



## Need of disinfection procedures after proper protective measures among the doctors handling COVID -19 patients - A review

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### ABSTRACT

The review aims to find whether there is any cross-species infection among doctors, even after proper disinfection and proper protective measures are handled while taking care of COVID 19 patients. Coronavirus is a serious illness that causes respiratory problems. It was first found at Wuhan, China and then resulted in a pandemic. Mild illness can cause the common cold, whereas more lethal varieties can cause SARS, MERS, and COVID 19. Coronavirus can cause pneumonia, bronchitis and other intense respiratory conditions. The virus is mostly transmitted via droplets and close contacts, and spread through asymptomatic carriers is also possible. With the increase in the number of positive cases, and due to lack of antiviral treatment, all are eager to discover new alternatives to prevent the spread of the virus. From the review, it can be concluded that even after the doctors are disinfected and even after all the protective measures are taken, they are still infected while treating COVID 19 patients.

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### INTRODUCTION

Coronavirus disease is a serious illness that causes intense respiratory conditions. It was first found at Wuhan, China and then resulted in a pandemic. A coronavirus is a group of RNA related viruses that cause diseases in mammals and birds (Toit, 2020). In people, these infections can cause respiratory

tract contamination that can extend from mild to deadly. The mild illness causes the common cold, whereas more lethal varieties can cause SARS, MERS and COVID-19 (Prashaanthi and Brundha, 2018). The virus causes different symptoms in different species, as in chickens it causes upper respiratory tract illness and in cows and pigs, they cause looseness of bowels. Up to date, no antibodies or antiviral treatments are found to treat coronavirus contamination (Brundha and Nallaswamy, 2019).

Coronavirus has a wide variety of risk factors. Some are capable of killing over 30% of those who are contaminated MERS-COV is one of the examples, and some viruses are harmless as for the normal cold. Coronavirus shows symptoms like fever, an irritated throat due to swollen adenoids. Coronavirus can also cause pneumonia and bronchitis. SARS was found in 2003. It causes the intense respiratory condition; it has interesting pathogenesis as it causes infections all over the respiratory tract.

The SARS- COV2 was first identified among three patients from their broncho-alveolar liquid in Wuhan Tinyintan clinic and was confirmed as COVID 19 on January 24, 2020. After a detailed study on the full-length genome, it was identified that the infection has some similarity with the beta coronavirus 2b hereditary in the phylogenetic tree which is another human contaminating virus which was beforehand not distinguished in people or creatures. It was coined the name COVID-19 by the WHO and SARS-COV-2 by the international committee on taxonomy of viruses. It shares more than 87.99% similarity with the bat SARS-like Coronavirus, and it shares more than 80% character nucleotide with the first SARS pestilence infection. Coronavirus spike glycoproteins are the primary objective of antibodies and tie a high probability to the angiotensin - changing over receptors in people in a way like SARS-COV. Currently, we feel that the novel coronavirus is transmitted via respiratory droplets and close contacts, but transmission can also occur from an asymptomatic carrier ([Chen et al., 2020](#)). It is difficult for us to control the seriousness of COVID- 19 due to its complex structure and indistinct physiological systems. With the increase in the number of affirmed cases, and due to a lack of antiviral treatment arrangements has been deficient, and there is an earnest need to discover alternative strategies to control the spread of disease.

Doctors from practically all the clinical aspects are working hard to prevent against COVID 19. Specialists who are working with close contact with patients; like dental specialists, Otolaryngologists and anaesthesiologists are particularly in danger for COVID 19 contamination ([Zhan et al., 2020](#)). Dental specialists are in close contact with oral emissions for a longer period, and their fast handpiece and ultrasonic instruments aerolise body liquids. Ophthalmologists likewise work for stretched out periods near oronasal discharges ([Balaji et al., 2016](#)) and absence of individual defensive hardware PPE and insufficient PPE was generally referred to as the reason for death particularly in developing countries like Italy. If adequate members are available to work forward as a team with safety monitors and proper scrubs, the risk of contamination may decrease.

## MATERIALS AND METHODS

A review based scientific literature was done in preparation of the manuscript. The databases were searched for related articles from websites like PUBMED, Google scholar and WHO articles. Databases of intended journals were searched for

keywords such as COVID-19, preventive measures, safety, transmission, treatment etc. The exclusion criteria where case reports review and studies in other languages.

## Discussion

A pandemic outbreak of pneumonia that is linked with the novel Coronavirus was first found in Wuhan city, of Hubei province in China. Wuhan is a mass populated city in China with a population outstanding more than 11 million. Within a week, the infection spread all over China and other countries. At first, the rate of spread was low and later on, it reached a high peak all-around China and also other countries due to the movement of people all around the country. The most common symptoms are dry cough, dyspnoea, fever and bilateral lung infiltrate on imaging and some of them even had headache and hemoptysis. It mostly affected people who had severe alveolar damage to the disease, later on, causes organ damage and finally leads to death. Most of the cases had a great association with the Wuhan seafood market as that is the place where they used to exchange fish and other live-creatures species, including poultry, birds, snakes and mammoths. The causative organisms were taken from throat swabs by the Chinese authority for prevention and control of disease on 7 January 2020 and were named as severe acute respiratory syndrome coronavirus. The causative organism was named(SARS CoV 2), COVID -19 by the world health organisation ([Hannah et al., 2019](#)). Coronavirus appears to look like a crown when viewed under a microscope due to spike-like projections on its surface. Four coronaviruses mainly HKD1, NL 63, 229E and OC43 have affected humans, and have caused mild respiratory diseases ([Salehi et al., 2020](#)). There occurred two situations in the previous two decades wherein the creatures of the same family of beta coronavirus have infected humans and brought about the illness. One such case was in 2002 to 2003 where another coronavirus of beta genera was found in bats and was transferred to people by civet cats in Guangdong part of China. The virus has an intensity to cause serious, intense respiratory disorder coronavirus, that infected decade later in 2012, the Middle East Respiratory Disorder Coronavirus, which is the same as that of bat origin, emerged in Saudi Arabia with camels as the host and infected 2494 individuals and caused 858 deaths.

Different bodies like the WHO and US Centre for Disease Control and Prevention (CDC) have given instructions for preventing further spread of COVID-19. They recommended maintaining a strategic distance from moment to high chance zones,

to avoid close relationships with people who are affected, and to avoid consumption of eatables from areas with known COVID-19 outbreaks. Essential hand cleanliness measures are additionally suggested, including the utilisation of PPE, such as face masks (Li *et al.*, 2020). One of a Japanese-based company known as BespokeInc has also initiated an artificial intelligence-powered chatbot (Bebot) that informs us the up-to-date information regarding the coronavirus outbreak, and also provides knowledge about preventive measures. Measures should be taken to prevent an individual from the individual transmission of COVID-19 are required to control the present situation. Special attention and effort to protect and reduce transmission should be applied in defenceless populations including children, human service suppliers and older individuals. The COVID-19 are more commonly infected in older patients, due to their low immunity level which permits faster contamination of viral infection. Proper disinfecting agents are to be compulsorily provided on a routine basis in all private sectors and offices. Contact with moist and infected items should be avoided while dealing with the virus, especially human waste as they have a high potential to serve as an alternate route for transmission (Phan *et al.*, 2020). China and many nations, including the United States, have executed significant advance and preventive measures, including screening to minimise the spread of infections.

The symptoms of the infections appear only after an asymptomatic period of around 2 to 5 days. From the day of being affected until death will extend for about 6 to 41 days with an intermediate of 14 days. This period depends upon the age of the patient and the patient's immune system (Shenoy and Brundha, 2016). The chances of being infected are very less among people who are of age below 70 and it's more for people who are above 70. The most common symptoms at the onset of COVID-19 illness is fever (Brundha, 2015), cough and fatigue, sputum production, headache eye infection (Ferdioz and Brundha, 2016), haemoptysis, diarrhoea, dyspnea and lymphopenia (Brundha *et al.*, 2019). The Chest CT scans were diagnosed as pneumonia, and there were many other abnormal features such as anaemia, acute respiratory distress syndrome, acute cardiac injury and finally led to death. Various features like glass opacities were seen in the subpleural areas of the two lungs which induce both systemic and localised immune responses and finally leads to inflammation (Shreya and Brundha, 2017; Kalaiselvi and Brundha, 2016).

Doctors from practically all the clinical specialties have capitulated to prevent COVID-19. Profes-

sionals like dentists (Harsha and Brundha, 2017), otolaryngologists and anesthesiologists are at high risk. Dentists are the ones who are in close contact with the patient's oral cavity and the use of a high-speed handpiece will disperse the oral fluids (Timothy *et al.*, 2019). Ophthalmologists are working for stretched out periods near oral-nasal discharges (Lauer *et al.*, 2020). Due to insufficient PPE in developing countries like Italy, there is an increase in the death rates of doctors while treating COVID-19 patients. If adequate members are available to work forward as a team with safety monitors and proper scrubs, the risk of contamination may decrease (Meng *et al.*, 2020; Kumar and Brundha, 2016). Chances of getting affected by COVID-19 is mostly seen in patients of age above 70 and also in people who have hypertension, diabetes mellitus, cardiovascular sickness, severe lung illness (Preethikaa and Brundha, 2018; Ravichandran and Brundha, 2016). Doctors, from all the aspects, are fighting against COVID-19, and most of them don't even require proper PPE to protect themselves. We are in the underlying period of the pandemic and the number of fatality reports of doctors is increasing day by day. Doctors who are 59 years of age or older are accounted for 3/4 of COVID-19 related deaths.

## CONCLUSION

COVID-19 is a pandemic outbreak that has put down all the economic, medical and public health infrastructure worldwide. The severity and mortality rate is far higher than that of ordinary influenza, and also chronic diseases such as diabetes and hypertension. Enhancing proper protection against people with chronic disorders is essential, last but not least, it is also very important to prevent human to human transmission, and also reducing the secondary infection due to close contact with doctors and other health care workers also prevent further international spread. Even after following all the protective measures, due to insufficient PPE, the doctors are being infected while treating COVID-19 patients.

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## Conflict Of Interest

The authors declare that they have no conflict of interest for this study.

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