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# TRANSMISSION OF COVID 19

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**ABSTRACT**

The initial cases of Corona Virus emerged in 2019 from the Wuhan province of China. From then on this now to be dreaded disease began to spread like wildfire. The initial few patients all lived in and around the local Huanan seafood wholesale market, where live animals were also on sale. Coronaviruses can cause multiple system infections in various animals and mainly respiratory tract infections in humans, such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). Most patients have mild symptoms and good prognosis. However a few patients had severe infections leading to fatal consequences. Also the spread of this disease was very rapid leading to a pandemic situation. This article discusses the transmission of Covid 19 virus.

**KEY WORDS**: Aerosols, Fomites, Incubation period.

## INTRODUCTION

Covid 19 virus, belonging to the family of Corona Virus, first started creating rampage in the December of 2019. It is believed to have evolved from preexisting strains of Corona Virus from the Seafood mart of Huanan, China. The virus is chiefly spread between persons during close by interaction, every so often via minor droplets formed by coughing, sneezing, and talking. The droplets generally fall to the ground or onto surfaces rather than travelling through air over long spaces. Nevertheless, the transmission may also happen through smaller droplets that are able to remain suspended in the air for extended periods of time in enclosed spaces, as typical for airborne diseases. Rarely, people may become diseased by touching a tainted surface and then touching their face. It is most contagious during the initial three days after the onset of signs, although spread is possible before signs appear, and from people who do not show signs.[1]

## Signs and Symptoms

Fever is the most common symptom of COVID-19, but is extremely capricious in severity and presentation, with some older, immune compromised, or critically ill people not having fever at all. In one study, only 44% of people had fever when they presented to the hospital, while 89% went on to develop fever at some point during their hospitalization [2].

Other common symptoms include cough, loss of appetite, exhaustion, dyspnea, sputum production, and myalgia and joint pains. Symptoms such as nausea, retching, and diarrhea have been witnessed in varying percentages. Less frequent symptoms include sneezing, runny nose, sore throat, and skin lesions. Some cases in China initially presented with only chest tightness and palpitations. Anosmia and ageusia has also been noted[3-5].

## Modes of transmission

COVID-19 is a new disease, and many of the details of its spread are still under investigation. It spreads easily between people. People are most infectious when

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they show symptoms (even mild or non-specific symptoms), but may be infectious for up to two days before symptoms appear (pre-symptomatic transmission). They remain infectious for an estimated seven to twelve days in moderate cases and an average of two weeks in severe cases. People can also transmit the virus without showing any symptom (asymptomatic transmission), but it is unclear how often this happens [3-5]

**Figure 1: Person to person transmission**

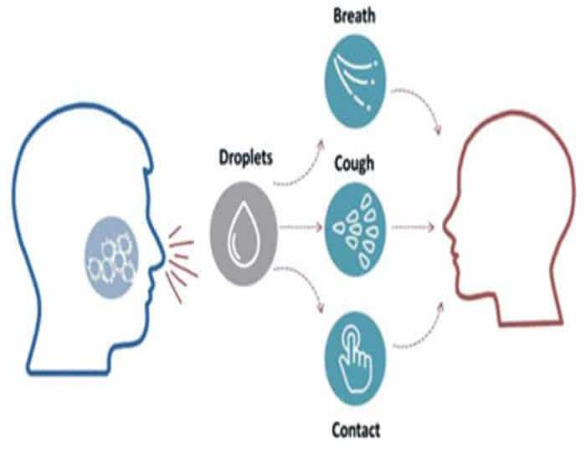
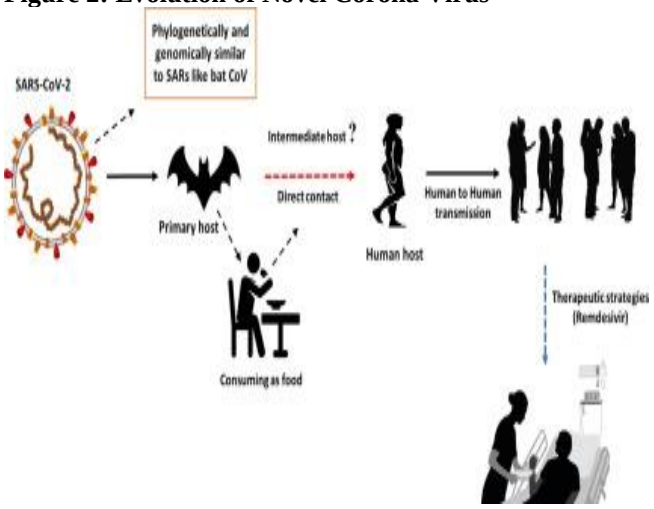



**Figure 2: Evolution of Novel Corona Virus**




**Contact and droplet transmission**

Transmission of SARS-CoV-2 can occur through straight, secondary, or close contact with contaminated people through infested secretions such as saliva and respiratory secretions or their respiratory droplets, which are ejected when an diseased individual coughs, sneezes, talks or sings. Respiratory droplets are >5-10 μm in diameter whereas droplets <5μm in diameter are referred to as droplet nuclei or aerosols. Respiratory droplet transmission can occur when a person is in close contact (within 1 meter) with an infected person who has respiratory symptoms (e.g. coughing or sneezing) or who is talking or singing; in these circumstances, respiratory droplets that include virus can reach the mouth, nose or eyes of a susceptible person and can result in infection. Indirect contact transmission involving contact of a susceptible host with a contaminated object or surface (fomite transmission) may also be possible.[5]

**Airborne transmission**

Airborne transmission is defined as the spread of an infectious agent caused by the dissemination of droplet nuclei that remain infectious when suspended in air over long distances and time. Airborne transmission of SARS-CoV-2 can occur during medical procedures that generate aerosols. WHO, together with the scientific community, has been actively discussing and evaluating whether SARS-CoV-2 may also spread through aerosols in the absence of aerosol generating procedures, particularly in indoor settings with poor ventilation.

Spread of infection in indoor crowded spaces have suggested the possibility of aerosol transmission, combined with droplet transmission, for example, during choir practice , in restaurants or in fitness classes. In these events, short-range aerosol transmission, particularly in specific indoor locations, such as crowded and inadequately ventilated spaces over a prolonged period of time with infected persons cannot be ruled out.

**Fomite transmission**

Respiratory droplets ejected by diseased individuals can pollute surfaces and objects, creating fomites (contaminated surfaces). Viable SARS-CoV-2 virus and/or RNA detected by RT-PCR can be found on those surfaces for periods extending from a few hours to days, subject to the ambient environment (including temperature and humidity) and the type of surface, in particular at high concentration in hospitals where COVID-19 patients were being treated. Hence, spread may also occur indirectly through contacting surfaces in the immediate environment or objects tainted with virus from an infected person, followed by touching the mouth, nose, or eyes.

Despite consistent evidence as to SARS-CoV-2 contamination of surfaces and the survival of the virus on certain surfaces, there are no specific reports which have directly demonstrated fomite transmission. People who come into contact with potentially infectious surfaces often also have close contact with the infectious person, making the distinction between respiratory droplet and fomite transmission difficult to discern. However, fomite transmission is considered a likely mode of transmission for SARS-CoV-2, given consistent findings about environmental contamination in the vicinity of infected cases and the fact that other coronaviruses and respiratory viruses can transmit this way [6].

**Other modes of transmission**

Although COVID-19 is not a sexually transmitted infection, direct contact such as kissing, intimate contact, and fecal–oral routes are suspected to transmit the virus. The virus may occur in breast milk, but whether it is transmittable to the baby is unknown. The role of blood borne transmission remains indefinite; and low viral titers in plasma and serum suggest that the risk of transmission through this route may be low.[5,6]

**Modes of Prevention**

From existing literature, it is evident that, that restricting close contact between infected people and others is crucial to stopping the chains of transmission of the virus causing COVID-19. The prevention of spread is best attained by identifying suspect cases as fast as possible, testing, and segregating infectious cases. Apart from that, it is important to identify all immediate contacts of infected people so that they can be quarantined to limit onward spread and break chains of transmission. The incubation period of COVID19, is on average 5-6 days, but can be as long as 14 days. [6]

**CONCLUSION**

In today's situation of extensive spread of the disease a thorough understanding of how the disease is crucial in containing the spread. This article discusses the possible modes of transmission and touches upon measures to control spread.

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