



# Impacts of Current Pandemic Disease (COVID-19)

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## ABSTRACT

Corona viruses are a group of RNA viruses in the Coronaviridae family that are divided in four genera: alpha, beta, gamma and delta that cause disease varying from mild to severe in human and animals. The endemic human corona virus is alpha corona viruses 229E and NL63 and beta corona viruses OC43 and HKU1 that can cause influenza-like illness or pneumonia in humans. But, the two zoonotic corona viruses have emerged causing severe disease in humans: Severe acute respiratory syndrome corona virus (SARS-CoV) in 2002-2003 and Middle East respiratory syndrome coronavirus CoV-2 is a novel corona virus that was identified in late 2019 as the causative agent of COVID-19. On March 11, 2020, the World Health Organization (WHO) declared the world-wide outbreak of COVID-19 a pandemic. It is spread from person to person via respiratory droplet nuclei. Its incubation time is 3-12 days with a median duration of viral shedding of 20 days. This virus is Sensitive to ultraviolet and heat. 75% ethanol, chlorine-containing disinfectant, peracetic acid, and chloroform can effectively inactivate the virus. COVID-19 has spread to the world rapidly (A threat of the word). The disease doesn't have any treatment and vaccine yet. For Prevention and Control of COVID-19 By practicing Respiratory hygiene, especially by ill persons. Respiratory hygiene means to covering the mouth and nose during coughing or sneezing using medical masks, cloth masks, tissues or a flexed elbow, followed by hand hygiene.

**Keywords:** Novel Corona Virus (COVID-19); Taxonomy; Respiratory syndrome

## INTRODUCTION

Corona viruses are a group of highly diverse RNA viruses in the Coronaviridae family that are divided in 4 genera: alpha, beta, gamma and delta that cause disease varying from mild to severe in human and animals. There is endemic human corona virus as alpha corona viruses 229E and NL63 and beta corona viruses OC43 and HKU1 that can cause influenza-like illness or pneumonia in humans. However, two zoonotic corona viruses have emerged causing severe disease in humans: Severe acute respiratory syndrome corona virus (SARS-CoV) in 2002-2003 and Middle East respiratory syndrome corona virus (MERS-CoV).

Corona viruses are a group of viruses belonging to the family of Coronaviridae, which infect both animals and humans. Human corona viruses can cause mild disease similar to a common cold, while others cause more severe disease (such as MERS: Middle East Respiratory Syndrome and SARS: Severe Acute Respiratory Syndrome). A new corona virus that previously has not been identified in humans emerged in Wuhan, China in December 2019. Signs and symptoms include respiratory symptoms and include fever, cough and shortness of breath. In more severe cases, infection can cause pneumonia, severe acute respiratory syndrome and sometimes death [1,2].

The SARS-CoV-2 is a novel strain of corona virus that was first detected in Wuhan, china, in the province of Hubei, in the People's Republic of China. The outbreak started as pneumonia of unknown causal agent at the end of December 2019. Phylogenetics analyses undertaken with available full genome sequences suggest that bats appear to be the reservoir of COVID-19 virus, but the intermediate host(s) has not yet been identified. WHO on 30 January 2020, declared the outbreak a Public Health Emergency of International Concern. The WHO recommended that the interim name of the disease causing the current outbreak should be CoV-19 acute respiratory disease [3]. In the 2019-nCoV acronym, "2019" is the year the virus was first detected, "n" means "new", and "CoV" corresponds to the corona virus family. On 11 February 2020, the International Committee on Taxonomy of Viruses (ICTV) decided to name the virus as severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), and the WHO finally decided to name the disease caused by this virus as COVID-19 (World Health Organization, 2020) [4].

## EPIDEMIOLOGY

On December 29, 2019, the first cases of an acute respiratory syndrome of unknown etiology were reported in Wuhan City,

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Hubei Province, China among people linked to a local seafood market (“Wet market”). It appears that most of the early cases had some sort of contact history with the original seafood market. Soon, a secondary source of infection was found to be human-to-human transmission via close contact. There was an increase of infected people with no history of exposure to wildlife or visiting Wuhan, and multiple cases of infection were detected among medical professionals [5].

A study on early transmission dynamics of the virus reported the median age of patients to be 59 years, ranging from 15 to 89 years, with the majority (59%) being male. It was suggested that the population most at risk may be people with poor immune function such as older people and those with renal and hepatic dysfunction [6].

### Serological methods

Assays based on the detection of IgM/IgG antibodies can support outbreak investigation and seroprevalence studies. Several assays (both ELISA and rapid diagnostic tests) are available for the detection of IgM/IgG antibodies and are marketed for the detection of COVID-19 virus infections. However, to date, these tests are not recommended for use. These tests may be limited due to cross-reactivity with other corona viruses that are normally present in the community and that make the interpretation of results difficult. However, the dynamics of antibody response and production during the different stages of infection are not yet fully established at present. Some studies have shown that during the first 6-7 days from the onset of symptoms, less than 40% of patients have detectable antibodies [7].

### Clinical manifestation

Illnesses associated with the new corona virus, named COVID-19, are similar to several respiratory illnesses and include fever, dry cough, sore throat and headache. Less frequent symptoms included coughing sputum or blood, headache and diarrhea. Most cases are considered mild to moderate with a subset experiencing more severe illness with shortness of breath and difficulty breathing. For confirmed COVID-19 cases, reported illnesses have ranged from people with little to no symptoms to people.

The disease may also occur with mild symptoms only, including low-grade fever, cough, malaise, sore throat without any warning signs, such as shortness of breath or difficulty in breathing, increased respiratory secretions (i.e. sputum or haemoptysis), gastrointestinal symptoms such as nausea, vomiting, and diarrhoea and without changes in mental status like, confusion and lethargy [8]. Preliminary data report 11% lethality among hospitalized patients. From these patients, Complications occurred in 33% of the patients, and acute respiratory distress syndrome (ARDS) (17%), acute renal injury, acute respiratory injury, septic shock and ventilator-associated pneumonia. Disease in children appears to be relatively rare and mild with approximately 2.4% of the total reported cases reported among individuals aged less than 19 years. A very small proportion of those aged under 19 years have developed severe (2.5%) or critical disease (0.2%) [9].

Diagnosis: For patients those suspected by infection (COVID-19), diagnosis performed by real-time fluorescence (RT-PCR) to detect the positive nucleic acid of SARS-CoV-2 in sputum, throat swabs, and secretions of the lower respiratory tract samples. Molecular detection of COVID-19 virus using well-designed protocols is

usually very specific; thus, a positive result confirms the detection of the virus. On the contrary, a negative result might not always mean the absence of COVID-19 virus infection. Poor sample quality, handling, transportation and/or storage to control for this, the qualitative detection of a human housekeeping gene. Poor/failed sample extraction, presence of PCR inhibitors in the extracted RNA to control for this, an extraction control can be used [10]. The sample was collected at a time where the patient was not shedding sufficient amounts of virus, for instance very early or very late during infection. Thus, serological tests should not be used to rule out a case during the first days of illness. But, the detection of antibodies after day 7 only indicates previous contact with the virus but does not confirm the presence and shedding of the virus. So many commercial products are marketed for the detection of antibodies (IgM and IgG) induced by COVID-19 virus infection, including Rapid Diagnostic Tests (RDTs). Any such test should be validated and its performance in terms of specificity and sensitivity assessed. However, the use of rapid tests is not recommended since, these types of tests might have low sensitivity [11]. For these reasons, antibody detection is not considered (as yet) an appropriate test for confirmation or diagnosis of COVID-19 cases.

## DISCUSSION

### Convalescent plasma therapy

For COVID-19 patients with rapid disease progression, severe and critical illness, and convalescent plasma therapy can be tried by National Health Commission of the People’s Republic of China, 2020. Convalescent plasma therapy can utilize a certain titer of virus-specific antibodies in the plasma of the convalescent individual to enable the patient receiving the infusion to obtain passive immunity and remove pathogens from the blood circulation [12]. These methods have been successfully used in the treatment of SARS and H1N1 influenza, and are an effective treatment. The use of convalescent plasma therapy treatment can follow two major principles according to the National Health Commission of the People’s Republic of China, these principles are, and the first one is, the course of disease does not exceed three weeks. However, the patient should have a positive viral nucleic acid test or viraemia that certified by clinical experts. The second principle is the Patients with severe disease with rapid disease progression, or critically ill at early stage patients, or patients comprehensively evaluated by clinical experts as requiring plasma therapy. The infusion dose is determined according to the clinical situation and the weight of the patient, usually the infusion dose is 200-500 ml.

## CONCLUSION

For all patients, at all times, in all healthcare settings including when performing a point-of-care risk assessment, and adherence to respiratory hygiene and hand hygiene. Self-isolation by persons with symptoms and persons who may have been in contact with infected persons; this means avoiding situations where you could infect other people. This means all situations where you may come in contact with others, such as social gatherings, workplaces, schools, child care/pre-school centres, universities, faith-based gatherings, aged care and health care facilities, prisons, sports gatherings, supermarkets, restaurants, shopping malls, and all public gatherings. By practicing Respiratory hygiene, especially by ill persons. Respiratory hygiene means to covering the mouth and nose during coughing or sneezing using medical masks,

cloth masks, tissues or a flexed elbow, followed by hand hygiene. Discard materials used to cover the mouth or nose or clean them appropriately after use. Avoid direct contact with bodily fluids, particularly oral or respiratory secretions, and stool. Use disposable gloves and eye protection to provide oral or respiratory care and when handling stool, urine and waste. Gloves, tissues, masks and other waste generated by ill persons or in the care of ill persons should be placed in a lined container in the ill person's room before disposal with other household waste.

## RECOMMENDATIONS

- The basic principles of infection prevention and control and standard precautions should be applied in all health care facilities, including outpatient care and primary care.
- Emphasis on hand hygiene, respiratory hygiene and medical masks to be used by patients with respiratory symptoms.
- Appropriate use of contact and droplet precautions for all suspected cases.
- Prioritization of care of symptomatic patients.
- When symptomatic patients are required to wait, ensure they have a separate waiting area.

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