MOORE South Africa

How does COVID-19 spread?

COVID-19 spreads in three main ways

1. Through human contact or proximity (nearness).
2. By touching contaminated surfaces.
3. Via the airborne route.

Let's take a quick look at each of these.

1. Human contact or proximity (nearness)

COVID-19 spreads from person to person through small droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales. Nearby people then catch COVID-19 if they breathe in droplets from a person with COVID-19 who coughs out or exhales droplets. This is why it is important to stay approx. two meters away from a person who is sick. The further away you are, the less droplets have the chance of reaching you.

If a person who has COVID-19 touches their mouth or nose (e.g. when they cough into their hand, or casually wipe their nose) they carry the virus on their bodies. When they then come in touch with others (e.g. hugging, shaking hands, kissing, etc.) they pass the virus to the people whom they've come into contact with.

2. Contaminated surfaces

When a person with COVID-19 coughs or sneezes or spits, droplets containing the virus land on objects and surfaces around the person. Other people then catch COVID-19 by touching these objects or surfaces, and then touching their eyes, nose or mouth. Some studies have found that COVID-19 can even be spread on the soles of shoes.

So how long does the virus live on surfaces?

The COVID-19 virus loves smooth surfaces, and dislikes porous surfaces.

Surface	Example	Approximate lifespan
Paper	Writing and printing paper, tissue	3 hours
Copper	Some coins, wiring, plumbing, jewellery	4 hours
Cardboard	Boxes, packaging, stationery, signage	24 hours
Wood	Furniture, flooring, wooden construction	2 days
Cloth	Cleaning cloths, clothes, bags, shoes, furniture	2 days
Stainless steel	Counters, shop checkouts, railings	2 to 3 days
Plastic	Containers, bags, shoes, packaging, trolleys, stationery, phone cases, computer keyboards, furniture	3 days

Surface	Example	Approximate lifespan
Paper money	Bank notes	4 days
Glass	Windows, crockery, glass surfaces, phone screens	4 to 5 days
Ceramics	Mugs, cups, plates, countertops	4 to 5 days

3. Airborne

Some studies show that COVID-19 may be spread through the airborne route. This means that tiny droplets remain in the air and could cause disease in others, even after the ill person is no longer near.

How contagious is the coronavirus?

A crucial step in reigning in the coronavirus pandemic is determining exactly how contagious it is. That comes down to one crucial metric: the R0 (pronounced R-naught).

R0 refers to the average number of people that one sick person goes on to infect in a group that has no immunity. Experts use it to predict how far and how fast a disease will spread. The number can also inform policy decisions about how to contain an outbreak.

An R0 value of 1 means the average person who gets that disease will transmit it to one other person; in that case, the disease is spreading at a stable rate. An R0 of more than 1 means the disease spreads exponentially. When experts strategise about how to end a pandemic, their goal is to bring the R0 below 1, which would put a virus in decline until it dies out.

The R0 of the coronavirus so far seems to hover around 2.5. This means that, on average, one person with COVID-19 will transmit it to 2.5 other people in their normal life. A study of the poorly contained outbreak on the Diamond Princess cruise ship revealed an R0 consistent with this estimate: 2.2.

But a virus's R0 is dependent on time and place. A recent CDC study found that the COVID-19 R0 was as high as between 5.7 and 6.6 in the early days of its Wuhan outbreak. This could, for example, be a more realistic R0 in densely populated areas, high-concentration areas (e.g. shopping malls and schools), close-proximity workplaces and areas that foster poor personal hygiene.

COVID-19's transmission rate is therefore described as "highly contagious". By comparison, one person who has the seasonal flu will pass it to approximately 1.1 to 1.8 others.