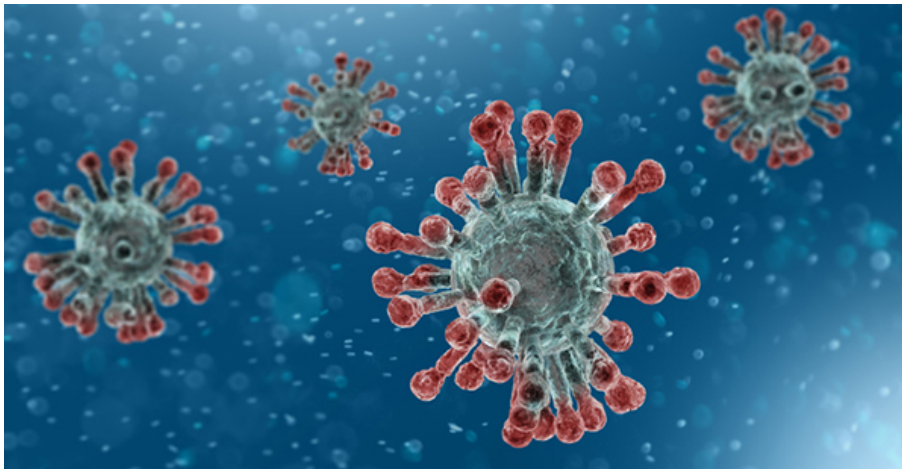


Coronavirus Resource Center

As coronavirus spreads, many questions and some answers

Updated: June 15, 2020

The rapid spread of the virus that causes COVID-19 has sparked alarm worldwide. The World Health Organization (WHO) has declared this rapidly spreading coronavirus outbreak a pandemic, and countries around the world are grappling with a surge in confirmed cases. In the US, social distancing to slow the spread of coronavirus has created a new normal. Meanwhile, scientists are exploring potential treatments and are beginning clinical trials to test new therapies and vaccines. And hospitals are ramping up their capabilities to care for increasing numbers of infected patients.



Below, you'll find answers to common questions all of us are asking. We will be adding [new questions](#) and updating answers as reliable information becomes available. Also see our [podcasts](#) featuring experts discussing coronavirus and COVID-19.

Symptoms, spread, and other essential information

What is coronavirus and how does it spread? What is COVID-19 and what are the symptoms? How long does coronavirus live on different surfaces? Take a moment to reacquaint yourself with basic information about this virus and the disease it causes.

Click [here](#) to read more about COVID-19 symptoms, spread, and other basic information.

Social distancing, hand washing, and other preventive measures

By now, many of us are taking steps to protect ourselves from infection. This likely includes frequent handwashing, regularly cleaning frequently touched surfaces, and social distancing. How do each of these measures help slow the spread of this virus, and is there anything else you can do?

Click [here](#) to read more about what you can do to protect yourself and others from coronavirus infection.

If you are at higher risk

Though no one is invulnerable, we've seen that older adults are at increased risk for severe illness or death from COVID-19. Underlying conditions, including heart disease, lung disease, and diabetes, increase risk even further in those who are older. In addition, anyone with an underlying medical condition, regardless of their age, faces increased risk of serious illness.

Click [here](#) to read more about what you can do if you are at increased risk for serious illness.

If you've been exposed, are sick, or are caring for someone with COVID-19

Despite your best efforts, you may be exposed to coronavirus and become ill with COVID-19. Or you may be in a position where you are caring for a loved one with the disease. It's important to know what to do if you find yourself in any of these situations. Stock up with medications and health supplies now, and learn the steps you can take to avoid infecting others in your household and to avoid getting sick yourself if you are caring for someone who is ill.

Click [here](#) to read more about what to do you if you have been exposed, are sick, or are caring for someone with COVID-19.

Treatments for COVID-19: What helps, what doesn't, and what's in the pipeline

While there are no specific treatments for COVID-19 at this time, there are things you can do to feel better if you become ill. In the meantime, researchers around the globe are looking at existing drugs to see if they may be effective against the virus that causes COVID-19, and are working to develop new treatments as well.

Click [here](#) to read more about measures that can help you feel better and treatments that are under investigation.

Coronavirus and kids:

So far, the vast majority of coronavirus infections have afflicted adults. And when kids are infected, they tend to have milder disease. Still, as a parent, you can't help but worry about the safety of your children. Many parents are also trying to find a balance between answering their children's questions about the pandemic and enforcing health-promoting behaviors and social distancing rules without creating an atmosphere of anxiety. Not to mention keeping kids engaged and entertained with schools closed and playdates cancelled.

Click [here](#) to read more about kids and the coronavirus outbreak.

Coping with coronavirus:

The news about coronavirus and its impact on our day-to-day lives has been unrelenting. There's reason for concern and it makes good sense to take the pandemic seriously. But it's not good for your mind or your body to be on high alert all the time. Doing so will wear you down emotionally and physically.

Click [here](#) to read more about coping with coronavirus.

New questions and answers

Does vitamin D protect against COVID-19?

There is some evidence to suggest that vitamin D might help protect against becoming infected with, and developing serious symptoms of, COVID-19. We know, for example, that people with low vitamin D levels may be more susceptible to upper respiratory tract infections. One meta-analysis found that people who took vitamin D supplements, particularly those who had low vitamin D levels, were less likely to develop acute respiratory tract infections than those who didn't.

Vitamin D may protect against COVID-19 in two ways. First, it may help boost our bodies' natural defense against viruses and bacteria. Second, it may help prevent an exaggerated inflammatory response, which has been shown to contribute to severe illness in some people with COVID-19.

Our bodies make vitamin D when exposed to sunshine. Five to 10 minutes of sun exposure on some or most days of the week to the arms, legs, or back without sunscreen will enable you to make enough of the vitamin. Good food sources of vitamin D include fatty fish (such as tuna, mackerel, and salmon), foods fortified with vitamin D (such as dairy products, soy milk, and cereals), cheese, and egg yolks.

The recommended dietary dose of vitamin D is 600 IU each day for adults 70 and younger and 800 IU each day for adults over 70. A daily supplement containing 1,000 to 2,000 IU of vitamin D is likely safe for most people. For adults, the risk of harmful effects increases above 4,000 IU per day.

How many COVID-19 infections may have been prevented because of policies designed to slow the spread of the virus?

Large-scale emergency health measures prevented more than 500 million COVID-19 infections in six countries between January and early April 2020, according to a peer-reviewed article published in the journal *Nature*. The study authors looked at the impact of policies designed to slow the spread of the virus in six countries: the United States, China, South Korea, Italy, Iran, and France. They compared the growth rate of COVID-19 infections in each country before and after the policies — such as travel restrictions; business, school, and restaurant closures; and social distancing — were enacted.

These findings reinforce the importance of continuing to exercise caution and practice health-promoting behaviors as restrictions begin to ease.

What is herd immunity, and could it play a role in stopping the spread of COVID-19?

Herd immunity occurs when enough people become immune to a disease to make its spread unlikely. As a result, the entire community is protected, even those who are not themselves immune. Herd immunity is usually achieved through vaccination, but it can also occur through natural infection.

Based on what we know about the contagiousness of the COVID-19 virus, experts estimate that somewhere between 60% and 70% of the population needs to be immune in order to achieve herd immunity. That's close to 200 million people in the United States, and nearly five billion people worldwide. (As of now, we are nowhere close to the numbers needed to achieve herd immunity.)

Achieving herd immunity through natural infection means many people would become ill and many would die. These risks may fall as we develop effective treatments. However, we still don't know how long people who recover from COVID-19 will remain immune to reinfection.

Ideally, we will achieve herd immunity through a safe vaccine (or vaccines) that will confer lasting immunity.

Are chloroquine/hydroxychloroquine and azithromycin safe and effective for treating COVID-19?

Early reports from China and France suggested that patients with severe symptoms of COVID-19 improved more quickly when given chloroquine or hydroxychloroquine. Some doctors were using a combination of hydroxychloroquine and azithromycin with some positive effects.

Hydroxychloroquine and chloroquine are primarily used to treat malaria and several inflammatory diseases, including lupus and rheumatoid arthritis. Azithromycin is a commonly prescribed antibiotic for strep throat and bacterial pneumonia. Both drugs are inexpensive and readily available.

Hydroxychloroquine and chloroquine have been shown to kill the COVID-19 virus in the laboratory dish. The drugs appear to work through two mechanisms. First, they make it harder for the virus to attach itself to the cell, inhibiting the virus from entering the cell and multiplying within it. Second, if the virus does manage to get inside the cell, the drugs kill it before it can multiply.

Azithromycin is never used for viral infections. However, this antibiotic does have some anti-inflammatory action. There has been speculation, though never proven, that azithromycin may help to dampen an overactive immune response to the COVID-19 infection.

The jury is still out regarding whether these drugs, alone or in combination, can treat COVID-19 viral infection. While recent human studies suggest no benefit and possibly a higher risk of death due to lethal heart rhythm abnormalities, two studies supporting these conclusions have been retracted by the authors because of irregularities in how results were collected and analyzed.

Regarding the effectiveness of hydroxychloroquine alone to prevent coronavirus infection, the results of a clinical trial just published in the *New England Journal of Medicine* found that it did not prevent infection. However, how this study was conducted has been questioned by some experts.

Where does that leave us? The recommendation has not changed. Chloroquine or hydroxychloroquine with or without azithromycin should not be used to prevent or treat COVID-19 infection unless it is being prescribed in the hospital or as part of a clinical trial.

Clinical trials that were ongoing and about to be started to evaluate the effectiveness of these drugs are resuming.

As I start seeing more friends and family, does it matter whether we meet indoors or outdoors?

As you gradually expand your social circle, you are better off meeting friends and family outdoors. We know that coronavirus spreads when someone breathes in virus that an infected person emits through coughs or sneezes, or when they talk or breathe. A recent study found that in a confined, laboratory setting, droplets containing viral particles can remain afloat for eight to 14 minutes. Smaller infectious viral particles, called aerosols, can drift around in the air even longer.

Outdoors, air currents are more likely to scatter and dilute the virus, making transmission less likely than in a home, office, or other confined space with limited air circulation. Even outdoors, however, it's important to maintain a physical distance of at least six feet and wear a mask, to reduce risk even further.

Coronavirus also spreads when a person touches a contaminated surface and then touches their eyes, nose, or mouth. If you are participating in an outdoor gathering, bring your own foods, drinks, plates, and utensils.

I've heard that the immune system produces different types of antibodies when a person is infected with the COVID-19 coronavirus. How do they differ? Why is this important?

When a person gets a viral or bacterial infection, a healthy immune system makes antibodies against one or more components of the virus or bacterium.

The COVID-19 coronavirus contains ribonucleic acid (RNA) surrounded by a protective layer, which has spike proteins on the outer surface that can latch on to certain human cells. Once inside the cells, the viral RNA starts to replicate and also turns on the production of proteins, both of which allow the virus to infect more cells and spread throughout the body, especially to the lungs.

While the immune system could potentially respond to different parts of the virus, it's the spike proteins that get the most attention. Immune cells recognize the spike proteins as a foreign substance and begin producing antibodies in response.

There are two main categories of antibodies:

Binding antibodies. These antibodies can bind to either the spike protein or a different protein known as the nucleocapsid protein. Binding antibodies can be detected with blood tests starting about one week after the initial infection. If antibodies are found, it's extremely likely that the person has been infected with the COVID-19 coronavirus. The antibody level declines over time after an infection, sometimes to an undetectable level.

Binding antibodies help fight the infection, but they might not offer protection against getting reinfected in the future. It depends on whether they are also neutralizing antibodies.

Neutralizing antibodies. The body makes these antibodies specifically against the spike protein. In the laboratory, scientists have observed that neutralizing antibodies block the virus from getting into live cells. The FDA has not yet authorized use of a test for neutralizing antibodies, because it requires handling live COVID-19 coronavirus or a pseudo-virus similar to the real thing. To do the test, a person's blood is mixed with live virus and incubated in a test tube along with living cells to measure the killing action.

In addition to these laboratory observations, human studies have shown that neutralizing antibodies made against other coronaviruses help prevent re-infection.

Scientists are optimistic that the same will be true for the COVID-19 coronavirus, and that neutralizing antibodies will block cell-to-cell transmission of this virus in humans, and offer protection against reinfection, at least for two to three months.

Also, people who have completely recovered from a COVID-19 infection and have neutralizing antibodies in their blood can potentially donate plasma, the component of blood that contains antibodies, to help COVID-19 patients recover from their illness.

How much difference will masks and physical distancing make as states begin to reopen?

Although we don't know *exactly* how much masks and physical distancing help, we do know that these measures are needed to open the economy in the safest way possible and are our best chance of keeping it open. But in order to work, everyone must comply.

Coronavirus spreads when someone breathes in virus that an infected person emits through coughs or sneezes, or when they talk or breathe, or when a person touches a contaminated surface and then touches their eyes, nose, or mouth. Physical distancing of at least six feet and wearing a tight-fitting cloth mask that covers your nose and mouth can help prevent spread. (Medical-grade N95 masks are more effective than cloth masks, but are in short supply and should be reserved for healthcare workers.) Continue to wash your hands frequently as well.

Researchers at Columbia University recently affirmed the importance of these health-promoting behaviors. They reported that 36,000 fewer people would have died in the coronavirus outbreak if physical distancing measures had started one week earlier; if physical distancing had begun two weeks earlier, 54,000 fewer people may have died.

Is it safe to use steroids to control allergy and asthma symptoms during the COVID-19 pandemic?

Yes, it is safe to use corticosteroid nasal sprays to control nasal allergies or inhaled corticosteroids to control asthma symptoms during the COVID-19 pandemic.

The American College of Allergy, Asthma and Immunology (ACAAI) recently issued a statement emphasizing the importance of controlling allergy and asthma symptoms during the pandemic. They said there is no evidence that intranasal or inhaled corticosteroids increase the risk of getting the COVID-19 infection or lead to a worse outcome if you do get infected.

The ACAAI statement was a response to concerns over reports warning against the use of systemic steroids to treat hospitalized COVID-19 patients with specific respiratory complications. However, those reports did not refer to healthy individuals using corticosteroid nasal sprays or inhalers to manage allergies or asthma.

What are the chances that a coronavirus test will tell me I am not infected when I actually am?

The chances that a coronavirus test will give you a false negative (indicating that you are not infected when you actually are infected) depend upon the type of test you have and when in the course of your infection the test is performed. There are two main types of tests:

- nasal/throat swab tests and saliva tests, both of which detect the virus itself
- blood tests that detect antibodies that your immune system produces in response to the infection.

If you get the nasal/throat swab or saliva test, you will get a false negative test result:

- 100% of the time on the day you are exposed to the virus. (There are so few viral particles in your nose or saliva so soon after infection that the test cannot detect them.)
- About 40% of the time if you are tested four days after exposure to the virus.
- About 20% of the time if you develop symptoms and are tested three days after those symptoms started.

This possibility of a false negative test result is why anyone who has symptoms that could be due to COVID-19, or has been exposed to someone known to be infected, must isolate even if they test negative for coronavirus.

The blood antibody test does not become positive (or might never be positive in some people) until many days after exposure, and is therefore not the primary test used for diagnosis. It is very useful for research and public health decision making.

How does COVID-19 affect children?

Children, including very young children, can develop COVID-19. Many of them have no symptoms. Those that do get sick tend to experience milder symptoms such as low-grade fever, fatigue, and cough. Some children have had severe complications, but this has been less common. Children with underlying health conditions may be at increased risk for severe illness.

A complication that has more recently been observed in children can be severe and dangerous. Called multisystem inflammatory syndrome in children (MIS-C), it can lead to life-threatening problems with the heart and other organs in the body. Early reports compare it to Kawasaki disease, an inflammatory illness that can lead to heart problems. But while some cases look very much like Kawasaki's, others have been different.

Symptoms of MIS-C can include

- fever lasting more than a couple of days
- rash
- conjunctivitis (redness of the white part of the eye)
- stomachache
- vomiting and/or diarrhea
- a large, swollen lymph node in the neck
- red, cracked lips
- a tongue that is redder than usual and looks like a strawberry
- swollen hands and/or feet
- irritability and/or unusual sleepiness or weakness.

Many conditions can cause these symptoms. Doctors make the diagnosis of MIS-C based on these symptoms, along with a physical examination and medical tests that check for inflammation and how organs are functioning. Call the doctor if your child develops symptoms, particularly if their fever lasts for more than a couple of days. If the symptoms get any worse or just don't improve, call again or bring your child to an emergency room.

Doctors have had success using various treatments for inflammation, as well as treatments to support organ systems that are having trouble. While there have been some deaths, most children who have developed MIS-C have recovered.

What are cytokine storms and what do they have to do with COVID-19?

A cytokine storm is an overreaction of the body's immune system. In some people with COVID-19, the immune system releases immune messengers, called cytokines, into the bloodstream out of proportion to the threat or long after the virus is no longer a threat.

When this happens, the immune system attacks the body's own tissues, potentially causing significant harm. A cytokine storm triggers an exaggerated inflammatory response that may damage the liver, blood vessels, kidneys, and lungs, and increase formation of blood clots throughout the body. Ultimately, the cytokine storm may cause more harm than the coronavirus itself.

A simple blood test can help determine whether someone with COVID-19 may be experiencing a cytokine storm. Trials in countries around the world are investigating whether drugs that have been used to treat cytokine storms in people with other, non-COVID conditions could be effective in people with COVID-19.

More about COVID-19

- [Driving across the country in a pandemic](#)
- [Helping people with autism spectrum disorder manage masks and COVID-19](#)

aerosols: infectious viral particles that can float or drift around in the air. Aerosols are emitted by a person infected with coronavirus — even one with no symptoms — when they talk, breathe, cough, or sneeze. Another person can breathe in these aerosols and become infected with the virus. Aerosolized coronavirus can remain in the air for up to three hours. A mask can help prevent that spread.

community spread (community transmission): is said to have occurred when people have been infected without any knowledge of contact with someone who has the same infection

contact tracing: a process that begins with identifying everyone a person diagnosed with a given illness (in this case COVID-19) has been in contact with since they became contagious. The contacts are notified that they are at risk, and may include those who share the person's home, as well as people who were in the same place around the same time as the person with COVID-19 — a school, office, restaurant, or doctor's office, for example. Contacts may be quarantined or asked to isolate themselves if they start to experience symptoms, and are more likely to be tested for coronavirus if they begin to experience symptoms.

containment: refers to limiting the spread of an illness. Because no vaccines exist to prevent COVID-19 and no specific therapies exist to treat it, containment is done using public health interventions. These may include identifying and isolating those who are ill, and tracking down anyone they have had contact with and possibly placing them under quarantine.

epidemic: a disease outbreak in a community or region

flattening the curve: refers to the epidemic curve, a statistical chart used to visualize the number of new cases over a given period of time during a disease outbreak. Flattening the curve is shorthand for implementing mitigation strategies to slow things down, so that fewer new cases develop over a longer period of time. This increases the chances that hospitals and other healthcare facilities will be equipped to handle any influx of patients.

incubation period: the period of time between exposure to an infection and when symptoms begin

isolation: the separation of people with a contagious disease from people who are not sick

mitigation: refers to steps taken to limit the impact of an illness. Because no vaccines exist to prevent COVID-19 and no specific therapies exist to treat it, mitigation strategies may include frequent and thorough handwashing, not touching your face, staying away from people who are sick, social distancing, avoiding large gatherings, and regularly cleaning frequently touched surfaces and objects at home, in schools, at work, and in other settings.

pandemic: a disease outbreak affecting large populations or a whole region, country, or continent

physical distancing: also called social distancing, refers to actions taken to stop or slow down the spread of a contagious disease. For an individual, it refers to maintaining enough physical distance (a minimum of six feet) between yourself and another person to reduce the risk of breathing in droplets or aerosols that are produced when an infected person breathes, talks, coughs, or sneezes.

presumptive positive test result: a positive test for the virus that causes COVID-19, performed by a local or state health laboratory, is considered "presumptive" until the result is confirmed by the CDC. While awaiting confirmation, people with a presumptive positive test result will be considered to be infected.

quarantine: separates and restricts the movement of people who have a contagious disease, have symptoms that are consistent with the disease, or were exposed to a contagious disease, to see if they become sick

SARS-CoV-2: short for severe acute respiratory syndrome coronavirus 2, SARS-CoV-2 is the official name for the virus responsible for COVID-19.

social distancing: also called physical distancing, refers to actions taken to stop or slow down the spread of a contagious disease. For an individual, it refers to maintaining enough physical distance (a minimum of six feet) between yourself and another person to reduce the risk of breathing in droplets or aerosols that are produced when an infected person breathes, talks, coughs, or sneezes. It is possible to safely maintain social connections while social distancing, through phone calls, video chats, and social media platforms.

virus: a virus is the smallest of infectious microbes, smaller than bacteria or fungi. A virus consists of a small piece of genetic material (DNA or RNA) surrounded by a protein shell. Viruses cannot survive without a living cell in which to reproduce. Once a virus enters a living cell (the host cell) and takes over a cell's inner workings, the cell cannot carry out its normal life-sustaining tasks. The host cell becomes a virus manufacturing plant, making viral parts that then reassemble into whole viruses and go on to infect other cells. Eventually, the host cell dies.

Image: Naeblys/Getty Images

Questions?

Coronavirus Questions

If you have any questions about the Coronavirus (COVID-19), please fill out the form below.

* Gerekli

Question *

Yanıtınız

Gönder

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- [How to socialize in a pandemic](#)
- [Bracing for contact tracing](#)
- [Some healthcare can safely wait \(and some can't\)](#)
- [New warning on coronavirus symptoms in children — what parents need to know](#)
- [Go to the hospital if you need emergency care, even in the era of COVID-19](#)
- [COVID-19 and the LGBTQ+ community: Rising to unique challenges](#)

Podcast: Coronavirus Update: We're facing the start of a second wave (recorded 6/11/2020)

Dr. Ashish K. Jha, head of the [Harvard Global Health Institute](#), offers information on where we are where we're going with the COVID-19 outbreak. Some take-aways:

- Communications missteps by the WHO regarding asymptomatic transmission have been quickly corrected. Yes, you can catch COVID-19 from people who are not showing symptoms.
- A second wave has begun, particularly in the south and Midwest. And calculations show we'll reach more than 200,000 COVID-19 related deaths by September.
- Jha offers advice for parents, teachers and administrators on workable back-to-school scenarios.
- We know you don't want to hear it, but COVID-19 will be a fact of global life for the rest of the year until a vaccine becomes widely available.



Podcast: COVID-19 and underlying conditions: Why symptoms may be more severe for people with chronic disease (recorded 5/6/20)

People who have diabetes, a heart condition, cancer, kidney disease or other underlying condition are impacted more severely if they contract the coronavirus. Harvard Medical School endocrinologist Dr. Enrique Caballero explains why. Dr. Caballero is on the staff of Brigham and Women's Hospital in Boston, Massachusetts, and is the director of diabetes education in the post-graduate medical education department at Harvard Medical School.



Podcast: Entendiendo como afecta la infección por COVID-19 a personas con enfermedades crónicas subyacentes (recorded 5/6/20)

Las personas que tienen diabetes, una afección del corazón o de los riñones u otra enfermedad crónica subyacente se ven afectadas más severamente si contraen el coronavirus. El Dr. Enrique Caballero, endocrinólogo de la Escuela de Medicina de Harvard explica la forma en que estas enfermedades favorecen infecciones severas por COVID-19 y como el coronavirus puede empeorar estas condiciones crónicas. El Dr. Caballero forma parte del personal del Hospital Brigham and Women's y es el director de educación en diabetes en el departamento de educación médica de posgrado de la Facultad de Medicina de Harvard en Boston, Massachusetts.



Reliable resources

- [Centers for Disease Control and Prevention](#)
- [World Health Organization](#)
- [Johns Hopkins University COVID-19 Interactive Map](#)
- Harvard Medical School's HMX Online Learning team is offering a selection of [immunity-related videos and interactive materials](#) to help with understanding how the body reacts to threats like the coronavirus that causes COVID-19.
- [Resources on Health Disparities and COVID-19](#)

Terms to know: