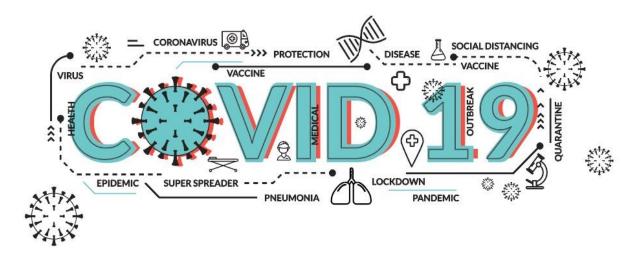


Basic Facts of COVID-19 (Virus variants and mode of transmission)

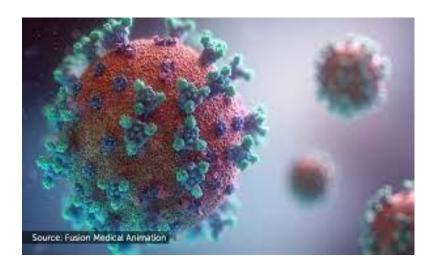
Ramaiah International Centre for Public Health Innovations (RICPHI)

Bengaluru, Karnataka





The new Coronavirus which is called **Severe Acute Respiratory Syndrome Coronavirus 2** (SARS-CoV-2) was first isolated from a cluster of people having pneumonia in Wuhan, China. It causes **COVID-19**, which is an infectious disease which has spread worldwide, leading to the ongoing pandemic. [*CO* for *corona*, *VI* for *virus*, *D* for *disease* and *19* for when the outbreak was first identified (31 December 20*19*)]





MODE OF TRANSMISSION

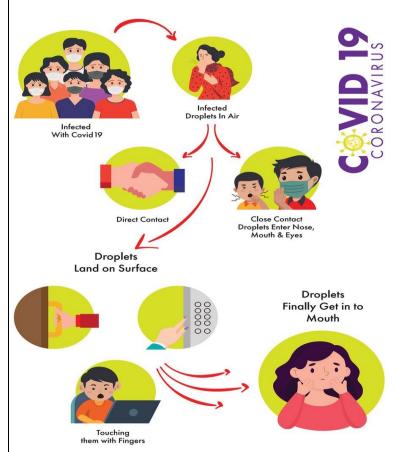
The virus spreads mainly between people who are in close contact with each other, typically within 1 meter (shortrange). A person can be infected when aerosols or droplets containing the virus are inhaled or come directly into contact with the eyes, nose, or mouth.

The virus can also spread in poorly ventilated and/or crowded indoor settings, where people tend to spend longer periods of time. This is because aerosols remain suspended in the air or travel farther than 10 meter (long-range).

People may also become infected by touching surfaces that have been contaminated by the virus when touching their eyes, nose or mouth without cleaning their hands.

With or without symptoms, infected people can be contagious and the virus can spread from them to other people. Infected people appear to be most infectious just before they develop symptoms (about 2 days before they develop symptoms) and early in their illness. People who develop severe disease can be infectious for longer.





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.



The "Three C's" are a useful way to think about this. They describe settings where transmission of the COVID-19 virus spreads more easily:











The risk of COVID-19 spreading is especially high in places where these "3Cs" overlap In locations that are poorly ventilated small particles can remain suspended in the air for minutes to hours The closer people interact, and the longer they interact, the more likely they are to transmit COVID-19

Transmission risk is highest where people are in close proximity (within 2 meters) and is reduced with increasing distance from the source



Avoid the Three Cs



Be aware of different levels of risk in different settings.

There are certain places where COVID-19 spreads more easily:

As per current knowledge, the virus is not known to spread through feces, urine, breast milk, food, wastewater, drinking water, or via animal disease vectors (although some animals can contract the virus from humans).



Crowded places

with many people nearby



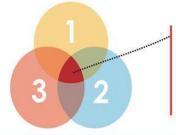
Close-contact settings

Especially where people have closerange conversations



Confined and enclosed spaces

with poor ventilation



The risk is higher in places where these factors overlap.

Even as restrictions are lifted, consider where you are going and #StaySafe by avoiding the Three Cs.

WHAT SHOULD YOU DO?



Avoid crowded places and limit time in enclosed



Maintain at least 1 m distance from others



When possible, open windows and doors for ventilation



Keep hands clean and cover coughs and sneezes



Wear a mask, especially when you can't physically

If you are unwell, stay home unless you need to seek urgent medical care.

Image Source: World Health Organization website (www.who.int)



COVID-19 virus variants

All viruses — including SARS-CoV-2 evolve over time.
When a virus replicates, it sometimes changes a little bit. These changes are called "mutations". A virus with one or more new mutations is referred to as a "variant" of the original virus. The only way to prevent the new variants of COVID 19 from developing in the future is to prevent it's transmission.

The COVID-19 vaccines that are currently in development or have been approved are expected to provide at least some protection against new virus variants.

In the event that any of these vaccines prove to be less effective against one or more variants, it will be possible to change the composition of the vaccines to protect against these variants.



Corona Virus Mutants Dominating the Second Wave:



B.1.1.7k

- UK Variant
- Constitutes 40-70% of the infection
- Increases risk of death by 60%



ĭ

- Brazil variant
- More contagious
- Can cause reinfection
- E494K mutation escapes the host immune system



B.1.35

- South Africa Variant
- N501
 mutation
 makes it
 more
 contagious
- E848K mutation escapes the host immune system



3.1.67

- Double Mutant
 - E484K mutation makes it more contagious
 - L425R mutation escapes the host immune system



<u>References</u>

- https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19
- https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19-how-is-it-transmitted
- https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19-ventilation-and-air-conditioning

Disclaimer:

All efforts have been made to present authentic information in this document using evidence-based resources for public use. These documents are solely owned by Ramaiah International Centre for Public Health Innovations (RICPHI), Bengaluru. Any attempt to replicate or reproduce this content for commercial purposes is strictly prohibited. RICPHI does not guarantee that the information uploaded is up to date because medical knowledge is constantly changing. However, this content may be downloaded and used widely for the benefit of capacity building of health providers and masses with due permission from RICPHI by writing to ricphi.admin@ramaiahgroup.org.

For more information contact:

Director

Ramaiah International Centre for Public Health Innovations MSR Nagar, MSRIT Post, Bengaluru, Karnataka- 560054