

# SARS-CoV-2(COVID-19)

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## Background:

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Coronaviruses are a large family of viruses which may cause illness in animals or humans. In humans, seven strains of coronaviruses were recognized to cause respiratory infections ranging from the common cold associated with HKU1, NL63, OC43 and 229E viruses to more severe diseases such as Severe Acute Respiratory Syndrome (SARS) during 2002, Middle East Respiratory Syndrome (MERS) during 2012, and the COVID-19 that started during December 2019 in Wuhan, China (1).

## Epidemiology

Since December 8, 2019, several cases of pneumonia of unknown etiology have been reported in Wuhan, Hubei province, China (2), with some patients rapidly developing acute respiratory distress syndrome (ARDS), acute respiratory failure, and other serious complications (3). The World Health Organization (WHO) announced that the novel coronavirus pneumonia epidemic caused by SARS-CoV-2 was classified as a Public Health Emergency of International Concern on January 30, 2020 and was named coronavirus disease 2019 (COVID-19) (4). On 11, March 2020 WHO made the assessment that COVID-19 can be characterized as a pandemic (5).

## Biological characteristics

The first described coronavirus was isolated from chickens in 1937. Human coronaviruses were first identified in the mid-1960s. Coronaviruses belong to the Coronaviridae family. Coronaviridae is an enveloped, single-stranded, positive-sense RNA virus. They are zoonotic, and can be transmitted from animal to animal, animal to human, and human to human (6). SARS originated from bats, jumped from an intermediate host, the civet cats, to humans. MERS originated from bats and transmitted to camels and then to humans, causing respiratory, enteric, hepatic, and neurologic diseases. The COVID-19 was also originated from bats (1,7).

## Pathogenesis of COVID-19

Coronavirus S protein has been reported as a significant determinant of virus entry as it attaches to a host cell receptor called angiotensin converting enzyme 2 (ACE2). After the virus enters the cells through PH dependent endocytosis, the viral RNA genome is released into the cytoplasm and is translated into two polyproteins and structural proteins, after which the viral genome begins to replicate. While the virus enters the cells, its antigen

will be presented to the antigen presentation cells pulmonary damage of viral replication along with immunological damage. (APC), which is a central part of the body's anti-viral immunity, and then recognized by virus-specific cytotoxic T lymphocytes. One of the main mechanisms for ARDS is due to functionally serious

The main cause of death, is the cytokine storm, the deadly uncontrolled systemic inflammatory response resulting from the release of large amounts of pro-inflammatory cytokines and chemokines (8).

## People at risk

The COVID-19 virus infects people of all ages with male predominance. Evidence suggested that two groups of people are at a higher risk of getting severe COVID-19 disease; older people; and those with underlying medical conditions (5, 9).

## Clinical manifestation

The incubation period ranged from 2-14 days. Patients with COVID-19 show clinical manifestations including fever, cough mostly dry, and dyspnea. A significant proportion of patients complained of gastrointestinal symptoms such as nausea, vomiting and diarrhea. Myalgia or fatigue was present in 44–60% of Asian case series. Normal or decreased leukocyte counts, and radiographic evidence of pneumonia which are similar to the symptoms of SARS-CoV and MERS-CoV infections were obvious (8, 10, 11). Leukopenia was the most common abnormality reported in up to 63% of subjects in the study by Huang et al. (11) which may suggest that 2019-nCoV might mainly act on lymphocytes, especially T lymphocytes. Thrombocytopenia occurred in the reports by Holshue et al. (12) and Chen et al. (9) but is rarely reported in other series. C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) were frequently abnormal and, in contrast, most of the patients had normal procalcitonin (PCT) levels at admission and a prolonged prothrombin time was reported in approximately 58% of adults (8).

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### Situation in Iraq

Iraq reported its first case of COVID 19 – an Iranian student in Iraq on 22 February 2020, followed by 4 cases for members of one family with a travel history to Islamic Republic of Iran. Case reporting escalated to include almost all Iraqi governorates. A WHO high-level technical mission concluded a visit to Iraq to support the Iraqi Ministry of Health in their COVID-19 prevention and containment measures. WHO is working around the clock to establish 3 negative-pressure [contagious respiratory disease isolation] rooms in Baghdad, Erbil and Basra to accommodate patients who might require more sophisticated medical treatment. (13). The Government of Iraq (GOI) has extended curfews and movement restrictions in federal Iraq until 19-April. The Kurdistan Regional Government (KRG) has extended curfews and movement restrictions until 10-April and announced that government offices will remain closed until 16-April. Airports throughout Iraq and the KRG will remain closed until 11-April. The GOI has established a ministerial High Committee for National Health and Safety to help contain the outbreak of COVID-19. The committee is chaired by the Prime Minister (14).

### Preparedness for COVID-19

Preparedness planning is essential in order to respond effectively to outbreaks and epidemics. The question is; what goes wrong with COVID 19?

Previous outbreaks have demonstrated that when health systems are overwhelmed, preventable mortality can increase dramatically. The COVID-19 pandemic is straining health systems worldwide. The rapidly increasing demand on health facilities and healthcare workers threatens to leave some health systems overstretched and unable to operate effectively (15, 16).

In China; the first phase of public health response to COVID-19 focused on short-term measures to stop the virus spreading from Hubei to the rest of the country, and within the general population.

China has been attracting great attention in fighting COVID 19. The government and the people are being united in managing the crisis reflecting that managing crisis is first priorities for cultural and developmental depth of China. There has been a wide participation by all Chinese nationals, including the residents, the army, volunteers and doctors, to support government measures to combat the virus. The measures taken by the government are characterized by accuracy, inclusiveness and creativity as the implementation of the largest quarantine operation in the city of Wuhan, building new hospitals within days and adopting a remote work system through the use of online learning and digital technologies. At the international level, the Chinese government has been able to explain the reality of the situation and of what is happening in China. The World Health Organization has publicly praised China's measures on multiple occasions. It has affirmed that China is keen to protect its people and the people of the world from this virus (17, 18). The response in Europe and America has

been slow, as the measures to isolate affected areas and limit the movement of the broader population. In Eastern Mediterranean region (EMR) the spread was less with the exception of Islamic Republic of Iran, so as in Africa, the association with this low spread and the BCG vaccination in EMR and the high prevalence of malaria in Africa are questionable. Moreover, does having the Ebola screening in place made it easy for certain areas in Africa to start screening for coronavirus disease? Studies are needed to test these hypotheses and to identify the importance of reprioritize the priorities of the world in the favor of sustaining and strengthening their health systems.

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