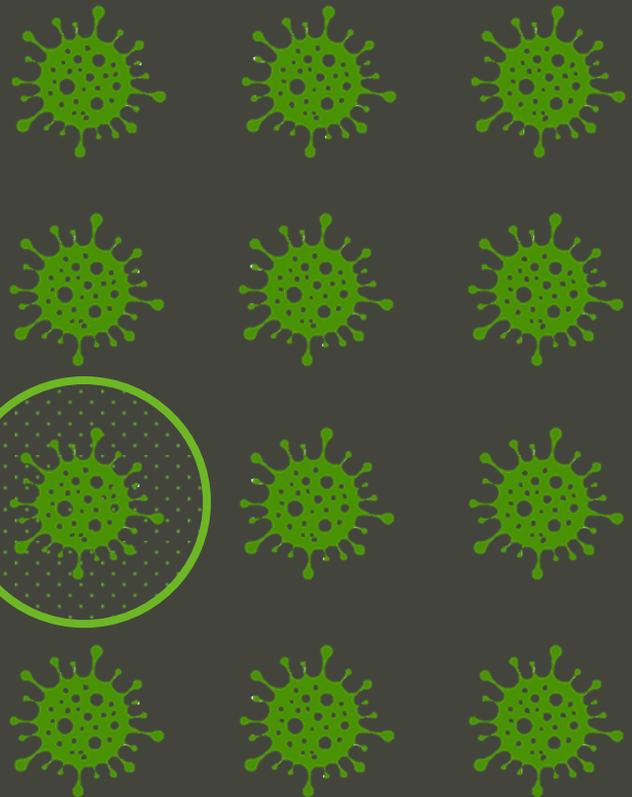
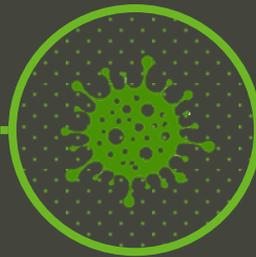
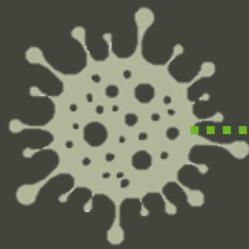
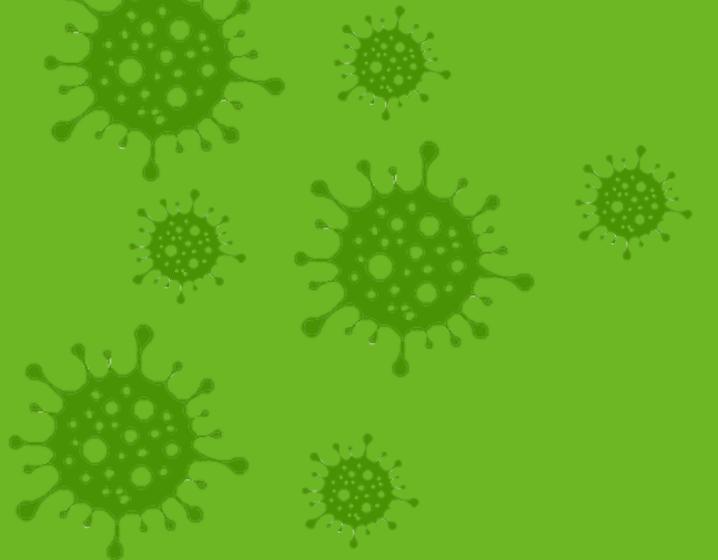


COVID-19

What do we know about the disease?

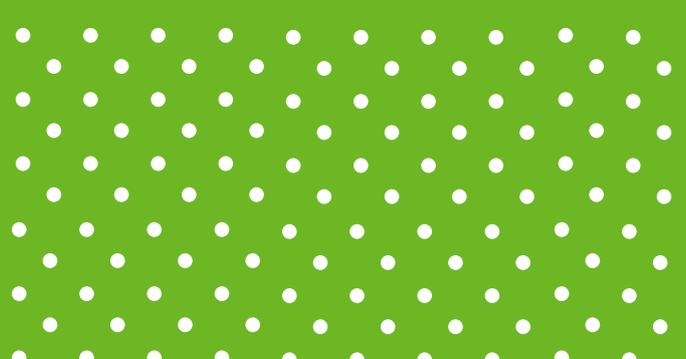


Written by Dr Adrian Hyzler
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Updated 15th October 2020



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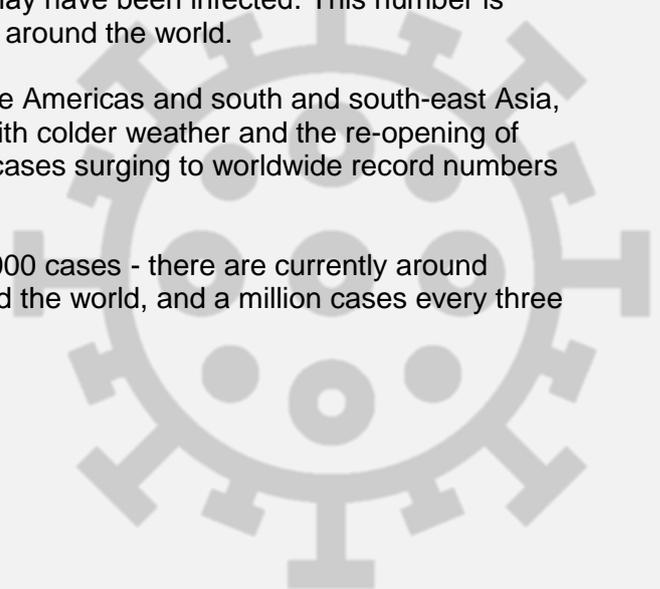
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Overview

Coronaviruses are a large family of viruses that can cause illnesses ranging widely in severity. The first known severe illness caused by a coronavirus emerged with the 2003 Severe Acute Respiratory Syndrome (SARS) epidemic in China. A second outbreak of severe illness began in 2012 in Saudi Arabia with the Middle East Respiratory Syndrome (MERS). There are four other coronaviruses that are endemic in human populations causing the common cold.

- On 31st December of last year, Chinese authorities alerted the World Health Organisation (WHO) of an outbreak of a novel strain of coronavirus causing severe illness, which was subsequently named SARS-CoV-2.
- The reservoir of the virus, like many thousands of coronaviruses, is believed to be bats.
- The virus causes COVID-19, an illness that ranges from mild to severe respiratory symptoms and rarely a fatal multi-organ disease.
- WHO declared the outbreak a Public Health Emergency of International Concern on 30th January 2020. Then on 11th March they declared COVID-19 a pandemic.
- COVID-19 has since affected 211 countries and territories worldwide.
- As of 15th October there have been almost 39 million confirmed cases and 1.1 million confirmed deaths.
- The actual number of cases could be at least 10 times this number. The University of Washington Institute for Health Metrics and Evaluation estimated that around one third of a billion people have been infected with COVID-19. The WHO have estimated a much higher figure, suggesting that around three quarters of a billion people (around 10% of the world's population) may have been infected. This number is based on an average of serological tests around the world.
- The number of cases is rising again in the Americas and south and south-east Asia, while a resurgence of cases in Europe with colder weather and the re-opening of schools and universities has resulted in cases surging to worldwide record numbers each week for the last month.
- It took 2 months to register the first 100,000 cases - there are currently around 300,000-380,000 cases every day around the world, and a million cases every three days.



(Updated) Transmission

Routes of transmission

Transmission of SARS-CoV-2 is thought to occur predominantly through respiratory droplets generated by coughing and sneezing, but also through talking and breathing. It is also spread through contact with contaminated surfaces.

According to the US Centers for Disease Prevention and Control (CDC) though, it may be possible that a person can get COVID-19 by touching a surface or object, like a packaging container, that has the virus on it and then touching their own mouth, nose, or possibly their eyes- this is not thought to be the main way the virus spreads.

Aerosol Transmission

On 9th July 2020, the WHO updated the scientific brief on transmission of SARS-CoV-2, the virus that causes COVID-19. This was in response to an open letter from a group of 239 scientists from 32 countries, calling on the WHO to recognise the risk of aerosol transmission, which could lead to new measures such as air filters and indoor mask-wearing being recommended.

Droplets are classically described as larger entities ($>5 \mu\text{m}$ in diameter) that rapidly drop to the ground by force of gravity, typically within 1 to 2m (3 to 6 feet) of the source person.

Aerosols are smaller particles ($\leq 5 \mu\text{m}$ in diameter) that rapidly evaporate in the air, leaving behind droplet nuclei that are small enough and light enough to remain suspended in the air for hours, in a similar way to pollen.

Determining whether droplets or aerosols predominate in the transmission of SARS-CoV-2 has critical implications. If SARS-CoV-2 is primarily spread by respiratory droplets, wearing a medical mask, face shield, or keeping 2m/ 6 feet apart from other, potentially infected individuals should be adequate to

prevent transmission. If, however, the virus is carried by aerosols that can remain suspended in the air for prolonged periods, medical masks would be inadequate (because aerosols can both penetrate and circumnavigate masks), face shields would provide only partial protection (because there are open gaps between the shield and the wearer's face), and 2m/ 6 feet of separation would not provide protection from aerosols that remain suspended in the air or are carried by currents.

There is ongoing speculation about the extent to which the virus is spread through **aerosol** droplets - very small mist-like droplets that form airborne clouds that can contain virus particles. These are mainly generated during hospital procedures but may also be in general transmission. Research continues into the extent of aerosol transmission.

Initial research has also identified the presence of SARS-CoV-2 virus in the stools and conjunctival secretions of confirmed cases. All secretions (except sweat) and excretions, including diarrhoeal stools from patients with known or possible COVID-19, should be regarded as potentially infectious.

The WHO statement is as follows:

The WHO statement is as follows:

“The overarching aim of the Strategic Preparedness and Response Plan for COVID-19 is to control COVID19 by suppressing transmission of the virus and preventing associated illness and death. To the best of our understanding, the virus is primarily spread through contact and respiratory droplets. Under some circumstances airborne transmission may occur (such as when aerosol generating procedures are conducted in healthcare settings or potentially, in indoor crowded poorly ventilated settings elsewhere)”.

The enhanced recommendations to prevent transmission as a result of this change in emphasis are as follows:

- Provide sufficient and effective ventilation (supply clean outdoor air, minimise recirculating air) particularly in public buildings, workplace environments, schools, hospitals, and aged care homes.
- Supplement general ventilation with airborne infection controls such as local exhaust, HEPA air filtration, UVC lights.
- Avoid crowded places, close-contact settings and confined and enclosed spaces with poor ventilation, particularly in public transport and public buildings.

These measures are in addition to the comprehensive set of measures for minimising spread:

- The individual should, at all times, practise: frequent hand hygiene, physical distancing when possible, and respiratory etiquette; wear fabric masks when in closed, over-crowded spaces where there is community transmission and where other prevention measures, such as physical distancing, are not possible, in order to protect others.
- The appropriate body should ensure appropriate environmental cleaning and disinfection.

- The public health authority should identify suspect cases as quickly as possible, test, and isolate all cases (infected people) in appropriate facilities.
- The public health authority should also identify and quarantine all close contacts of infected people and test those who develop symptoms so that they can be isolated if they are infected and require care.

NEW: “COVID-19 can spread through airborne transmission” - CDC

The US Centers for Disease Control and Prevention (CDC) has officially confirmed that the coronavirus can spread through airborne transmission, a long-anticipated update to the agency’s website. They state that: “there is evidence that under certain conditions, people with COVID-19 seem to have infected others who were more than 6 feet away. These transmissions occurred within enclosed spaces that had inadequate ventilation. Sometimes the infected person was breathing heavily, for example while singing or exercising. Under these circumstances, scientists believe that the amount of infectious smaller droplets and particles produced by the people with COVID-19 became concentrated enough to spread the virus to other people. The people who were infected were in the same space during the same time or shortly after the person with COVID-19 had left.”

Incubation period and infectious period

The incubation period is the period between becoming infected and developing symptoms. This is different for all diseases but for COVID-19 it is thought to range from 1 to 14 days, though the usual time for symptoms to develop is between **5 to 6 days** from time of infection.

Asymptomatic’ transmission

An asymptomatic laboratory-confirmed case is a person infected with COVID-19 who does not develop symptoms at all. All of the best evidence suggests that people without symptoms can and do readily spread SARS-CoV-2, but researchers don’t know how frequently. Some modelling studies have suggested as much as 41% of disease spread may be attributable to asymptomatic people (who may actually be pre-symptomatic), but it remains an open question as to whether they are a large force driving transmission.

‘Pre-symptomatic’ transmission

Some persons can be contagious before they develop symptoms. It is thought that pre-symptomatic transmission can occur from 1-2 days before symptoms develop. This is supported by data suggesting that some people can test positive for COVID-19 from 1-3 days before they develop symptoms. In fact, some evidence suggests that persons may be most infectious in the 1-2 days before they become symptomatic, but may be shedding substantial amounts of virus

Further study is required to determine the frequency, importance and impact of asymptomatic and pre-symptomatic infection, in terms of transmission risks. From international data, the balance of evidence is that most people will have sufficiently reduced infectivity 7 days after the onset of symptoms.

Definition of contact

A contact is a person who experienced any one of the following exposures during the 2 days before and the 14 days after the onset of symptoms of a probable or confirmed case:

- Face-to-face contact with a probable or confirmed case within 2m / 6½ feet and for at least 15 minutes
- Direct physical contact with a probable or confirmed case
- Direct care for a patient with probable or confirmed COVID-19 disease without using proper personal protective equipment (PPE)
- Other situations as indicated by local risk assessments.

Note: for confirmed asymptomatic cases, the period of contact is measured as the 2 days before through the 14 days after the date on which the sample was taken which led to confirmation.

SARS-CoV-2 survival in the environment

Human coronaviruses can survive on surfaces and can remain viable for up to 5 days at temperatures of 22 to 25°C and relative humidity of 40-50% (which is typical of air-conditioned indoor environments).

There are numerous studies on virus viability but some widely differing results.

Survival on environmental surfaces is also dependent on the surface type. An experimental study published in *The New England Journal* reported viability on different surfaces as follows:

- **Aerosol***- 3 hours
- **Copper**- 4 hours
- **Cardboard** - 24 hours
- **Plastic and stainless steel** - 72 hours

*Aerosols are generated, almost exclusively, in hospital environments by equipment such as nebulisers, suctioning and ventilators. Aerosols are not thought to be responsible for significant transmission in everyday life. The results indicate that aerosol and 'fomite' (surface) transmission of SARS-CoV-2 is plausible since the virus can remain viable and infectious in aerosols for hours and on surfaces up to days. These findings are similar to those with SARS-CoV-1, in which these forms of transmission were associated with nosocomial (respiratory) spread and super-spreading events.

The rate of clearance of aerosols in an enclosed space is dependent on the extent of any mechanical or natural ventilation and the size of the droplets created. The greater the number of air changes per hour (ventilation rate), the sooner any aerosol will be cleared.

A single air change is estimated to remove 63% of airborne contaminants, after 5 air changes less than 1% of airborne contamination is thought to remain. Clearance of infectious particles after an aerosol-generating procedure (AGP) is dependent on the ventilation and air change within the room. In an isolation room with 10 to 12 air changes per hour (ACH), a minimum of 20 minutes is considered pragmatic. In a single room with 6 ACH this would be approximately one hour.

More recent studies from Beijing have indicated that SARS-CoV-2 is stable on plastic, stainless steel, glass, ceramics, wood, latex gloves, and surgical mask, and remained viable for seven days on these surfaces

Other studies have indicated that the virus is not detectable on clothing after 2 to 4 days.

Symptoms and Risk Groups

Characteristic symptoms of COVID-19

The symptoms are very similar to those you would experience with the common cold or perhaps the 'flu' virus. The predominant symptoms are:

- A **high temperature** – this means you feel hot to touch on your chest or back (you do not need to measure your temperature).
- A new, **continuous cough** – this means coughing a lot for more than an hour, or 3 or more coughing episodes in 24 hours (if you usually have a cough, it may be worse than usual).
- A **loss or change to your sense of smell or taste** – this means you've noticed you cannot smell or taste anything, or things smell or taste different to normal.
- Sudden **shortness of breath** – this means that you have an abnormal difficulty in breathing and are breathless with minimal activity, such as climbing one flight of stairs.

Most people with coronavirus have at least one of these symptoms. If you develop any of these symptoms you should self-isolate immediately and contact your healthcare provider. If you have difficulty breathing you should call for an ambulance straight away.

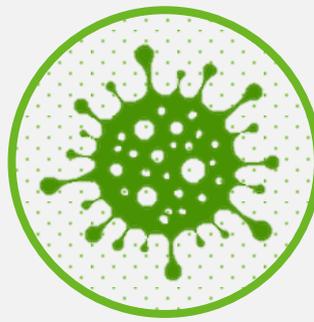
As the pandemic has continued to unfold, new symptoms have emerged:

- Fever or chills
- Fatigue
- Muscle or body aches
- Headache
- Skin rash
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhoea
- COVID fingers/toes - like chilblains

Symptoms in children with infection appear to be uncommon, although some children with severe COVID-19 have been reported.

Some patients will go on to develop more severe symptoms and may require hospitalisation. The first sign of severe illness is usually difficulty in breathing but any patient who feels very unwell should telephone the emergency services and request medical assistance. The median time-frame from symptom onset to clinical recovery for mild cases is approximately 2 weeks and is 3 to 6 weeks for severe or critical cases.

Severe cases of COVID-19 can develop pneumonia, respiratory failure, sepsis and kidney failure. The case fatality rate of coronavirus infection is unclear at this time but current estimates put it between 0.5 and 1.0%. This is likely to come down as the numbers of mild and asymptomatic cases are added to the total once epidemiological data can be analysed.



Risk factors for severe disease

Following analysis of data from countries around the world it is clear that certain groups of people are at greater risk of developing severe disease if they become infected with 'Sars-CoV-2' (the virus that causes COVID-19).

People at **high risk** from COVID-19 include the following:

- **65 years old or older** (regardless of medical conditions)
- **Residents in an institution** such as a nursing home or long-term care facility
- Have **chronic respiratory disease** that is not severe such as asthma, COPD, emphysema or bronchitis
- Have **chronic heart disease** such as heart failure or coronary artery disease
- Have **hypertension**
- Have **diabetes**
- Have **chronic kidney disease**
- Have **liver disease**, such as hepatitis, cirrhosis, or hepatic encephalopathy
- Have **absence of the spleen**
- Have **chronic neurological conditions** such as Parkinson's disease, motor neurone disease, multiple sclerosis or cerebral palsy
- Have **immunocompromised** conditions that result in a high risk of getting infections
- Are taking **medications** that can affect the immune system, such as low doses of steroids
- Are **very obese** especially a BMI of 40 or above.

People at **very high risk** from COVID-19 include the following:

- Have had an **organ transplant**
- Are having **chemotherapy or antibody** treatment for cancer, including immunotherapy
- Are having an intense course of **radiotherapy for lung cancer**
- Are having **targeted cancer treatments** that can affect the immune system
- Have **blood or bone marrow cancer** (such as leukaemia, lymphoma or myeloma)
- Have had a **bone marrow or stem cell** transplant in the past 6 months, or are still taking an immunosuppressant medicine
- Have a **severe lung condition** such as cystic fibrosis, severe asthma or severe COPD
- Have a condition that means they have a **very high risk of getting infections** such as thalassaemia, sickle cell disease, HIV/AIDS or congenital immune deficiency
- Are taking **medication** that makes them much more likely to get infections, such as high doses of steroids in the previous six months or immunosuppressant medicine
- Have a **serious heart condition and are pregnant**.

Other risk factors

Age

Older adults, aged 65 years and older, are at higher risk for severe illness and death from COVID-19. Although this disease can affect any group, the older you are, the higher your risk of serious disease. Eight out of 10 deaths reported in the U.S. have been in adults aged 65 years or older; risk of death is highest among those 85 years or older. The immune systems of older adults weaken with age, making it harder to fight off infections. Also, older adults commonly have chronic diseases that can increase the risk of severe illness from COVID-19.

Ethnicity

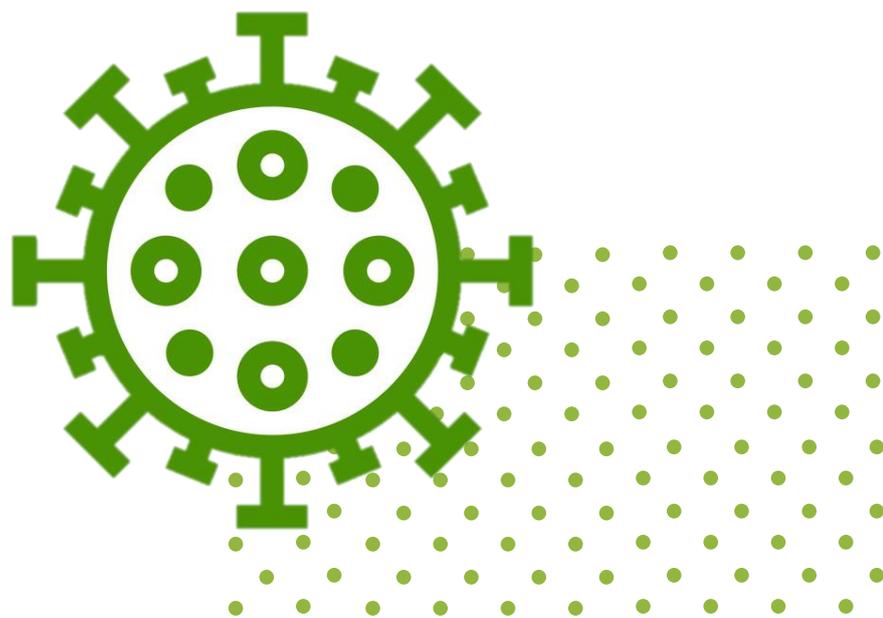
Detailed UK data shows that, when taking into account age in the analysis, Black males are 4.2 times more likely to die from a COVID-19-related death and Black females are 4.3 times more likely than White ethnicity males and females. There was also a significantly raised risk of death in people of Bangladeshi and Pakistani, Indian, and mixed ethnicities.

After stripping out age and other socio-demographic characteristics and measures of self-reported health and disability, the risk of a

COVID-19-related death for males and females of Black ethnicity reduced to 1.9 times more likely than those of White ethnicity. Similar calculations showed that males in the Bangladeshi and Pakistani ethnic groups were 1.8 times more likely to have a COVID-19-related death than White males; for females, the figure was 1.6 times more likely.

These results show that the difference between ethnic groups in COVID-19 mortality is partly a result of socio-economic disadvantage and other circumstances, but a remaining part of the difference has not yet been explained.

In a UK study of 34,986 patients in hospital with COVID-19, patients from Ethnic Minority backgrounds were more likely to be admitted to critical care and to undergo mechanical ventilation than White people, despite there being no difference in disease severity at presentation nor duration of symptoms and being substantially younger. South Asians in hospital with COVID-19 were 20% more likely to die than Whites- 3.6% of this increased risk was mediated by a higher prevalence of diabetes in the South Asian group.



Pregnancy

Pregnant women do not appear more likely to contract the infection than the general population. Pregnancy itself alters the body's immune system and response to viral infections in general, which can occasionally cause more severe symptoms.

It appears that pregnant women with COVID-19 are less likely to show the major symptoms of infection with SARS-CoV-2 than non-pregnant women of similar age, research has found. A team of experts from the World Health Organisation and the University of Birmingham, analysed data from 77 studies. Most of the literature was from the United States and China but also included studies from Italy, Spain, the UK, France, and eight other countries. The studies reported rates, clinical features, risk factors, and outcomes for 11,432 pregnant and recently pregnant women admitted to hospital and diagnosed with suspected or confirmed COVID-19.

The results of the study, published in **The BMJ**, found that pregnant women might be more at risk of admission to a hospital intensive care unit. Compared with non-pregnant women, the pregnant and recently pregnant cohort were less likely to show symptoms of fever and myalgia. They were also 62% more likely to need intensive care, and 88% more likely to require invasive ventilation. Increased maternal age was a factor that increased risk, as were comorbidities including higher BMI, **hypertension**, and diabetes. Pregnant women with a pre-existing maternal comorbidity were more than four times more likely to be admitted to intensive care than women who did not have pre-existing comorbidities.

Preterm birth rates were also found to be higher amongst pregnant women with COVID-19 than pregnant women without the disease. With regard to transmission from the pregnant woman to the baby antenatally or during delivery, emerging evidence now suggests that this 'vertical transmission' is possible. There are, however, serious limitations to the available evidence and further investigation around such transmission is being gathered. There are no data suggesting an increased risk of miscarriage in relation to COVID-19. Long-term studies on the health of the baby are currently not available with such a novel virus.

Tobacco Smokers

Tobacco smoking is a known risk factor for many respiratory infections and increases the severity of respiratory diseases. A review of studies by public health experts convened by WHO on 29 April 2020 found that **smokers are more likely to develop severe disease** with COVID-19, compared to non-smokers. COVID-19 is an infectious disease that primarily attacks the lungs. Smoking impairs lung function making it harder for the body to fight off coronaviruses and other diseases. Tobacco is also a major risk factor for non-communicable diseases like cardiovascular disease, cancer, respiratory disease and diabetes which put people with these conditions at higher risk for developing severe illness when affected by COVID-19. Available research suggests that smokers are at higher risk of developing severe disease and death.

Treatment

The symptoms of SARS-CoV-2 infection vary widely, from asymptomatic disease to pneumonia and life-threatening complications, including acute respiratory distress syndrome, multisystem organ failure, and ultimately, death. Older patients and those with pre-existing respiratory or cardiovascular conditions appear to be at the greatest risk for severe complications. In the absence of a proven effective therapy, current management consists of supportive care, including invasive and non-invasive oxygen support, managing patients prone (on their fronts), renal supportive therapy and treatment with antibiotics. In addition, many patients have received off-label or compassionate-use therapies, including antiretrovirals, antiparasitic agents, anti-inflammatory compounds, monoclonal antibodies and convalescent plasma.

No pharmaceutical products have yet been shown to 'cure' COVID-19. However, a number of medicines have been suggested as potential therapies, many of which are now being or will soon be studied in clinical trials, including the SOLIDARITY trial co-sponsored by WHO and participating countries and the RECOVERY Trial, run by Oxford University in the UK.

However, there have been successful results for two drug treatments following clinical trials conducted around the world.

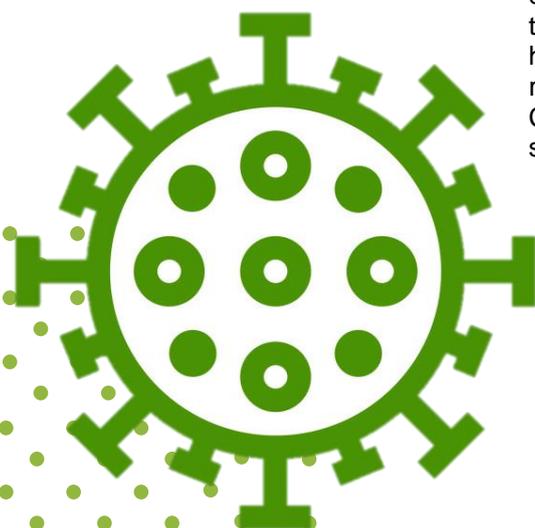
Remdesivir

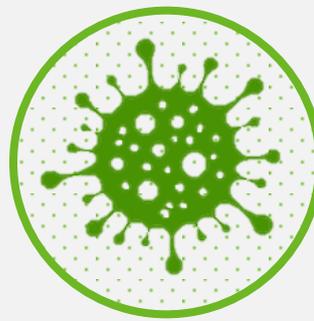
Remdesivir is an anti-viral medicine that was originally developed to tackle Ebola, with limited success. In May, US regulators gave permission for remdesivir to be used on seriously ill COVID-19 patients in hospital after a government-sponsored study showed that it could shorten recovery time by 31% - about four days on average. Gilead Sciences is to trial an inhaled version of remdesivir, that will also look at how the drug could be used to treat earlier stages of COVID-19, with people receiving it in outpatient settings.

Dexamethasone

Initial clinical trial results from the UK RECOVERY Trial show that oral **dexamethasone**, a cheap and widely available corticosteroid, can be lifesaving for patients who are critically ill with COVID-19. For patients on ventilators, the treatment was shown to reduce mortality by about one third, and for patients requiring only oxygen, mortality was cut by about one fifth, according to preliminary findings. Dexamethasone did not have any benefit for patients who did not need breathing support. The findings suggest that the steroid treatment would prevent one death for every eight ventilated patients or one death for every 25 patients getting oxygen therapy, the researchers say.

On 17th June, WHO announced that the **hydroxychloroquine (HCQ)** arm of the Solidarity Trial to find an effective COVID-19 treatment **was being stopped**. Data from Solidarity (including the French Discovery trial data) and the recently announced results from the UK's RECOVERY trial both showed that hydroxychloroquine does not result in the reduction of mortality of hospitalised COVID-19 patients when compared with standard of care.





Long term health effects

Around 10% of mild coronavirus (COVID-19) cases who were not admitted to hospital have reported symptoms lasting more than 4 weeks. A number of hospitalised cases reported continuing symptoms for 8 or more weeks following discharge.

Persistent health problems reported following acute COVID-19 disease include:

- Respiratory symptoms and conditions such as chronic cough, shortness of breath, lung inflammation and fibrosis, and pulmonary vascular disease
- Cardiovascular symptoms and disease such as chest tightness, acute myocarditis and heart failure
- Protracted loss or change of smell and taste
- Mental health problems including depression, anxiety and cognitive difficulties
- Inflammatory disorders such as myalgia, multisystem inflammatory syndrome, Guillain-Barre syndrome, or neuralgic amyotrophy
- Gastrointestinal disturbance with diarrhoea
- Continuing headaches
- Fatigue, weakness and sleeplessness
- Liver and kidney dysfunction
- Clotting disorders and thrombosis
- Lymphadenopathy
- Skin rashes.

Research to evaluate the long-term health and psychosocial effects of COVID-19 is continuing.

Prevention

Vaccines

Vaccines protect both the person who's vaccinated and the community. Viruses can't infect people who are vaccinated, which means vaccinated people can't pass the virus to others. This is known as herd immunity.

There is currently no vaccine to protect people before they're exposed to SARS-CoV-2. However, there are over 180 vaccines in different stages of production across the world, with several backed by the non-profit Coalition for Epidemic Preparedness Innovations (CEPI). Fifty five vaccine

candidates are currently in the process of human clinical trials.

Given the difficulties in producing a safe vaccine in such an accelerated programme it is likely that a vaccine will not be available for widespread use for at least another 6 months, assuming the regulators give approval. In the end, it is likely that multiple successful vaccines may be needed to meet the demand of vaccinating billions of people worldwide.

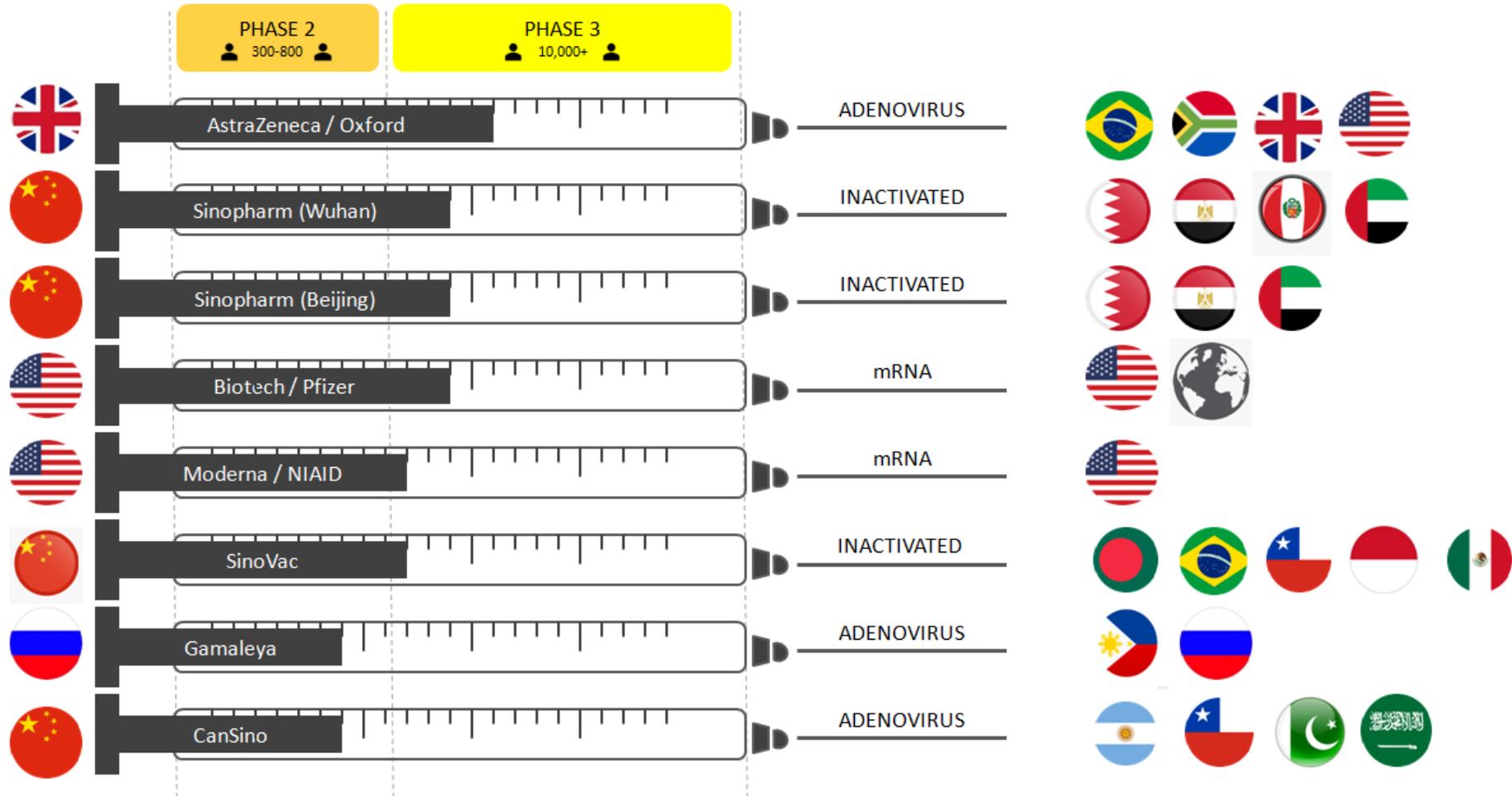
Measures to prevent exposure

- 1 Wash your hands regularly** - wash your hands regularly with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing. If soap and water are not readily available, use an alcohol-based hand rub (ABHR) that contains at least 60% alcohol. Avoid touching your eyes, nose, and mouth with unwashed hands.
- 2 Maintain social distancing** - avoid close contact with people whether or not they are displaying symptoms of COVID-19. If possible, maintain a distance of at least 1m/3½ ft from other people, but try as much as possible to keep 2m/6½ ft between you and other people, especially when you are indoors or in cramped spaces. Keeping a safe distance from others is especially important for people who are at higher risk of getting very sick. It should be remembered that there is no 'magic' distance at which you will be safe from transmission - the risk increases the closer you get to someone.
- 3 Wear a face covering when you go out in public and especially when you are unable to maintain social distancing** - for example, when you go to the grocery store or when using public transport. Cloth face coverings should not be placed on: young children under age 2; anyone who has trouble breathing; or anyone who is unconscious, incapacitated or otherwise unable to remove the mask without assistance. The cloth face cover is meant to protect other people in case you are infected. Do NOT use a facemask meant for a healthcare or key-worker. Continue to maintain social distancing between yourself and others. The cloth face cover is not a substitute for social distancing.
- 4 Cover coughs and sneezes** - if you are around others and do not have on your cloth face covering, remember to always cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow to contain the cough/sneeze. Dispose of the tissues in the rubbish bin immediately and wash your hands with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with ABHR that contains at least 60% alcohol.
- 5 Clean AND disinfect frequently touched surfaces daily** - this includes tables, doorknobs, light switches, countertops, handles, desks, keyboards, phones, keyboards, elevator buttons, toilets, faucets, and sinks. Use detergent or soap and water prior to disinfection, if the surface is visibly dirty, and then use a household disinfectant.
- 6 Self-isolate if you develop symptoms of COVID-19** such as fever, cough, shortness of breath, or other symptoms as above. Contact your healthcare provider and alert them of your symptoms and take any advice that they may have to get tested. Monitor your temperature and any other symptoms that may develop.

VACCINE PROGRESS

TECHNOLOGY

CLINICAL TRIAL LOCATIONS



Source: Healix GSOC

Cleaning and disinfection in non-healthcare settings

Cleaning of surfaces to reduce 'fomite' (surface) transmission is vitally important to reduce the risk of spread of the virus. Remember that 'pre-symptomatic' (48 hours before symptoms develop) and 'asymptomatic' (not showing any symptoms at all) carriers can deposit virus-containing droplets on surfaces just by talking and breathing, as well as coughing and sneezing, and depositing virus containing droplets onto surfaces.

Simply cleaning an area with normal household disinfectant after someone has left the vicinity will reduce the risk of passing any viral infection to others.

- Disposable gloves and aprons should be worn for cleaning.
- The surface should first be cleaned with warm soapy water.
- Then it should be disinfected with normal cleaning products - use disposable cloths or paper roll and disposable mop heads, to clean all hard surfaces, floors, chairs, door handles and sanitary fittings.
- If a risk assessment of the setting indicates that a higher level of virus may be present (for example, where unwell individuals have slept, such as their hotel room, or their desk and surroundings) then the need for additional PPE to protect the cleaner's eyes, mouth and nose might be necessary. Avoid creating splashes and spray when cleaning.
- Hands should be washed regularly with soap and water for 20 seconds, and after removing gloves, aprons and other protection used while cleaning.
- These items of PPE and all cleaning items should be disposed of in double-bagged bin bags, **stored securely for 72 hours*** and then thrown away in the regular rubbish.

***The infection risk from COVID-19 following contamination of the environment decreases over time. It is not yet clear at what point there is no risk. However, studies of other viruses in the same family suggest that, in most circumstances, the risk is likely to be reduced significantly after 72 hours.**

Specific products for cleaning and disinfection

Cleaning should be with a neutral detergent followed by suitable disinfectants as follows:

- Sodium hypochlorite 0.1% concentration (dilution 1:50 of household bleach at an initial concentration of 5% is used)
- Ethanol 70% concentration is also suitable for decontamination
- Chlorine solution with a minimum concentration of 5000 ppm or 0.5%.

When other chemical products are used, the manufacturer's recommendation should be followed and the products prepared and applied according to them. When using chemical products for cleaning, it is important to keep the facility ventilated (e.g. by opening the windows) in order to protect the health of cleaning personnel.

Laundry

Wash items in accordance with the manufacturer's instructions. Machine washing with warm water at 60–90°C (140–190°F) with laundry detergent is recommended. The laundry can then be dried according to routine procedures. Dirty laundry that has been in contact with an unwell person can be washed with other people's items.

Do not shake dirty laundry, this minimises the possibility of dispersing virus through the air.

If a hot-water cycle cannot be used due to the characteristics of the tissues, specific chemicals should be added when washing the textiles (e.g. bleach or laundry products containing sodium hypochlorite, or decontamination products specifically developed for use on textiles). Finally, the laundry should be rinsed with clean water and the linens allowed to dry fully in sunlight.

Clean and disinfect anything used for transporting laundry with your usual products, in line with the cleaning guidance above.

The use of face masks / face coverings

Knowledge about the transmission of the COVID-19 virus is accumulating every day. COVID-19 is primarily a respiratory disease and the spectrum of infection with this virus can range from people with very mild, non-respiratory symptoms to severe acute respiratory illness. Some people infected have reported no symptoms at all.

According to the current evidence, COVID-19 virus is primarily transmitted between people via respiratory droplets and contact routes. Droplet transmission occurs when a person is in close contact (within 1m/6.5ft) with an infected person and exposure to potentially infective respiratory droplets occurs, for example, through coughing, sneezing or very close personal contact resulting in the inoculation of entry portals such as the mouth, nose or eyes.

Masks/face coverings are simple, cheap, and potentially effective prevention measures to take to **prevent transmission to others**. The World Health Organisation (WHO) now generally accept that, masks/face coverings worn both in the home (particularly by the person showing symptoms) and also outside the home in situations where meeting others is likely (for example, shopping, public transport) could have a substantial impact on transmission with a relatively small impact on social and economic life.

One meta-review, published in The Lancet (a UK medical journal), analysed 172 studies on COVID-19, SARS, and MERS, from 16 countries and six continents. Its authors determined that masks — as well as physical distancing and eye protection — helped protect against COVID-19.

The studies reviewed evidence both in healthcare and non-healthcare settings and then adjusted the data so that they could be directly compared. The researchers found that your risk of infection when wearing a mask was 14% less than if you weren't wearing a mask, although N95/FFP2/KN95 masks "might be associated with a larger reduction in risk" than surgical or cloth masks.

A primary route of transmission of COVID-19 is likely via respiratory droplets, and is known to be transmissible from pre-symptomatic and asymptomatic individuals. Reducing disease spread requires two things: first, limit contacts of infected individuals via physical distancing and other measures, and second, reduce the transmission probability per contact. The preponderance of evidence indicates that mask wearing reduces the transmissibility per contact by reducing transmission of infected droplets in both laboratory and clinical contexts.

The World Health Organisation



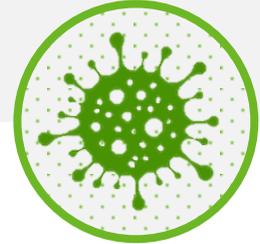
It is now accepted by most health authorities around the world that people without symptoms wearing masks when they are out and among other people, for example while commuting or in an enclosed space, will help to **prevent unknowing spread of the virus** to other people. You should consider wearing a face covering such as a scarf or bandana or home-made cloth mask in order to reduce the physical emission of droplets from your mouth or nose, and **to help to protect others**. Secure it carefully so that you don't have to keep adjusting it, thereby touching the mask. The face covering should be handled carefully so as not to contaminate surfaces and should be washed at least every day at minimum 60C.

It should be remembered that, despite this suggestion, you should:

- Continue to social distance
- Only make essential journeys out of your house
- Self-isolate if you have any respiratory symptoms
- Continue to practice diligent hand hygiene
- Do not feel that you are now 'protected' if you wear a face covering.

The CDC has issued the following advice on the use of face masks by the general public:

- Cover your mouth and nose with a cloth face cover when around others.
- You could spread COVID-19 to others even if you do not feel sick.
- Everyone should wear a cloth face cover when they have to go out in public - for example, to the grocery store or to pick up other necessities.
- Cloth face coverings should not be placed on children under the age of 2 or on anyone who has trouble breathing or is unconscious, incapacitated, or otherwise unable to remove the mask without assistance.
- The cloth face cover is meant to protect other people in case you are infected.
- **Do not use a face mask meant for a healthcare worker.**
- Continue to keep about 6 feet (2 m) between yourself and others. The cloth face cover is not a substitute for social distancing.



In summary...

Observational evidence suggests that there is a significant reduction in onward transmission of SARS-CoV-2 virus by wearing a mask or face covering.

Masks should not be used that limit the supply for healthcare/key workers.

Even limited protection could prevent some transmission of COVID-19 and save lives. Because COVID-19 is such a serious threat, wearing masks in public should be advised.

Mask management

DO:

- Fit mask securely over bridge of the nose and chin, minimising gaps in the fit.
- Wear mask consistently throughout the day.
- Remove the mask using the straps.
- Wash hands with soap and water or with an alcohol based hand rub (min. 60% alcohol) after removing the mask.
- Replace mask with a new mask as soon as it becomes damp / humid.
- Dispose of masks immediately into a sealed bag.

DO NOT:

- Re-use masks.
- Touch the front.



Remember that use of a mask is only one part of personal protection - not touching your mouth, nose and eyes and regularly washing your hands are strongly recommended.

Testing

Testing for COVID-19 can be used for two distinct purposes:

1. PCR or ANTIGEN testing to test a person to see if they are currently infected with COVID-19
2. Serology (antibody) testing to test a population to identify the prevalence of previous infection with COVID-19

PCR testing

This type of test looks for the presence of genetic material from the COVID-19 virus within a swab or saliva sample. These tests are commonly referred to as polymerase chain reaction (PCR) tests. A positive test shows that the person being tested has a current, COVID-19 virus infection.

The sample is collected by the person having the test (self-administered) or by someone else (assisted) in a home or mobile environment such as police stations, care homes or drive-through centres. The sample is taken either through the use of a swab applied to the **nose and throat**, or by providing **saliva** into a sample pot. The sample is then placed into special packaging and sent to the designated lab for analysis. This test depends on the skill of the operator themselves in obtaining a suitable sample.

The diagnostic test is carried out in a laboratory and typically takes a few hours to get results. Newer machines are becoming available that carry out this analysis in minutes rather than hours but they have not yet been evaluated and accredited for use by bodies such as the CDC or WHO. Home test kits are also being developed but are not yet commercially available due to their lack of accuracy.

Antigen Testing

Antigen testing looks for a specific protein, usually in the virus capsule rather than the genetic protein that is needed for PCR testing. It is easier to extract and does not require sophisticated amplification techniques. The quick and easy but high-quality tests allow mass screening of health workers and key workers who are dying in disproportionate numbers. The tests could also be used for screening in schools, universities, airports, entertainment venues and workplaces. Even though the tests will not pick up all cases, they could allow many infectious people to be identified before they have symptoms and go into quarantine.

These 'rapid detection tests' (RDTs) that resemble a simple home pregnancy test, produce visible results in 15 to 30 minutes. They have been produced by the US diagnostics giant 'Abbott' and South Korea's 'SD Biosensor'. The tests require a nasopharyngeal sample to be placed in a tube with a small amount of reagent and the resultant drops are placed on a paper strip - two visible display lines indicate a positive result. The companies claim their tests are about 97% accurate in optimal conditions, but between 80% and 90% in real-world conditions. Nevertheless, this would pick up most 'infectious' people.

The tests are poised to be rolled out across the world by the World Health Organisation in an attempt to slow the pandemic in both poor and rich countries. The WHO has stated that 120 million RDTs will be supplied to low- and middle-income countries for \$5 (£3.90) each.

Wealthy countries that have signed up to the Access to Covid Tools Initiative (ACT-Accelerator), will also be able to order the tests. The initiative was launched in March by the WHO, the European Commission, the Gates Foundation and the French government.

In return for a volume guarantee from the Gates Foundation, the companies are making 20% of their production available to low- and middle-income countries and 80% to the rest. Germany has already ordered 20 million tests while France and Switzerland have also submitted orders.

Serology (Antibody) Testing

This type of test looks for the presence of antibodies (produced by people who have already had COVID-19) against the COVID-19 virus. These antibody tests are also referred to as serology tests and can be conducted in a laboratory or through point-of-care testing.

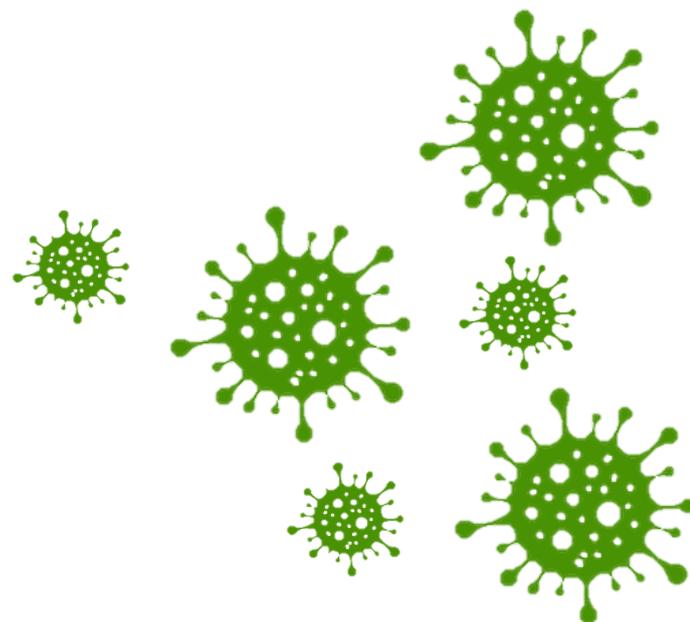
The test is intended to determine if someone has previously been infected with COVID-19 and now may have antibodies against the virus. A positive result from this test does not guarantee immunity to COVID-19 infection. It may just indicate a recent infection that may or may not have been COVID-19.

The tests involve taking a blood sample, often a **finger prick**, which will be analysed for the presence of antibodies associated with COVID-19. However, many of these tests have not been assessed fully for accuracy and can give false negatives as well as false positives. These tests should only be performed and interpreted by fully trained, healthcare professionals and not by members of the public.

It is important to note that the link between the presence of antibodies and immunity is not proven, and some tests are not specific for COVID-19 antibodies. These two facts mean that a positive test result for antibodies does not necessarily mean that the person being tested is immune to COVID-19.

The laboratory tests are safe for use on **blood drawn from the vein** by a healthcare professional, but have not yet been validated by the manufacturer of the test to be used with a finger prick blood sample.

The science regarding long term immunity from COVID-19 is still emerging and the implications of a positive antibody result are difficult to assess. A positive result may not mean a person is immune or if they demonstrate immunity now, or how long this will last.



Rapid Point-of-Care COVID-19 Tests

The current COVID-19 pandemic has created an urgent need for rapid point-of-care diagnostic tools. Many of these tests are being developed and are achieving approval from the FDA in the US and regulatory bodies across Europe and South-East Asia. In the face of a sweeping pandemic, samples should require no specialized equipment and should have rapid and easy-to-read visual results. These new tests which can detect the SARS-CoV-2 virus in only 90 minutes are being rolled out to laboratories across the UK, US, Japan, Israel and other countries around the world.

The major advantages of these tests are twofold:

1. They do not need a trained healthcare professional to operate the test machines
2. Results are available within 60-90 minutes and so can be used at point of care.

The novel system is based on 'LAMP' (loop-mediated isothermal amplification) diagnostics- this utilises isothermal technology that provides a number of advantages over existing PCR diagnostics. While relatively new technology, invented in 2000, there are several examples where it is already in use. An assay specifically for the hepatitis B virus has been successfully developed and used. This is also true for the West Nile virus, where specificity was high to the West Nile virus and not other members of the Flavivirus group.

Dried Blood Spot Antibody Test

Scientists in Wales have developed a convenient, low-cost antibody test for COVID-19 based on dried blood spot (DBS) sampling technique, similar to the tests that are routinely used on newborns to detect inherited disorders or a diabetic checking their blood sugar.

The test requires just a single drop of blood drawn using a pinprick and blotted on a special filter paper card. The cards are then shipped to laboratories for testing. The test is scalable with

It is rapid, cheap, highly accurate and able to cope with crude samples such as saliva and 'anterior' nasal swab samples from just inside the nose, rather than deep naso-pharyngeal swabs that require scarce, specially designed swabs and healthcare professionals. These tests have the potential for widespread adoption in adult social care settings, educational institutions and workplaces. This technology will also allow the 'screening' of asymptomatic front-line staff. A machine the size of a household printer has the capacity to process 15,000 samples per day, while a small palm-sized device can churn out 2,000 tests a day.

These machines will allow widespread testing capacity in a range of facilities with rapid turnaround of results. The new technology offers the potential to ease pressure on current supply chains and expand testing access.

A second technology has also been developed and is being aimed at healthcare facilities. In the UK, the NHS will be provided with an initial supply of 5,000 'Nudgebox' machines that analyse DNA from nasal swabs- each machine can process 15 tests a day. With the coming winter 'flu' season looming in the northern hemisphere, these tests are designed as a broad range of tests that can also detect other winter viruses such as influenza and respiratory syncytial virus (RSV).

the ability to perform hundreds of tests simultaneously, and offers very high specificity and sensitivity with few false positives and false negatives.

Once again it needs to be stressed that these tests are for population use and evidence of antibodies is not proof of immunity, but will provide valuable data on seroprevalence and trends in the population.

Latest advice

The current COVID-19 pandemic is an evolving situation and our advice is under regular review based on emerging information about the number of cases and spread of the infection from person to person. We are advising highly precautionary measures to limit the potential spread of infection.

Healix advice to all travellers

General precautions against COVID-19 wherever you are:

- Wash your hands regularly with soap and water (for at least 20 seconds) or with an alcohol-based hand rub (ABHR), especially after coughing and sneezing and before handling and consuming food.
- When coughing and sneezing, use disposable tissues and dispose of them carefully and promptly - if you have no tissues immediately to hand use the inner elbow of your clothing - avoid using your hands to cover your mouth.
- Consider carrying an alcohol-based hand sanitiser with you.
- Wear a face covering when out in public in situations where you cannot guarantee social distancing, for example in grocery stores or on crowded public transport - do NOT wear medial face masks that are intended for healthcare workers or key-workers.
- Avoid touching your face, in particular mouth, eyes and nose, and do not touch the front of your mask.
- Avoid shaking hands with people - instead simply greet people with hands by your side or use a novel approach such as an elbow-to-elbow.
- Clean and disinfect frequently touched objects and surfaces, not forgetting that the virus can settle on your cellphone.

Additional precautions in areas with sustained community transmission:

- Avoid close contact with people who appear unwell or who are coughing or sneezing, and avoid sharing personal items.
- Wear a face covering whenever you are out of the house and in contact with the general public.
- Minimise going out into the general population and practise social distancing (maintain a distance of approximately six feet, if possible) whenever out in public.
- Avoid crowds, stores, crowded public transit, sporting or mass entertainment events, and other situations likely to attract large numbers of people.
- Take your temperature with a thermometer twice a day and watch for cough or difficulty breathing. Fever means feeling hot/sweaty or having a measured temperature of 100.4F / 38C or higher.
- Stay home wherever possible.

If you become unwell in areas with sustained community transmission:

- If you become unwell with symptoms of COVID-19 (fever, cough, difficulty breathing) you must immediately take precautions to isolate yourself from colleagues and family members.
- Healix clients should call Healix immediately if you feel unwell. We can advise whether or not you should work from home, self-isolate, present for COVID-19 testing or contact the emergency services. In some countries you will be directed to specialist government infection control hospitals. However, a number of private hospitals have been designated as pre-hospital screening centres and are able to perform testing for COVID-19 - all positive cases will, nevertheless, be referred to government appointed 'infection control hospitals'. Some health authorities (China, South Korea, UK) have initiated community swab teams to perform home testing and also 'drive-through' testing, in order to minimise contact with other symptomatic people.
- Healix advises that individuals with mild symptoms manage their illness at home, ensuring that they take steps to isolate themselves from family members (see below).
- If you need to leave the house for essential purposes such as to visit a healthcare facility, you **MUST** wear a mask or face covering at ALL times
- All patients with severe symptoms (including shortness of breath) must seek medical care immediately at a designated hospital, remembering that they should always telephone ahead to advise of their symptoms and any relevant travel history.

TRAVELLERS WITH NO SYMPTOMS

Travellers to territories listed in **Band A,B,C**

Be aware of country guidelines for mandatory 14 day quarantine.

Self-monitor for 14 days and self-isolate immediately and do not go to work if you develop even the most minor symptoms. Check with your company's HR department to find out whether there is a requirement to work from home during this period. See below advice for if you develop symptoms.

TRAVELLERS WHO DEVELOP SYMPTOMS

If you become unwell within 14 days of travelling to countries / territories in **Bands A, B, C**

Self-isolate immediately and seek prompt medical advice if you develop symptoms by calling your national public health authority helpline, reporting your recent travel history to let them know that you may have been exposed. In the UK for example you will call 111.

Additional guidance:

- Self-isolate if you become unwell after travel until you have been assessed by a health professional.
- Wash your hands regularly with soap and water (for at least 20 seconds) or with an alcohol-based hand rub, especially after coughing and sneezing and before handling and consuming food.
- When coughing and sneezing, use disposable tissues and dispose of them carefully and promptly - if you have no tissues use the inner elbow of your clothing - do not use your hands to cover your mouth.
- Wearing a surgical face mask consistently may help to prevent spread to others - it should be removed and carefully disposed of when it becomes wet or dirty and immediately replaced. Caution should be taken not to touch your mouth or face under the mask, as this will potentially transmit virus.

N.B. For band categorisation, see Appendix.

Pre-travel checklist

- Make sure that you are well and have no COVID symptoms, especially cough or temperature, prior to leaving home
- Book trusted car service with strict hygiene precautions and drivers using face masks
- Pack enough masks for the entire journey- assuming one surgical style face mask per every 4 hours
- Pack at least 2 containers of 100ml alcohol-based hand rub (ABHR) containing a minimum of 60% alcohol
- Pack alcohol-based hand wipes to wipe down surfaces
- Download airline apps and hotel app if appropriate
- Download boarding passes
- Book window seat if possible to minimise contact with others inflight
- Download entertainment/reading matter on tablet/cellphone - in-flight entertainment may be limited
- Take packed food to airport and purchase packed food at airport as in-flight food provision may be limited
- Pack minimal carry-on luggage
- Allow extra time as check in procedures may take longer than usual.

During the journey

- Avoid touching surfaces - use ABHR after each contact with people/surfaces
- Avoid crowded areas
- Find a quiet area in the airport and make a base camp so as to minimise contact with other people
- Use the restroom facilities in the quieter areas of the airport as use of restrooms inflight will be limited and in a much more enclosed space
- When using inflight restrooms wipe down surfaces before use
- The plane will have been disinfected but use wipes to wipe down your immediate surroundings when you reach your seat.

On arrival

- Minimise time spent in the airport on arrival
- Make sure reliable car service is pre-booked - ensure driver will wear a mask for duration of journey
- Wipe down immediate surfaces in car
- Open windows wherever possible - good ventilation is recommended
- Try not to use cash - use contactless card payments wherever possible
- Use ABHR whenever you are in contact with people/surfaces
- Avoid crowded areas
- Eat from reputable outlets/restaurants

Healix advice to employees

If you have been advised to “self-isolate” at home with your family...

- Remain in one room as much as possible.
- No one else should enter this room unless absolutely necessary.
- Just one person (the same person every time) should enter the room when required. This will usually be a spouse/partner.
- If more than one bathroom is available, assign one for the use of the isolated person. Otherwise ensure that the bathroom is well-ventilated and that surfaces are cleaned daily with regular household disinfectant.
- Those entering the room should wear a facemask. After leaving the room, dispose of the mask carefully and wash hands thoroughly.
- Family members should wash hands thoroughly after using any shared areas (e.g. the bathroom) or use alcohol-based hand sanitiser (minimum 60% alcohol).
- Use paper towels to dry hands after washing and dispose of them carefully.
- There should be a ready supply of tissues for the isolated individual to use for coughs and sneezes. These must be disposed of in a sealed bag.
- Used bedclothes, pyjamas etc. should be washed at 60°C or more. They should stay in the isolation room until ready to go straight into the washing machine. Hands must be washed with soap and water or with an alcohol-based sanitiser (minimum 60% alcohol) after handling soiled clothes.

If you have been advised to “self-isolate” in a hotel room...

- Remain in your hotel room with the ‘Do Not Disturb’ sign on your door.
- You should wear a medical face mask (if available) consistently, adhering to mask management protocol.
- Just one nominated person (the same person every time) should enter the room when required. This person should remain at a distance of at least 2m/6ft from you and avoid touching any surfaces.
- Anyone entering the room should wear a facemask (if available). After leaving the room, the mask should be disposed of carefully into a sealed plastic bag and hands washed thoroughly with soap and water or an alcohol-based hand sanitiser (minimum 60% alcohol).
- The nominated person will need to bring:
 - Food on disposable plates and plastic utensils, that are then disposed of in a sealed plastic bag
 - Medication if required to reduce temperature such as paracetamol
 - A digital thermometer
 - Supplies of disposable tissues
 - Alcohol-based hand sanitisers (minimum 60% alcohol)
 - Multiple bin bags for disposal of waste products
 - A supply of disposable plates, cups and utensils
 - Bottled water (if appropriate).
- No-one else should use the bathroom facilities.
- Temperature should be taken and recorded every 12 hours.
- Hands must be washed regularly with soap and water primarily, or with an alcohol-based hand sanitiser (minimum 60% alcohol) using paper towels to dry hands after washing and disposing of them carefully.
- Obtain a ready supply of tissues to use for coughs and sneezes. These must be disposed of in a sealed bag. Hands should then be washed thoroughly with soap and water or an alcohol-based hand sanitiser (minimum 60% alcohol).
- Used bedclothes, pyjamas etc. should stay in the hotel room and placed carefully into sealed plastic bags. Hands must be washed with soap and water or with an alcohol-based hand sanitiser (minimum 60% alcohol) after handling soiled clothes.

If you have been advised to work from home...

- Do not come in to work or attend any external business meetings.
- Do not meet with work colleagues, either in a business or leisure capacity, during this period of working remotely.
- Keep in touch with your HR department and keep them informed of your health status.
- Continue your normal everyday activities but take note of the national health advisories regarding self-monitoring.
- Should you develop any symptoms of fever, cough or difficulty breathing, however mild, you should immediately self-isolate and contact your national public health authority helpline and also inform your HR department.
- If you are tested for COVID-19, inform your HR department as soon as you receive the results of the testing.

Coming out of self-isolation and returning to work

If you have been advised to self-isolate you can return to normal community activities when you meet the following conditions:

- **If you were advised to self-isolate because you have respiratory symptoms and HAVE NOT had a COVID-19 test, you can leave home isolation when you meet ALL of the following conditions:**
 - It is at least 10 days since your symptoms, such as fever or cough, **FIRST** started
 - You have not had a fever or symptoms of COVID-19 for at least 72 hours and you have not needed to take any medications such as paracetamol / acetaminophen / tylenol to reduce your temperature.
 - Your other symptoms have improved, such as cough or shortness of breath. Note that a cough may persist for a few weeks but it will be less frequent and not get in the way of daily living.
- **If you were advised to self-isolate for 14 DAYS because you were a close contact of someone with respiratory symptoms OR a close contact of a confirmed case of COVID-19, you can leave home isolation when you meet the following condition:**
 - You have had no symptoms in the 14 day period.
 - *If you develop respiratory symptoms during this 14 day self-isolation period please refer to the above and follow those directions.*
 - *If you are the carer of a small child it will be difficult or impossible to practice social distancing while the child is symptomatic, and therefore the period of 14 day self-isolation may have to start when the child recovers.*
- **If you were advised to self-isolate because you HAD A COVID-19 test that was POSITIVE, you can leave home isolation when you meet the following conditions:**
 - You no longer have a fever, and you have not taken any medications such as paracetamol / acetaminophen / tylenol to reduce your temperature. It is at least 10 days since the start of symptoms. An improving cough or continuing loss of taste or smell are not reasons to continue to self-isolate if the above conditions have been met - these symptoms can go on for some weeks but are not an indication of being infectious in themselves.

These are suggested guidelines but you should always follow the advice of your healthcare provider.

Regarding when you can go back to work you should always refer to your company's medical advisors or your HR department before returning to work after a period of self-isolation.

Appendix

Band categorisation

Band A

- Andorra
- Argentina
- Armenia
- Aruba
- Austria
- Bahamas
- Bahrain
- Belgium
- Belize
- Botswana
- Brazil
- Cape Verde
- Chile
- Colombia
- Costa Rica
- Croatia ↑
- Curacao
- Czech Republic
- France
- French Polynesia
- Georgia
- Gibraltar
- Guadeloupe
- Hungary
- Iceland
- India
- Iraq
- Ireland
- Israel
- Italy ↑
- Jordan
- Kuwait
- Lebanon
- Libya
- Liechtenstein ↑
- Luxembourg
- Maldives
- Malta
- Martinique
- Moldova
- Montenegro
- Morocco ↑
- Netherlands
- Nepal ↑
- North Macedonia
- Oman
- Palestine territories
- Panama
- Paraguay
- Peru
- Poland ↑
- Portugal
- Qatar ↑
- Romania
- Russia ↑
- Saint Martin / Sint Maarten
- San Marino ↑
- Slovakia
- Slovenia
- Spain
- Switzerland ↑
- Tunisia
- Ukraine
- UK
- UAE
- USA – Arkansas, Guam, Idaho, Iowa, Kansas ↑, Montana ↑, N Dakota, Nebraska, Oklahoma ↑, Puerto Rico, S Dakota, Tennessee ↑, Utah, Wisconsin, Wyoming ↑,

Band B

- Albania
- Belarus
- Bosnia and Herzegovina
- Bulgaria
- Canada
- Denmark ↓
- Dominican Republic
- Ecuador
- Finland ↑
- French Guiana ↓
- Germany ↑
- Guyana
- Kyrgyzstan ↑
- Latvia
- Lithuania
- Mexico
- Monaco Reunion
- Sweden
- Trinidad & Tobago
- USA – Alabama, Alaska, Colorado, Connecticut ↑, Delaware, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Michigan, Minnesota,

Band A	<ul style="list-style-type: none"> • Greece • Honduras • Indonesia • Iran • Jamaica • Jersey ↑ • Kosovo ↑ 	<p>Mississippi, Missouri, Nevada, New Mexico, N Carolina, Ohio ↑, Pennsylvania ↑, Rhode Island ↑, S Carolina, Texas, Virginia ↑, W Virginia ↑,</p> <ul style="list-style-type: none"> • Venezuela • Yemen
Band C	<ul style="list-style-type: none"> • Azerbaijan ↑ • Bolivia ↓ • Cyprus • El Salvador • Estonia ↓ • Guatemala • Malaysia ↑ • Myanmar • Namibia ↓ 	<ul style="list-style-type: none"> • Norway • Philippines ↓ • Serbia ↑ • South Africa • Suriname • Turkey • USA – Excl. the above in Band A/B

During this lockdown period we realise that travel recommendations are not currently proving useful to many of our clients. We continue to include Bands A, B and C (A being very severe, B is severe, C is moderate) in our communications to give an indication of country / regional risk rating and categorise using the following criteria:

- Ongoing cases per capita
- Deaths per capita
- Health care capacity
- Prevalence of testing

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Updated 15th October 2020. Please note that this is an evolving situation and advice is being updated regularly.

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Healix International is a global leader in travel risk management and international assistance services. Working on behalf of multinational corporations, governments, NGOs and insurers, we are relied upon to look after the welfare of expatriates, business travellers and local nationals living and working in every country of the world, 24 hours a day.

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