

Coronavirus

/kəˈrɒʊnəˌvaɪrəs/

any of a group of RNA viruses that cause a variety of respiratory, gastrointestinal, and neurological diseases in humans and other animals.

- infection with or disease caused by a coronavirus.

"the impact of coronavirus is already being felt across the continent"

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus.

Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer are more likely to develop serious illness. Anyone can get sick with COVID-19 and become seriously ill or die at any age.

The best way to prevent and slow down transmission is to be well informed about the disease and how the virus spreads. Protect yourself and others from infection by staying at least 1 metre apart from others, wearing a properly fitted mask, and washing your hands or using an alcohol-based rub frequently. Get vaccinated when it's your turn and follow local guidance.

The virus can spread from an infected person's mouth or nose in small liquid particles when they cough, sneeze, speak, sing or breathe. These particles range from larger respiratory droplets to smaller aerosols. It is important to practice respiratory etiquette, for example by coughing into a flexed elbow, and to stay home and self-isolate until you recover if you feel unwell.

https://www.who.int/health-topics/coronavirus#tab=tab_1

Where was COVID-19 first discovered?

The first known infections from SARS-CoV-2 were discovered in Wuhan, China. The original source of viral transmission to humans remains unclear, as does whether the virus became pathogenic before or after the spillover event.

How long have coronaviruses existed?

The most recent common ancestor (MRCA) of all coronaviruses is estimated to have existed as recently as 8000 BCE, although some models place the common ancestor as far back as 55 million years or more, implying long term coevolution with bat and avian species.

<https://en.wikipedia.org/wiki/Coronavirus#:~:text=The%20most%20recent%20common%20ancestor,bat%20and%20avian%20species.>

Infection in humans

Transmission and life-cycle of SARS-CoV-2 causing COVID-19

Coronaviruses vary significantly in risk factor. Some can kill more than 30% of those infected, such as MERS-CoV, and some are relatively harmless, such as the common cold.^[49] Coronaviruses can cause colds with major symptoms, such as fever, and a sore throat from swollen adenoids.^[90] Coronaviruses can

cause pneumonia (either direct viral pneumonia or secondary bacterial pneumonia) and bronchitis (either direct viral bronchitis or secondary bacterial bronchitis).^[91] The human coronavirus discovered in 2003, SARS-CoV, which causes severe acute respiratory syndrome (SARS), has a unique pathogenesis because it causes both upper and lower respiratory tract infections.^[91]

Six species of human coronaviruses are known, with one species subdivided into two different strains, making seven strains of human coronaviruses altogether.

Seasonal distribution of HCoV-NL63 in Germany shows a preferential detection from November to March

Four human coronaviruses produce symptoms that are generally mild, even though it is contended they might have been more aggressive in the past.^[92]

1. Human coronavirus OC43 (HCoV-OC43), β -CoV
2. Human coronavirus HKU1 (HCoV-HKU1), β -CoV
3. Human coronavirus 229E (HCoV-229E), α -CoV
4. Human coronavirus NL63 (HCoV-NL63), α -CoV

Three human coronaviruses produce potentially severe symptoms:

1. Severe acute respiratory syndrome coronavirus (SARS-CoV), β -CoV (identified in 2003)
2. Middle East respiratory syndrome-related coronavirus (MERS-CoV), β -CoV (identified in 2012)
3. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), β -CoV (identified in 2019)

These cause the diseases commonly called SARS, MERS, and COVID-19 respectively.

Common cold

Main article: Common cold

Although the common cold is usually caused by rhinoviruses,^[93] in about 15% of cases the cause is a coronavirus.^[94] The human coronaviruses HCoV-OC43, HCoV-HKU1, HCoV-229E, and HCoV-NL63 continually circulate in the human population in adults and children worldwide and produce the generally mild symptoms of the common cold.^[95] The four mild coronaviruses have a seasonal incidence occurring in the winter months in temperate climates.^{[96][97]} There is no preponderance in any season in tropical climates.^[98]

Coronavirus disease 2019 (COVID-19)

Main article: COVID-19

In December 2019, a pneumonia outbreak was reported in Wuhan, China.^[119] On 31 December 2019, the outbreak was traced to a novel strain of coronavirus,^[120] which was given the interim name 2019-nCoV by the World Health Organization (WHO),^{[121][122][123]} later renamed SARS-CoV-2 by the International Committee on Taxonomy of Viruses.

As of 30 October 2021, there have been at least 4,993,576^[104] confirmed deaths and more than 246,278,507^[104] confirmed cases in the COVID-19 pandemic. The Wuhan strain has been identified as a new strain of Betacoronavirus from group 2B with approximately 70% genetic similarity to the SARS-CoV.^[124] The virus has a 96% similarity to a bat coronavirus, so it is widely suspected to originate from bats as well.^{[125][126]}

Infection in animals

Coronaviruses have been recognized as causing pathological conditions in veterinary medicine since the 1930s.^[19] They infect a range of animals including swine, cattle, horses, camels, cats, dogs, rodents, birds and bats.^[127] The majority of animal related coronaviruses infect the intestinal tract and are transmitted by a fecal-oral route.^[128] Significant research efforts have been focused on elucidating the viral pathogenesis of these animal coronaviruses, especially by virologists interested in veterinary and zoonotic diseases.^[129]

Farm animals Coronaviruses infect domesticated birds.^[130] Infectious bronchitis virus (IBV), a type of coronavirus, causes avian infectious bronchitis.^[131] The virus is of concern to the poultry industry because of the high mortality from infection, its rapid spread, and its effect on production.^[127] The virus affects both meat

production and egg production and causes substantial economic loss.^[132] In chickens, infectious bronchitis virus targets not only the respiratory tract but also the urogenital tract. The virus can spread to different organs throughout the chicken.^[131] The virus is transmitted by aerosol and food contaminated by feces. Different vaccines against IBV exist and have helped to limit the spread of the virus and its variants.^[127] Infectious bronchitis virus is one of a number of strains of the species Avian coronavirus.^[133] Another strain of avian coronavirus is turkey coronavirus (TCV) which causes enteritis in turkeys.^[127]

Coronaviruses also affect other branches of animal husbandry such as pig farming and the cattle raising.^[127] Swine acute diarrhea syndrome coronavirus (SADS-CoV), which is related to bat coronavirus HKU2, causes diarrhea in pigs.^[134] Porcine epidemic diarrhea virus (PEDV) is a coronavirus that has recently emerged and similarly causes diarrhea in pigs.^[135] Transmissible gastroenteritis virus (TGEV), which is a member of the species Alphacoronavirus 1,^[136] is another coronavirus that causes diarrhea in young pigs.^{[137][138]} In the cattle industry bovine coronavirus (BCV), which is a member of the species Betacoronavirus 1 and related to HCoV-OC43,^[139] is responsible for severe profuse enteritis in young calves.^[127]

Symptoms

People with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. Symptoms may appear 2-14 days after exposure to the virus. Anyone can have mild to severe symptoms. People with these symptoms may have COVID-19:

- Fever or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

This list does not include all possible symptoms. CDC will continue to update this list as we learn more about COVID-19. Older adults and people who have severe underlying medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.

<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>

Equitable access to safe and effective vaccines is critical to ending the COVID-19 pandemic, so it is hugely encouraging to see so many vaccines proving and going into development. WHO is working tirelessly with partners to develop, manufacture and deploy safe and effective vaccines.

Safe and effective vaccines are a game-changing tool: but for the foreseeable future we must continue wearing masks, cleaning our hands, ensuring good ventilation indoors, physically distancing and avoiding crowds.

Being vaccinated does not mean that we can throw caution to the wind and put ourselves and others at risk, particularly because research is still ongoing into how much vaccines protect not only against disease but also against infection and transmission.

See [WHO's landscape of COVID-19 vaccine candidates](#) for the latest information on vaccines in clinical and pre-clinical development, generally updated twice a week. [WHO's COVID-19 dashboard](#), updated daily, also features the number of vaccine doses administered globally, with more detail provided on the dedicated [COVID-19 vaccination dashboard](#). At a regional level, there is an [AFRO COVID-19 vaccines dashboard](#) and a [PAHO COVID-19 vaccines deliveries dashboard](#).

But it's not vaccines that will stop the pandemic, it's vaccination. We must ensure fair and equitable access to vaccines, and ensure every country receives them and can roll them out to protect their people, starting with the most vulnerable.

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines>

Coronavirus Cases:1,765,654 Deaths:30,775 Recovered:1,676,285

Treatment

Most people who become ill with COVID-19 will be able to recover at home. Some of the same things you do to feel better if you have the flu — getting enough rest, staying well hydrated, and taking medications to relieve fever and aches and pains — also help with COVID-19.

Beyond that, the FDA has also authorized treatments that may be used for people who have been hospitalized with COVID-19 and other medications to curb the progression of COVID-19 in people who are not hospitalized but who are at risk for developing severe illness. Scientists continue working hard to develop other effective treatments.

If you are recovering at home, these measures can help reduce symptoms:

While you don't need to stay in bed, you should get plenty of rest.

Stay well hydrated.

To reduce fever and ease aches and pains, take acetaminophen. Be sure to follow directions. If you are taking any combination cold or flu medicine, keep track of all the ingredients and the doses. For acetaminophen, the total daily dose from all products should not exceed 3,000 milligrams.

What medications can doctors use for people hospitalized with COVID-19?

Dexamethasone Many doctors, including those in the United States, have been treating very ill COVID-19 patients with corticosteroids since the pandemic began. It makes biologic sense for those patients who have developed a hyper-immune response (a cytokine storm) to the viral infection. In these cases, it is the immune system's overreaction that is damaging the lungs and other organs, and too often leading to death.

Dexamethasone and other corticosteroids (prednisone, methylprednisolone) are potent anti-inflammatory drugs. They are readily available and inexpensive.

The NIH COVID-19 treatment guidelines recommend the use of dexamethasone in certain people hospitalized with severe COVID-19. The recommendation was based on results from the RECOVERY trial. In the study, more than 6000 patients hospitalized with COVID-19 randomly received either dexamethasone or standard treatment. Patients who required supplemental oxygen or ventilators and who received dexamethasone were less likely to die within 28 days than those who received standard care. Dexamethasone did not have a benefit in patients who did not need respiratory support.

<https://www.health.harvard.edu/diseases-and-conditions/treatments-for-covid-19>