a cloth mask by itself or a medical procedure mask by itself.



However, there are some mask combinations that should not be used to "double mask."

- Do not combine two medical procedure masks to create a "double mask." Medical procedure masks are not designed to fit tightly and wearing a second medical procedure mask on top of the first medical procedure mask does not help to improve the fit.
- Do not combine a KN95 mask with any other masks. You should only use one KN95 mask at a time, and you should not use any type of second mask on top of or underneath a KN95 mask.

Things to Watch Out for When Improving Mask Fit and Filtration

Ensure the following:

Breathing is not difficult

 Breathing might take more effort when wearing a mask that fits and filters better. For example, it might require more effort to breathe when wearing a "double mask."

• Vision is not obstructed

 Adding an extra layer or mask could block vision. Reduced vision could lead to trips, falls, or other injuries.

Try it at home first:

• Try out any potential techniques for improved mask fit and filtration at home before trying it out in public. For example, try walking around the house or outside for several minutes while wearing a mask with improved fit and filtration to assure that you can breathe comfortably and that your vision is not reduced.

Special considerations for children who may have difficulties with techniques for improved fit and filtration:

- Children younger than 2 should not wear any masks.
- Children 2 and older should always wear masks in a public setting or when they are around people who do not live with them.
- Some children (age 2 and older) may tolerate wearing one mask without any problems but may not be able to tolerate improved fit and filtration techniques.

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Choosing a Mask for Different Situations

Some situations may have higher risk of exposure to COVID-19 than others, so the level of protection needed may vary.

In many circumstances, cloth masks or medical procedure masks work well for community use.

Examples might include:

- Talking with neighbors when you are outdoors and are at least six feet away
- Going to a park, as long as you are able to stay at least six feet away from people who do not live with you

For situations when you are in close contact with people who do not live with you, a mask option that provides a higher level of protection (improved fit and/or improved filtration) should be considered.

These situations might include:

- Going to the grocery store
- Visiting the doctor
- Working at a job where you are exposed to people who do not live with you and you are not always able to maintain at least six feet of distance from others

One example of an option to improve fit is to use a mask fitter or brace over a medical procedure mask or a cloth mask (as described above) in order to reduce leakage of air around the edges of the mask. Another example of an option that can improve fit and filtration is to wear two masks ("double mask"), which can be done by wearing a cloth mask over a medical procedure mask.

For some situations, especially those that require prolonged close contact with people who do not live with you, you may prefer to use a KN95 mask identified on the <u>FDA Emergency Use Authorization List</u>.

These situations might include:

- Riding on planes, buses, trains, or other forms of public transportation, especially when you are not able to maintain at least 6 feet of distance from other people who do not live with you
- Taking care of someone who is sick with COVID-19
- Working at a job where you interact with large numbers of the public, especially if you work in areas with high levels of community transmission. Examples of jobs might include bus drivers and grocery store workers

People at increased risk for severe illness from COVID-19, such as older adults or people with certain underlying medical conditions, may prefer to use a KN95 mask when interacting with people who do not live with them.

A KN95 mask might not always be available when you wish to have a higher level of protection, or you may not be able to properly fit or tolerate a KN95 mask. In that case, you can use a mask fitter or brace over a medical procedure mask or a cloth mask to improve fit. Another option is to improve fit **and** filtration by wearing two masks ("double mask") to increase protection.



Choosing and Wearing a Mask is Just One of Many Strategies to Reduce the Spread of COVID-19

Wearing a mask is one of the most important ways to reduce the risk of getting and spreading COVID-19. This document describes the types of masks available and strategies that can be used to better protect the wearer and the people they interact with. Wearing any type of mask correctly is better than not wearing a mask at all.

This guidance should be used to help inform people's choice of mask and level of protection. CDC recommends that people consistently and correctly wear masks in all public settings, when they are with anyone who does not live with them (including inside their own home), and when taking care of someone who has COVID-19.

In addition to consistently and correctly wearing masks, everyone should continue to take these important steps to reduce the spread of COVID-19:

- Stay at least 6 feet (at least 2 arm lengths) away from others who do not live with you
- Avoid crowds
- Avoid poorly ventilated indoor spaces
- Stay at home when you are sick
- Wash hands frequently with soap and water for at least 20 seconds (or use hand sanitizer containing at least 60% alcohol)
- Get vaccinated when the vaccine is available to you
- Get tested if you have signs or symptoms of COVID-19, or if you think you may have been exposed to someone with COVID-19

 $\underline{https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/mask-fit-and-filtration.html}$

February 13, 2021

https://www.fda.gov/medical-devices/coronavirus-disease-2019-covid-19-emergency-use-authorizations-medical-devices/personal-protective-equipment-euas

February 6, 2021



Health Equity Considerations

Racial and Ethnic Minority Groups

Long-standing systemic health and social inequities have put many people from racial and ethnic minority groups at increased risk of getting sick and dying from COVID-19. The term "racial and ethnic minority groups" includes people of color with a wide variety of backgrounds and experiences. But some experiences are common to many people within these groups, and social determinants of health have historically prevented them from having fair opportunities for economic, physical, and emotional health.

There is increasing evidence that some racial and ethnic minority groups are being disproportionately affected by COVID-19. Inequities in the social determinants of health, such as poverty and healthcare access, affecting these groups are interrelated and influence a wide range of health and quality-of-life outcomes and risks. To achieve health equity, barriers must be removed so that everyone has a fair opportunity to be as healthy as possible.

https://youtu.be/e2XXXyb7C28

Factors that contribute to increased risk

Some of the many inequities in social determinants of health that put racial and ethnic minority groups at increased risk of getting sick and dying from COVID-19 include:

- Discrimination: Unfortunately, discrimination exists in systems meant to protect well-being or health. Examples of such systems include health care, housing, education, criminal justice, and finance. Discrimination, which includes racism, can lead to chronic and toxic stress and shapes social and economic factors that put some people from racial and ethnic minority groups at increased risk for COVID-19.
- Healthcare access and utilization: People from some racial and ethnic minority groups are more likely to be uninsured than non-Hispanic whites. Healthcare access can also be limited for these groups by many other factors, such as lack of transportation, child care, or ability to take time off of work; communication and language barriers; cultural differences between patients and providers; and historical and current discrimination in healthcare systems. Some people from racial and ethnic minority groups may hesitate to seek care because they distrust the government and healthcare systems responsible for inequities in treatment and historical events such as the Tuskegee Study of Untreated Syphilis in the African American Male and sterilization without people's permission.
- Occupation: People from some racial and ethnic minority groups are disproportionately
 represented in essential work settings such as healthcare facilities, farms, factories, grocery
 stores, and public transportation. Some people who work in these settings have more chances
 to be exposed to the virus that causes COVID-19 due to several factors, such as close contact
 with the public or other workers, not being able to work from home, and not having paid sick
 days.
- Educational, income, and wealth gaps: Inequities in access to high-quality education for some racial and ethnic minority groups can lead to lower high school completion rates and barriers to college entrance. This may limit future job options and lead to lower paying or less stable jobs. People with limited job options likely have less flexibility to leave jobs that may put them

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at a higher risk of exposure to the virus that causes COVID-19. People in these situations often cannot afford to miss work, even if they're sick, because they do not have enough money saved up for essential items like food and other important living needs.

Housing: Some people from racial and ethnic minority groups live in crowded conditions that
make it more challenging to follow prevention strategies. In some cultures, it is common for
family members of many generations to live in one household. In addition, growing and
disproportionate unemployment rates for some racial and ethnic minority groups during the
COVID-19 pandemic may lead to greater risk of eviction and homelessness or sharing of housing.

These factors and others are associated with more COVID-19 cases, hospitalizations, and deaths in areas where racial and ethnic minority groups live, learn, work, play, and worship. They have also contributed to higher rates of some medical conditions that increase one's risk of severe illness from COVID-19. In addition, community strategies to slow the spread of COVID-19 may cause unintentional harm, such as lost wages, reduced access to services, and increased stress, for some racial and ethnic minority groups.

What We Can Do

The COVID-19 pandemic may change some of the ways we connect and support each other. As individuals and communities respond to COVID-19 recommendations and circumstances (e.g., school closures, workplace closures, social distancing), there are often unintended negative impacts on emotional well-being such as loss of social connectedness and support. Shared faith, family, and cultural bonds are common sources of social support. Finding ways to maintain support and connection, even when physically apart, can empower and encourage individuals and communities to protect themselves, care for those who become sick, keep kids healthy, and better cope with stress.

Community- and faith-based organizations, employers, healthcare systems and providers, public health agencies, policy makers, and others all have a part in helping to promote fair access to health. To prevent the spread of COVID-19, we must work together to ensure that people have resources to maintain and manage their physical and mental health, including easy access to information, affordable testing, and medical and mental health care. We need programs and practices that fit the communities where racial and minority groups live, learn, work, play, and worship.

Data on COVID-19 and Race and Ethnicity

CDC Resources

- CDC COVID Data Tracker
- COVID-NET: A Weekly Summary of U.S. COVID-19 Hospitalization Data
- COVID Data Tracker Weekly Review: A Weekly Summary and Interpretation of COVID-19 Data

Other resources

- The COVID Tracking Project's <u>The COVID Racial Data Tracker</u>
- Emory University's COVID-19 Health Equity Interactive Dashboard

https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html February 12, 2021

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Immunocompromised Return to Work Guidance CDC

Severely Immunocompromised Definition

The studies used to inform this guidance did not clearly define "severely immunocompromised". For the purposes of this guidance, CDC used the following definition:

- Some conditions, such as being on chemotherapy for cancer, being within one year out from receiving a hematopoietic stem cell or solid organ transplant, untreated HIV infection with CD4 T lymphocyte count < 200, combined primary immunodeficiency disorder, and receipt of prednisone >20mg/day for more than 14 days, may cause a higher degree of immunocompromise and require actions such as lengthening the duration of HCP work restrictions.
- Other factors, such as advanced age, diabetes mellitus, or end-stage renal disease, may pose a
 much lower degree of immunocompromise and not clearly affect occupational health actions to
 prevent disease transmission.
- Ultimately, the degree of immunocompromise for HCP is determined by the treating provider, and preventive actions are tailored to each individual and situation.

As described in the Decision Memo, https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html?CDC AA refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fcommunity%2Fstrategy-discontinue-isolation.html an estimated 95% of severely or critically ill patients, including some with severe immunocompromise, no longer had replication-competent virus 15 days after onset of symptoms; no patient had replication-competent virus more than 20 days after onset of symptoms. Recovery of replication-competent virus has been reported in severely immunocompromised patients beyond 20 days, and as long as 143 days, after a positive SARS-CoV-2 test result.

The exact criteria that determine which HCP will shed replication-competent virus for longer periods are not known. Disease severity factors and the presence of immunocompromising conditions should be considered in determining the appropriate duration for specific HCP. For example, HCP with characteristics of severe illness may be most appropriately managed with at least 15 days before return to work. Use of a test-based strategy, in consultation with infectious disease specialists, for determining when HCP who are severely immunocompromised may return to work could be considered.

https://www.cdc.gov/coronavirus/2019-ncov/hcp/return-to-work.html
February 14, 2021
https://www.cdc.gov/coronavirus/2019-ncov/hcp/durationisolation.html?CDC AA refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019ncov%2Fcommunity%2Fstrategy-discontinue-isolation.html
February 13, 2021



Serology Surveillance Strategy

CDC is working with state, local, territorial, academic, and commercial partners to better understand COVID-19 in the United States. CDC has an overarching strategy for learning more about how many people have been infected with SARS-CoV-2, the virus that causes COVID-19, and how it is spreading through the U.S. population. This strategy includes using serology testing for surveillance to better understand how many infections with SARS-CoV-2 have occurred:

- At different points in time,
- In different locations, and
- Within different populations in the United States.

Serology tests look for antibodies in blood. If antibodies are found, that means there has been a previous infection. Antibodies are proteins that can fight off infections. Investigations using serology testing are called seroprevalence surveys. CDC is collaborating with public health and private partners on a variety of seroprevalence surveys of different sizes, locations, populations studied, and purposes. The seroprevalence surveys CDC is conducting include large-scale geographic surveys, community level surveys, and smaller-scale surveys focusing on specific populations in order to learn more about COVID-19.

Objectives of Surveillance of U.S. Serology Testing

- To provide a more complete estimate of how common COVID-19 is (or the incidence of infection)
- To guide control measures, such as social distancing

Serology testing surveillance provides important information

A key CDC priority is to track COVID-19 infections to determine how much of the U.S. population is infected over time. CDC uses a variety of surveillance systems to track COVID-19 cases based on people who seek medical care. However, these systems can miss infections that occur in people who had mild or asymptomatic illness (i.e., no signs or symptoms) who did not seek medical care or get tested.

By using seroprevalence surveys, CDC can learn about the total number of people that have been infected, including those infections that might have been missed. These surveys also can help estimate how much of the population has not yet been infected, helping public health officials plan for future healthcare needs. These surveys can also track how infections progress through the population over time. This is done by taking "snap shots" of the percentage of people who have antibodies against SARS-CoV-2 (also called the seroprevalence) at different time points.

Seroprevalence surveys also can look at risk factors for disease, such as a person's age, location, or underlying health conditions. Finally, some kinds of seroprevalence surveys can determine how long antibodies last in people's bodies following infection.

Questions CDC wants to answer through Serology Surveillance

- How much of the U.S. population has been infected with the virus causing COVID-19 (SARS-CoV-2)?
- How is this changing over time?

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- Are there different characteristics, or risk factors, that are associated with SARS-CoV-2 infection, such as age, location, or underlying health conditions?
- How many U.S. residents experienced mild or asymptomatic COVID-19 illness?
- How long can antibodies be found after a COVID-19 infection?

Questions CDC cannot answer through Serology Surveillance

- How much of the U.S. population is immune to COVID-19 and not able to get infected again?
- How many antibodies are needed to protect someone from COVID-19?
- How long will someone with antibodies be protected from COVID-19?
- Can you be re-infected with COVID-19?
- Can people with antibodies return to work?

Serology tests look for antibodies.

Serology surveillance starts with the use of serology tests in people selected from a population. A blood sample is collected, and the serology test is used to look for antibodies in the blood sample.

What does a Positive serology test result mean?

Positive serology test results mean a past or recent infection

When antibodies are found (a positive test result), it may mean that a person was infected with SARS-CoV-2 and their body's immune system responded to the virus at some point in the past. People develop antibodies when their body's immune system responds to an infection. These antibodies can be found in the blood of people previously infected whether or not they had signs or symptoms of illness.

Note: It can take 1–3 weeks after the first symptoms appear for antibodies to develop in the body. Since it often takes about a week for symptoms to appear after getting infected with SARS-CoV-2, antibodies could develop about 2-3 weeks after infection. This means serology tests may not detect current SARS-CoV-2 infections and should not be used to diagnose current COVID-19.

What does a Negative serology test result mean?

Negative serology test results have more than one meaning.

When a serology test does not find antibodies (that is, when the result is negative), there are several possible meanings, so interpreting how someone acts on these results is critical. Sometimes a negative serology result means that the person was not infected. However, it can also mean that infection occurred, but how the body's immune system responded was not strong enough to make enough antibodies, or that there has not been enough time for antibodies to develop (which can take 1–3 weeks after someone is infected to develop in the body). CDC has information on test results and on the CDC serology test on the Serology Testing for COVID-19 page.

https://www.cdc.gov/coronavirus/2019-ncov/covid-data/serology-surveillance/index.html February 12, 2021

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Serology Testing for COVID-19 at CDC

CDC has developed a laboratory test to help estimate how many people in the United States have already been infected with SARS-CoV-2, the virus that causes COVID-19. Clinicians and researchers refer to this as a **serology test**, and many commercial laboratories call it an **antibody test**. CDC has also developed guidance for the use of antibody tests in clinical and public health settings.

An antibody test looks for the presence of antibodies, which are specific proteins made in response to infections. Antibodies are typically detected in the blood of people who are tested after infection; they show an immune response to the infection. Antibody test results are especially important for detecting previous infections in people who had few or no symptoms.

CDC scientists are conducting studies to determine how much protection (immunity) antibodies might provide against getting infected again. Based on what we know from similar viruses, some reinfections are expected. Confirmed and suspected cases of reinfection of the virus that causes COVID-19 have been reported but remain rare.

CDC's serologic test has been designed and validated for surveillance and research purposes. It is designed to estimate the percentage of the U.S. population previously infected with the virus – information needed to guide the response to the pandemic and protect the public's health. Commercial tests are available to provide test results to individuals.

CDC is evaluating the performance of commercial antibody tests

Commercially manufactured antibody tests check for SARS-CoV-2 antibodies in individuals and are available through healthcare providers and commercial laboratories. CDC is evaluating the performance of these tests in collaboration with the following federal organizations:

- Biomedical Advanced Research and Development Authority
- U.S. Food and Drug Administration (FDA)
- National Institutes of Health
- Results from the federal evaluation are included in FDA's EUA Authorized Serology Test
 Performance and will be updated as more tests are evaluated.

Read CDC's interim guidelines for using antibody tests in clinical and public health settings.

About CDC's serologic test

CDC's serologic test is an enzyme-linked immunosorbent assay (ELISA)-based test to detect SARS-CoV-2 antibodies in serum or plasma components of blood. The ELISA test uses purified SARS-CoV-2 S protein (no live virus) as antigen (designed by the Vaccine Research Center at the National Institutes of Health). This test is designed to minimize cross-reactivity to antibodies generated to other common coronaviruses that cause less severe illnesses, such as colds. However, potential cross-reactivity cannot be completely ruled out.

CDC's serologic test has a specificity of greater than 99% and a sensitivity of 96% based on performance evaluations. It can be used to identify past SARS-CoV-2 infection in people who were infected at least 1 to 3 weeks previously.

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CDC serology surveillance strategy

CDC has a strategy for using serology testing as part of surveillance efforts to better understand how much of the U.S. population has been infected with SARS-CoV-2 and how the virus is spreading through the population over time.

https://www.biorxiv.org/content/10.1101/2020.04.24.057323v2

April 25, 2020

https://www.niaid.nih.gov/about/vrc

August 3, 2020

https://www.fda.gov/medical-devices/coronavirus-disease-2019-covid-19-emergency-use-authorizations-medical-devices/eua-authorized-serology-test-performance

January 8, 2021

https://open.fda.gov/apis/device/covid19serology/

2020

https://www.cdc.gov/coronavirus/2019-ncov/lab/resources/antibody-tests.html

November 3, 2020





Infection Prevention and Control Recommendations – CDC – Updates

Implement Universal Source Control Measures

Source control refers to use of well-fitting cloth masks, facemasks, or respirators to cover the person's mouth and nose to prevent spread of respiratory sections when they are breathing, talking, sneezing, or coughing. In addition to providing source control, these devices also offer varying levels of protection for the wearer against exposure to infectious droplets and particles produced by infected people. Ensuring a proper fit is important to optimize both the source control and protection offered. Because of the potential for asymptomatic and pre-symptomatic transmission, source control measures are recommended for everyone in a healthcare facility, even if they do not have symptoms of COVID-19.

- Patients and visitors should wear their own well-fitting form of source control upon arrival to and throughout their stay in the facility. If they do not bring their own, they should be offered an option that is equivalent to what is recommended for people in the community
 - o Patients may remove their source control when in their rooms but should put it back on when around others (e.g., when visitors enter their room) or leaving their room.
 - Cloth masks, facemasks and respirators should not be placed on young children under age 2, anyone who cannot wear one safely, such as someone who has a disability or an underlying medical condition that precludes wearing a mask safely, or anyone who is unconscious, incapacitated or otherwise unable to remove their cloth mask, facemask or respirator without assistance.
 - Visitors who are not able to wear source control should be encouraged to use alternatives to on-site visits with patients (e.g., telephone or internet communication), particularly if the patient is at increased risk for severe illness from SARS-CoV-2 infection.
- For guidance on recommended source control for HCP, refer to <u>Implement Universal Use of Personal Protective Equipment</u> below.
 - HCP should wear well-fitting source control at all times while they are in the healthcare facility, including in breakrooms or other spaces where they might encounter coworkers.
 - To reduce the number of times HCP must touch their face and potential risk for selfcontamination, when used for source control, HCP should consider continuing to wear the same respirator or well-fitting facemask (extended use) throughout their entire work shift.
 - HCP should remove their respirator or facemask, perform hand hygiene, and put on their community source control when leaving the facility at the end of their shift.
- Educate patients, visitors, and HCP about the importance of performing hand hygiene, including immediately before and after any contact with their cloth mask, facemask, or respirator.



Implement Universal Use of Personal Protective Equipment

- Transmission from asymptomatic or pre-symptomatic patients with SARS-CoV-2 infection can occur in healthcare settings, particularly in areas with moderate to substantial community transmission.
- The fit of the medical device used to cover the wearer's mouth and nose is a critical factor in the level of source control (preventing exposure of others) and level of the wearer's exposure to infectious particles. Respirators offer the highest level of both source control and protection against inhalation of infectious particles in the air. Facemasks that conform to the wearer's face so that more air moves through the material of the facemask rather than through gaps at the edges are more effective for source control than facemasks with gaps and can also reduce the wearer's exposure to particles in the air. Improving how a facemask fits can increase the facemask's effectiveness for decreasing particles emitted from the wearer and to which the wearer is exposed.
- PPE recommended for the care of patients with suspected or confirmed SARS-CoV-2 infection.

https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html#useppe February 10, 2021





Test for Current Infection (Viral Test)

Who Should Get Tested

- People with symptoms of COVID-19
- People who have had close contact (within 6 feet of an infected person for a cumulative total of 15 minutes or more over a 24-hour period) with someone with confirmed COVID-19.
- People who have taken part in activities that put them at higher risk for COVID-19 because they
 cannot socially distance as needed, such as travel, attending large social or mass gatherings, or being
 in crowded indoor settings.
- People who have been asked or referred to get testing by their healthcare provider, local or state health department.

If you do get tested or take an at-home test because you have COVID-19 symptoms or have had a close contact with someone who has it, you should self-quarantine at home pending test results and follow the advice of your healthcare provider or a public health professional.

Viral Tests are Used to Look for Current Infection

A viral test checks specimens from your nose or your mouth (saliva) to find out if you are currently infected with SARS-CoV-2, the virus that causes COVID-19. Two types of viral tests can be used:

- Nucleic acid amplification tests (NAATs) detect the virus's genetic material and are commonly used in laboratories. NAATs are generally more accurate, but sometimes take longer to process than other test types.
- Antigen tests detect viral proteins and are generally not as sensitive as NAATs, particularly if the
 antigen test is used on someone without COVID-19 symptoms. If you have a positive or negative
 antigen test, your healthcare provider may need to confirm the test result with a NAAT.

How to Get a Viral Test

You can visit your state or local health department's website to look for the latest local information on testing.

- If you have symptoms of COVID-19 and want to get tested, call your healthcare provider first.
- If you have symptoms of COVID-19 and are not tested, it is important to stay home.
- Both types of viral tests are available for at home use.

What to do After a Viral Test

- If you test positive for COVID-19, know what protective steps to take if you are sick.
 - o Most people have mild COVID-19 illness and can recover at home without medical care. Contact your healthcare provider if your symptoms get worse or if you have questions about your health.



- If you test negative for COVID-19, you probably were not infected at the time your sample was collected. This does not mean you will not get sick:
 - A negative test result only means that you did not have COVID-19 at the time of testing or that your sample was collected too early in your infection.
 - You could also be exposed to COVID-19 after the test and then get infected and spread the virus to others.
 - o If you have symptoms later, you may need another test to determine if you are infected with the virus that causes COVID-19.

To get your test results, check with the group that performed your test, such as your healthcare provider or health department. How long it will take to get your test results depends on the test used. If you used an at-home test, follow the guidance above.

The link below is a CDC video on Viral testing. Please click the link to view the video. https://youtu.be/gff4GkGvW-Q





Testing HCP with Signs or Symptoms Consistent with COVID-19

HCP with signs or symptoms of COVID-19 should be prioritized for SARS-CoV-2 testing. Because HCP often have extensive and close contact to vulnerable populations, even mild signs, or symptoms (i.e., sore throat) of possible COVID-19 should prompt consideration for testing. Clinicians should use their judgment to determine if HCP have signs or symptoms compatible with COVID-19 and whether HCP should be tested.

CDC recommends using authorized nucleic acid or antigen detection assays that have received an FDA Emergency Use Authorization to test persons with symptoms when there is a concern of potential COVID-19. Tests should be used in accordance with the authorized labeling. Providers should be familiar with the tests' performance characteristics and limitations.

Testing Asymptomatic HCP with Known or Suspected Exposure to SARS-CoV-2*

As part of community contact tracing efforts, viral testing is recommended for HCP who have had close contact with persons with SARS-CoV-2 infection in the community (including household contacts).

Exposures encountered by HCP are unlike those that might occur in the community, and trained HCP generally use personal protective equipment (PPE) to reduce the risk of transmission. Because of this, assessment of HCP exposures should be performed as described in the Interim U.S. Guidance for Risk Assessment and Work Restrictions for Healthcare Personnel with Potential Exposure to COVID-19. Due to their often extensive and close contact with vulnerable individuals, this guidance recommends managing occupationally exposed HCP conservatively:

- For certain exposures believed to pose a higher risk for transmission, CDC recommends that exposed HCP be excluded from work for 14 days following the exposure.
- For other, lower risk exposures, HCP may continue to work; however, CDC recommends screening for symptoms prior to starting work each day and using source control measures as described in CDC's Infection Control Recommendations.

Similar to exposures in the community, testing initially and, if negative, again about 5-7 days post exposure could be considered for HCP with higher-risk exposures to more quickly identify presymptomatic or asymptomatic HCP who could contribute to SARS-CoV-2 transmission in the community. However, HCP with higher-risk exposures should still be excluded from work for 14 days, even if testing during this period does not identify SARS-CoV-2 infection. However, facilities with staffing shortages can refer to CDC's staffing mitigation guidance, which describes considerations for allowing HCP with higher-risk exposures to work during their 14-day post-exposure period including options for shortening the quarantine period. For HCP with lower-risk exposures, CDC continues to recommend symptom screening and source control measures while at work. As resources allow, facilities could consider testing HCP with lower-risk exposures for SARS-CoV-2 as described above.

Facilities that elect to perform post-exposure testing of HCP should be aware that testing is logistically challenging and has limitations. For example, testing only identifies the presence of virus at the time of the test. It is possible that HCP can test negative because they are very early in their infection when their

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sample is collected. In such situations, they could test positive later and transmit the virus to others; for this reason, repeat testing about 5-7 days after the exposure should be considered. Also, when there is SARS-CoV-2 transmission occurring in the community, positive tests in HCP do not necessarily indicate transmission due to exposures in the workplace.

If testing of exposed HCP is instituted, test results should be available rapidly (i.e., within 24 hours), and there should be a clear plan to respond to results. The Occupational Safety and Health Administration's rules for Recording and Reporting Occupational Injuries and Illness should be consulted regarding requirements for certain employers to make and keep records of related cases of COVID-19.

In nursing homes, expanded viral testing of all HCP is recommended in response to an outbreak in the facility. Testing of all residents is also recommended in this situation. See the Interim SARS-CoV-2
Interim SARS-CoV-2
<a href="Testing Guidelines for Nursing Home Posters
<a

*Asymptomatic HCP who have recovered from SARS-CoV-2 infection may not need to undergo repeat testing or quarantine in the case of another SARS-CoV-2 exposure within 3 months of their initial diagnosis. Additional information is available at https://www.cdc.gov/coronavirus/2019-ncov/more/masking-science-sars-cov2.html





Types of Masks

There are many types of masks that can be used to protect yourself and others from getting and spreading COVID-19. The terminology used to describe masks is NOT standardized. The terms and definitions provided here might be different from the terms and definitions that are used for commercial products. A brief description of different types of masks and some of the pros and cons of each are described below.

Cloth Masks

Cloth masks can be made from a variety of natural and synthetic fabrics and fibers, and many types of cloth masks are available.



What to look for:

- Look for a cloth mask that is made of multiple layers of tightly woven, breathable fabric.
- Make sure your cloth mask blocks light from coming through the fabric if held up to a bright light source.

Features:

- Can have ear loops that fit behind the ears or cords that tie around the head and neck.
- Some have a nose wire (a metal strip along the top of the mask) that can help to improve fit.
- **Note:** Do NOT wear cloth masks with exhalation valves or vents since they allow respiratory droplets containing the virus to escape.

Pros: Easy to obtain; comfortable; affordable; convenient; washable and reusable; ear loops, tie cords, and nose wires (if available) can usually be adjusted.

Cons: Poorly fitting masks may have gaps around the sides of the face or nose. Gaps may allow respiratory droplets containing the virus to leak in and out around the mask. Depending on how they fit and how they are made, cloth masks vary in how well they can protect you and others from getting and spreading COVID-19.

Additional Considerations: A cloth mask can be layered on top of a medical procedure mask (forming a "double mask") for improved fit and filtration. Using a mask filter or brace may also help to improve fit.



Medical Procedure Masks (sometimes referred to as Surgical Masks or Disposable Face Masks)

Medical procedure masks (including surgical masks) intended for community use are commercially available and are often sold as "disposable face masks."



What to look for:

Check the labels to ensure that they are made of multi-layered, non-woven material.

Features:

- Generally have ear loops that fit behind the ears. However, some available options have cords that tie around the head and neck rather than ear loops.
- Some have a nose wire (a metal strip along the top of the mask) that can help to improve fit.

Pros: Easy to obtain; comfortable; affordable; convenient; disposable (good for situations when the mask may get wet or dirty); nose wires (if available) can be adjusted.

Cons: These masks often fit loosely. Masks with ear loops may not be adjustable enough to achieve a better fit. Masks with tie cords can provide a better fit for some people. Poor fit causes gaps around the nose and along the sides of the face, where respiratory droplets containing the virus can leak in and out; designed for one-time use.

Additional Considerations: A medical procedure mask can be layered underneath a cloth mask (forming a "double mask") for improved fit and filtration. However, a medical procedure mask should not be layered underneath a second medical procedure mask. Using a mask fitter or brace may also help to improve fit.



KN95 Masks (also known as KN95 Respirators)

KN95 masks are a type of filtering facepiece respirator that are commonly made and used in China. KN95 masks may be preferable in some situations or for some people – especially for situations that require prolonged close contact with people who do not live in the same household, or for people who are at increased risk for severe illness from COVID-19.



What to look for:

 Look for KN95 masks that meet requirements similar to those set by CDC's National Institute for Occupational Safety and Health (NIOSH) for respirators. Some KN95 masks sold in the United States meet requirements similar to those set by NIOSH, while other KN95 masks do not.

Features:

- Often have ear loops that fit behind the ears. However, some available options have head straps.
- Note: Do NOT wear KN95 masks with exhalation valves since they allow respiratory droplets containing the virus to escape.

Pros: Filter up to 95% of particles in the air (when they meet the right requirements and are not counterfeit/fake, and when proper fit can be achieved).

Cons: Can be uncomfortable; often requires more effort to breath; may be more expensive and difficult to obtain; designed for one-time use; many counterfeit (fake) KN95 masks are commercially available, and sometimes it is hard to tell if they meet the right requirements just by looking at them. At least 60% of the KN95 masks evaluated by NIOSH did not meet the requirements that they claim to meet.

Additional Considerations: It may be hard to achieve a proper fit with certain types of facial hair.

NIOSH-Approved N95 Respirators

CDC does not recommend the use of N95 respirators for protection against COVID-19 in non-healthcare settings. N95 respirators should be reserved for healthcare personnel and for other workers who are required to wear them for protection against other hazards.

https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/mask-fit-and-filtration.html February 13, 2021

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Contingency Capacity Strategies – Mitigate Staffing Shortages – CDC

When staffing shortages are anticipated, healthcare facilities and employers, in collaboration with human resources and occupational health services, should use contingency capacity strategies to plan and prepare for mitigating this problem. These include:

Adjusting staff schedules, hiring additional HCP, and rotating HCP to positions that support patient care activities.

- Cancel all non-essential procedures and visits. Shift HCP who work in these areas to support
 other patient care activities in the facility. Facilities will need to ensure these HCP have received
 appropriate orientation and training to work in these areas that are new to them.
- Attempt to address social factors that might prevent HCP from reporting to work such as need
 for transportation or housing that allows for social distancing, particularly if HCP live with
 individuals with underlying medical conditions or older adults.
 - Consider that these social factors disproportionately affect persons from racial and ethnic groups also disproportionally affected by COVID-19 (e.g., African Americans, Hispanics and Latinos, and American Indians and Alaska Natives).
- Identify additional HCP to work in the facility. Be aware of state-specific emergency waivers or changes to licensure requirements or renewals for select categories of HCP.
- As appropriate, request that HCP postpone elective time off from work. However, there should consideration for the mental health benefits of time off and that the burden of the disease and care-taking responsibilities may differ substantially among certain racial and ethnic groups.

Developing regional plans to identify designated healthcare facilities

https://www.cdc.gov/coronavirus/2019-ncov/hcp/relief-healthcare-facilities.html or alternate care sites https://www.cdc.gov/coronavirus/2019-ncov/hcp/alternative-care-sites.html?CDC AA refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhealthcare-facilities%2Falternative-care-sites.html with adequate staffing to care for patients with SARS-CoV-2 infection.

Allowing asymptomatic HCP who have had a higher risk exposure

https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html#anchor-handling to SARS-Cov-2 (the virus that causes COVID-19) but are not known to be infected to shorten their duration of work restriction as described in *Options to Reduce Quarantine for Contacts of Persons with SARS-CoV-2 Infection Using Symptom Monitoring and Diagnostic Testing* https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-options-to-reduce-quarantine.html.

- Healthcare facilities should understand that shortening the duration of work restriction might
 result in additional transmission risks. Healthcare facilities management that elect to implement
 approaches other than those described in the CDC scientific brief should understand that there
 might be additional transmission risks posed by their approach.
- Vaccinated HCP should be prioritized to first shorten their duration of work restriction followed by unvaccinated HCP.
- These HCP should still report temperature and absence of symptoms each day before starting work.

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- If HCP develop even mild symptoms consistent with COVID-19, they should either not report to work, or stop working and notify their supervisor or occupational health services prior to leaving work. These individuals should be prioritized for testing.
- If HCP are tested and found to be infected with SARS-CoV-2, they should be excluded from work until they meet all Return to Work Criteria https://www.cdc.gov/coronavirus/2019-ncov/hcp/return-to-work.html. HCP with suspected SARS-CoV-2 infection should be prioritized for testing https://www.cdc.gov/coronavirus/2019-ncov/hcp/testing-healthcare-personnel.html, as testing results will impact when they may return to work and for which patients they might be permitted to provide care.

Allowing asymptomatic fully vaccinated HCP who have had a higher-risk exposure https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html#anchor-handling to SARS-CoV-2 but are not known to be infected to continue to work onsite (i.e., not be restricted from work) throughout their 14-day post-exposure period.

If permitted to work, these HCP should be monitored for symptoms as described above.



https://www.cdc.gov/coronavirus/2019-ncov/hcp/mitigating-staff-shortages.html February 14, 2021

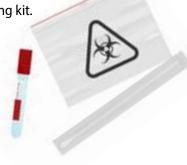
HOW TO COLLECT YOUR ANTERIOR NASAL SWAB SAMPLE FOR COVID-19 TESTING



Follow the instructions included with your sample kit. Use **only** materials provided in your kit to collect and store your sample, unless the kit says to do otherwise. Use **only** an approved sample collection kit given to you by your healthcare provider or personnel at the testing center.

Initial set-up

1. Open the sampling kit.



2. Apply hand sanitizer with at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.

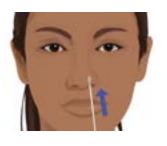


Sample collection

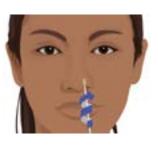
3. Remove the swab from the container, being careful not to touch the soft end, which is the absorbent tip.



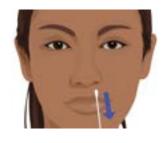
4. Insert the entire absorbent tip of the swab into your nostril, but do not insert the swab more than ¾ of an inch (1.5 cm) into your nose.



5. Slowly rotate the swab in a circular path against the inside of your nostril at least 4 times for a total of 15 seconds. Be sure to collect any nasal drainage that may be present on the swab.



6. Gently remove the swab.



 Using the same swab, repeat steps 4-6 in your other nostril.



cdc.gov/coronavirus

Preparation of sample for return

8. Place the swab in the sterile tube and snap off the end of the swab at the break line. Place the cap on the tube.



9. Re-apply hand sanitizer.



10. Place the tube containing the swab in the biohazard bag provided and seal the bag.



Returning the sample and clean-up

11. Give the bag with the swab to testing personnel.



12. Throw away the remaining sample kit items.



13. Re-apply hand sanitizer.

