

COVID-19 pandemic

The **COVID-19 pandemic**, also known as the **coronavirus pandemic**, is an ongoing [pandemic](#) of [coronavirus disease 2019](#) (COVID-19), caused by [severe acute respiratory syndrome coronavirus 2](#) (SARS-CoV-2).^[1] The outbreak was first identified in [Wuhan](#), China, in December 2019.^{[4][6]} The [World Health Organization](#) declared the outbreak a [Public Health Emergency of International Concern](#) on 30 January, and a pandemic on 11 March.^{[7][8]} As of 4 June 2020, [more than 6.51 million cases](#) of COVID-19 have been reported in [more than 188 countries and territories](#), resulting in [more than 386,000 deaths](#); more than 2.8 million people have recovered.

The virus is primarily [spread](#) between people during close contact,^[c] most often via [small droplets](#) produced by coughing,^[d] sneezing, and talking.^{[9][10][12]} The droplets usually fall to the ground or onto surfaces rather than [travelling through air over long distances](#).^[9] Less commonly, people may become infected by touching a contaminated surface and then touching their face.^{[9][10]} It is most contagious during the first three days after the onset of symptoms, although spread is possible before symptoms appear, and from people who do not show symptoms.^{[9][10]}

Common symptoms include fever, cough, [fatigue](#), [shortness of breath](#), and [loss of sense of smell](#).^{[9][13][14]} Complications may include [pneumonia](#) and [acute respiratory distress syndrome](#).^[15] The [time from exposure to onset of symptoms](#) is typically around five days but may range from two to fourteen days.^{[16][17]} There is [no known vaccine](#) or [specific antiviral treatment](#).^[9] Primary treatment is [symptomatic](#) and [supportive therapy](#).^[18]

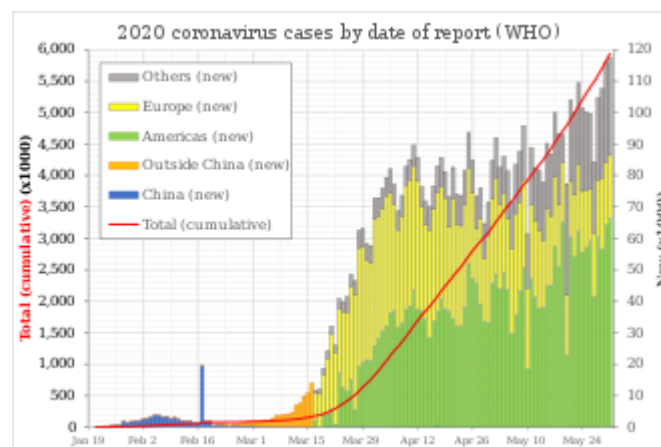
Recommended [preventive measures](#) include [hand washing](#), covering one's mouth when coughing, [maintaining distance from other people](#), wearing a [face mask](#) in public settings, and monitoring and [self-isolation](#) for people who suspect they are infected.^{[9][19]} Authorities worldwide [have responded](#) by implementing [travel restrictions](#), [lockdowns](#), [workplace hazard controls](#), and facility closures. Many places have also worked to increase [testing](#) capacity and [trace contacts](#) of infected persons. The pandemic has caused global [social](#) and [economic](#) disruption,^[20] including [the largest global recession](#) since the [Great Depression](#).^[21] It has led to [the postponement or cancellation](#) of [sporting](#), [religious](#), [political](#), and [cultural](#) events,^[22] [widespread supply shortages](#) exacerbated by [panic buying](#),^{[23][24][25]} and [decreased emissions of pollutants and greenhouse gases](#).^{[26][27]} [Schools, universities, and colleges have been closed](#) either on a nationwide or local basis in 177 countries, affecting approximately 98.6 percent of the world's student population.^[28] [Misinformation about the virus](#) has been circulated through [social media](#) and the [mass media](#).^[29] There have been [incidents of xenophobia and discrimination](#) against [Chinese people](#) and against those perceived as being Chinese or as being from areas with high infection rates

Background

On 31 December 2019, health authorities in China reported to the [World Health Organization](#) (WHO) a [cluster](#) of viral pneumonia cases of unknown cause in [Wuhan](#), Hubei,^{[317][318]} and an investigation was launched in early January 2020.^[319] On 30

January, the WHO declared the outbreak a [Public Health Emergency of International Concern](#) (PHEIC)—7,818 cases confirmed globally, affecting 19 countries in five WHO regions.^{[320][321]} Several of the early cases had visited [Huanan Seafood Wholesale Market](#)^[322] and so the virus is thought to have a [zoonotic](#) origin.^[323] The virus that caused the outbreak is known as SARS-CoV-2, a newly discovered virus closely related to bat coronaviruses,^[324] pangolin coronaviruses,^{[325][326]} and [SARS-CoV](#).^[327] The scientific consensus is that COVID-19 has a natural origin.^{[328][329]} The probable bat-to-human infection may have been among people processing bat carcasses and [guano](#) in the production of [traditional Chinese medicines](#).^[330] The earliest known person with symptoms was later discovered to have fallen ill on 1 December 2019, and that person did not have visible connections with the later [wet market](#) cluster.^{[331][332]} Of the early cluster of cases reported that month, two-thirds were found to have a link with the market.^{[333][334][335]} On 13 March 2020, an unverified report from the [South China Morning Post](#) suggested a case traced back to 17 November 2019 (a 55-year-old from Hubei) may have been the first person infected.^{[336][337]} The WHO recognized the spread of [COVID-19](#) as a [pandemic](#) on 11 March 2020.^[338] Italy, Iran, South Korea, and Japan reported surging cases. The total numbers outside China quickly passed China's.

Cases



[Epidemic curve](#) of COVID-19 by date of report

Cases refer to the number of people who have been [tested for COVID-19](#), and whose test has been confirmed positive according to official protocols.^[340] As of 24 May, countries that publicised their testing data have typically performed many tests equal to 2.6 percent of their population, while no country has tested samples equal to more than 17.3 percent of its population.^[341] Many countries, early on, had official policies to not test those with only mild symptoms.^{[342][343]} An analysis of the early phase of the outbreak up to 23 January estimated 86 percent of COVID-19 infections had not been detected, and that these undocumented infections were the source for 79 percent of documented cases.^[344] Several other studies, using a variety of methods, have estimated that numbers of infections in many countries are likely to be considerably greater than the reported cases.[[]

Deaths

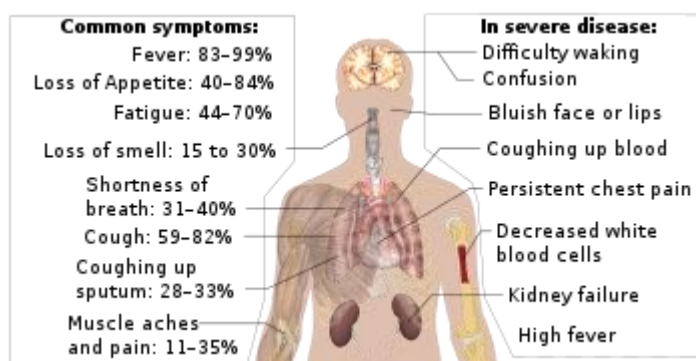
Most people who contract COVID-19 recover. For those who do not, the time between the onset of symptoms and death usually ranges from 6 to 41 days, typically about 14 days.[362] As of 4 June 2020, approximately 386,000[5] deaths had been attributed to COVID-19. In China, as of 5 February, about 80 percent of deaths were recorded in those aged over 60, and 75 percent had pre-existing health conditions including [cardiovascular diseases](#) and [diabetes](#).[363]

The first confirmed death was in Wuhan on 9 January 2020.[364] The first death outside of China occurred on 1 February in the Philippines,[365] and the first death outside Asia was in France on 14 February.[366]

Official deaths from COVID-19 generally refer to people who died after testing positive according to protocols. This may ignore deaths of people who die without testing, e.g. at home or in [nursing homes](#).[367] Conversely, deaths of people who had underlying conditions may lead to overcounting.

Signs and symptoms

See also: [Coronavirus disease 2019](#)



Symptoms of COVID-19[390]

The usual [incubation period](#) (the time between infection and symptom onset) ranges from one to 14 days, and is most commonly five days.[9][391] Some infected people have no symptoms, known as [asymptomatic](#) or [presymptomatic carriers](#); transmission from such a carrier is considered possible.[392] As at 6 April, estimates of the asymptomatic ratio range widely from 5% to 80%.[393]

Symptoms of COVID-19 can be relatively [non-specific](#); the two most common symptoms are fever (88 percent) and [dry cough](#) (68 percent). Less common symptoms include fatigue, respiratory sputum production ([phlegm](#)), loss of the sense of smell, loss of taste, shortness of breath, muscle and joint pain, sore throat, headache, chills, vomiting, [coughing out blood](#), diarrhea, and rash.[394][395][396]

Among those who develop symptoms, approximately one in five may become more seriously ill and have difficulty breathing.[9] Emergency symptoms include difficulty breathing, persistent chest pain or pressure, sudden confusion, difficulty waking, and bluish face or lips; immediate medical attention is advised if these symptoms are present.[14] Further development of the disease can lead to complications including [pneumonia](#), [acute respiratory distress syndrome](#), [sepsis](#), [septic shock](#), and [kidney failure](#).]

Transmission

COVID-19 spreads primarily when people are in close contact and one person inhales small droplets produced by an infected person (symptomatic or not) coughing, sneezing, talking, or singing.[12][397] The WHO recommends 1 metre (3 ft) of social distance;[9] the U.S. CDC recommends 2 metres (6 ft).[10] People can transmit the virus without showing symptoms, but it is unclear how often this happens.[9][10][12] One estimate of the number of those infected who are asymptomatic is 40%

Virology

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a [novel virus](#), first isolated from three people with pneumonia connected to the cluster of acute respiratory illness cases in Wuhan.[327] All features of the novel SARS-CoV-2 virus occur in related coronaviruses in nature.[408]

SARS-CoV-2 is closely related to [SARS-CoV](#), and is thought to have a [zoonotic](#) origin.[324] SARS-CoV-2 genetically clusters with the genus [Betacoronavirus](#), and is 96 percent identical at the whole [genome](#) level to other bat coronavirus samples[409] and 92 percent identical to pangolin coronavirus

Prevention

Strategies for preventing transmission of the disease include maintaining overall good personal hygiene, washing hands, avoiding touching the eyes, nose, or mouth with unwashed hands, and coughing or sneezing into a tissue, and putting the tissue directly into a waste container. Those who may already have the infection have been advised to wear a [surgical mask](#) in public.[418][419] [Physical distancing](#) measures are also recommended to prevent transmission.[420][421] Health care providers taking care of someone who may be infected are recommended to use [standard precautions](#), contact precautions, and eye protection.[422]

Many governments have restricted or advised against all non-essential travel to and from countries and areas affected by the outbreak.[423] The virus has already spread within communities in large parts of the world, with many not knowing where or how they were infected

Hand washing

Main article: [Hand washing](#)

Hand washing is recommended to prevent the spread of the disease. The CDC recommends that people wash hands often with soap and water for at least twenty seconds, especially after going to the toilet or when hands are visibly dirty; before eating; and after blowing one's nose, coughing, or sneezing. This is because outside the human body, the virus is killed by household soap, which bursts its protective bubble.[19] CDC further recommended using an alcohol-based [hand sanitiser](#) with at least 60 percent alcohol by volume when soap and water are not readily available.[418] The WHO advises people to avoid touching the eyes, nose, or mouth with unwashed hands.[419][427] It is not clear if washing hands with ash, if soap is not available, is effective at reducing the spread of viral infections.[428]

Surface cleaning

Surfaces may be decontaminated with a number of solutions (within one minute of exposure to the disinfectant for a stainless steel surface), including 62–71 percent [ethanol](#), 50–100 percent [isopropanol](#), 0.1 percent [sodium hypochlorite](#), 0.5 percent [hydrogen peroxide](#), and 0.2–7.5 percent [povidone-iodine](#). Other solutions, such as [benzalkonium](#)

chloride and chlorhexidine gluconate, are less effective.[429] The CDC recommends that if a COVID-19 case is suspected or confirmed at a facility such as an office or day care, all areas such as offices, bathrooms, common areas, shared electronic equipment like tablets, touch screens, keyboards, remote controls, and ATM machines used by the ill persons should be disinfected.[430]

Face masks and respiratory hygiene

Main article: [Face masks during the COVID-19 pandemic](#)

Taiwan President Tsai Ing-wen wearing a surgical mask

Recommendations for wearing masks have been a subject of debate.[431] The WHO has recommended healthy people wear masks only if they are at high risk, such as those who are caring for a person with COVID-19.[432] China and the United States, among other countries, have encouraged the use of face masks or cloth face coverings more generally by members of the public to limit the spread of the virus by asymptomatic individuals as a precautionary principle.[433][434] Several national and local governments have made wearing masks mandatory

Social distancing

Social distancing (also known as physical distancing) includes infection control actions intended to slow the spread of disease by minimising close contact between individuals. Methods include quarantines; travel restrictions; and the closing of schools, workplaces, stadiums, theatres, or shopping centres. Individuals may apply social distancing methods by staying at home, limiting travel, avoiding crowded areas, using no-contact greetings, and physically distancing themselves from others.[419][436][437] Many governments are now mandating or recommending social distancing in regions affected by the outbreak.[438][439] Non-cooperation with distancing measures in some areas has contributed to the further spread of the pandemic.

Self-isolation

Self-isolation at home has been recommended for those diagnosed with COVID-19 and those who suspect they have been infected. Health agencies have issued detailed instructions for proper self-isolation.[449][450]