



# Epidemiology, Clinical Manifestation, and Characteristic of Coronavirus Covid-19 in Palestine and regional areas

Mahmoud Alabsi RN\*

Directorate of Internal Audit, Palestinian Ministry of Health, Territory, Occupied Palestinian Territory, Palestinian

## Abstract

**Background:** In December, 2019, a pneumonia disease associated with the 2019 novel coronavirus (2019-nCoV) emerged in Wuhan, China. And it spread rapidly until reach Palestine. On March 05, Palestinian Ministry of Health- (P. MOH) notified of a positive Covid-19 test result from patients who had been under quarantine at home, with under medical supervision at Bethlehem.

The study aimed to clarify the epidemiological and clinical characteristics of 2019-nCoV pneumonia in Palestine.

**Methods:** In this retrospective, Data Sources obtained the medical records and compiled data for hospitalized patients, Hospital Field, Quarantine, Home stay, and outpatients with laboratory-confirmed Covid-19, as reported to the National Health Commission between March05, 2020, and April01, 2020; the data cutoff for the study was April01, 2020.

**Results:** The case fatality rate is estimated togeting more high in global, and slowly with under control in Palestine. Reported symptoms include fever, cough, fatigue, pneumonia, headache, diarrhea, and dyspnea. Preventive measures such as masks, hand hygiene practices, avoidance of public contact, case detection, contact tracing, and quarantines were discussed as ways to reduce transmission. To date, no specific antiviral treatment has proven effective; hence, infected people primarily rely on symptomatic treatment and supportive care.

**Conclusions:** Palestinian ministry of health submits clear protocols which affect positively to control covid-19 spreading at the provinces. Furthermore, the rapid response to the outbreak of the disease. During this early period, published research primarily explored the epidemiology, causes, clinical manifestation and diagnosis, as well as prevention and control of the novel coronavirus. Although these studies are relevant to control the current public emergency. With world health organization protocols and recommendations, it could be to handle and overcome of the virus spreading, raising morbidity and mortality in global.

**Keywords:** Epidemiology of covid-19; Corona virus in Palestine; Characteristic of corona virus

## Introduction

In December 31, 2019, China reported a cluster of pneumonia cases of undefined cause that unspecific diagnosis. Which explained as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) which has a phylogenetic similarity to SARS-CoV.3 Patients with the infection have been documented both in hospitals and in family settings [1-3]. Patients with the illness, called coronavirus disease 2019 (Covid-19), frequently present with fever, cough, and shortness of breath within 2 to 14 days after exposure [4-14]. As of April 01, 2020, there had been 823,914 confirmed cases of Covid-19 reported globally, and 40,598 deaths had been reported. In recognition of the widespread global transmission of Covid-19, the World Health Organization declared Covid-19 to be a pandemic on March 11, 2020. The first case of Covid-19 in the Palestine was diagnosed on March 05, 2020 for seven patients whom were in contact with Greek tourist group in Bethlehem west bank, while in Gaza strip were two patients arrived from Pakistan at March 22, 2020.

On March 05, Palestinian Ministry of Health-(P. MOH) notified of a positive Covid-19 test result from patients who had been under quarantine at home, with under medical supervision at Bethlehem. While in Gaza strip the patients were transferred to Rafah field hospital. In recent studies, the severity of some cases of Covid-19 mimicked that of SARSCoV. Given the rapid spread of Covid-19, it determined that an updated analysis of cases throughout China might help identify the defining clinical characteristics and severity of the disease. Here, we describe the results of our analysis of the clinical characteristics of

Covid-19 in a selected cohort of patients throughout China.

## What is Corona Virus?

Coronaviruses are a family of enveloped, single-stranded, positive-strand RNA viruses classified within the Nidovirales order. This coronavirus family consists of pathogens of many animal species and of humans, including the recently isolated severe acute respiratory syndrome coronavirus (SARS-CoV). Coronavirus disease (COVID-19) is caused by SARS-COV2 and represents the causative agent of a potentially fatal disease that is of great global public health concern. Based on the large number of infected people that were exposed to the wet animal market in Wuhan City, China, it is suggested that this is likely the zoonotic origin of COVID-19. Person-to-person transmission of COVID-19 infection led to the isolation of patients that were subsequently administered a variety of treatments.

\*Corresponding author: Mahmoud Alabsi RN, Directorate of Internal Audit, Palestinian Ministry of Health, Territory, Occupied Palestinian Territory, Palestinian, Tel: 970599158014; E-mail: [mah005@hotmail.com](mailto:mah005@hotmail.com)/[mahmoud.said.absi@gmail.com](mailto:mahmoud.said.absi@gmail.com)

Received April 02, 2020; Accepted December 15, 2020; Published December 22, 2020

**Citation:** Mahmoud Alabsi RN (2020) Epidemiology, Clinical Manifestation, and Characteristic of Coronavirus Covid-19 in Palestine and regional areas. *Epidemiol Sci* 10: 396.

**Copyright:** © 2020 Mahmoud Alabsi RN. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## General Signs and Symptoms and Treatment

When infected with COVID-19, the patient suffers from four main symptoms: A) Very high temperature by (88%). B) (68%) dry cough. C) Shortness of breath (19%). D) General Weakness (15%). If the patient suffers from only one of these symptoms, treatment begins at home according to the following: Fever: Treated exclusively with Acetaminophen (paracetamol). Dry cough: Toplexil, Orapect, Toplex, Rectolap. Chest tightness: Azmix, Azmated, Aironex. General weakness: Cetacodine Extra, Panadol Extra, Codal Extra. A combination of two or more of the four symptoms means that the patient needs direct medical supervision.

Current research and articles illustrate that there is no medications or vaccines to treat the virus, but it can be use a combination of drugs and antivirals to relieve symptoms. Medications used in China, and recommended by the protocol of corona virus control: A) Aralen (chloroquinephosphat) is used to treat malaria. B) Arbidol (umifenovir) is usually used to treat influenza, especially in China and Russia. C) Kalerta (Lopivair / Ritonavir) is used in the treatment of AIDS patients. (Corona virus inhibits reproduction). D) Tamiflu (Oseltamivir) treatment and prevention of swine flu. E) Intravenous, antibiotics, medications to be given with nutrition solutions (especially since the patient develops anorexia). Other medicines are used to treat pneumonia. In advanced stages, the patient may need to be placed on the ventilator.

Within days, the patient begins to recover, his appetite returns, and his immune system becomes strong and able to produce antibodies that help kill the virus. But those whose immune system cannot resist the disease, their temperature will start to rise, vomiting and diarrhea, hallucinations, lose their sense of smell and taste, and their heartbeats begin to slow down.

According to the statistics: A) around (80%) of people who have a strong immune system do not feel symptoms. B) (15%) get sick and get cured. C) (5%) enter strict care. D) (3%) get recover. E) (2%) die and they have chronic diseases and can die from any infection other than the virus. World Health Organization periodically updates the Global Surveillance for human infection with coronavirus disease (COVID-19) document which includes case definitions.

For easy reference, case definitions can be specified as: Suspect case A) A patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath), and a history of travel to or residence in a location reporting community transmission of COVID-19 disease during the 14 days prior to symptom onset. Suspect case B) a patient with any acute respiratory illness and having been in contact with a confirmed or probable COVID-19 case in the last 14 days prior to symptom onset. Suspect case C) A patient with severe acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath; and requiring hospitalization) and in the absence of an alternative diagnosis that fully explains the clinical presentation.

Probable case: A suspect case for whom testing for the COVID-19 virus is inconclusive. a. Inconclusive being the result of the test reported by the laboratory. OR B. A suspect case for whom testing could not be performed for any reason. Confirmed case: A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

World Health Organization's strategic objectives for this response are to:

A) Interrupt human-to-human transmission including reducing secondary infections among close contacts and health care workers, preventing transmission amplification events, and preventing further international spread. B) Identify, isolate and care for patients early, including providing optimized care for infected patients. C) Identify and reduce transmission from the animal source. D) Address crucial unknowns regarding clinical severity, extent of transmission and infection, treatment options, and accelerate the development of diagnostics, therapeutics and vaccines. E) Communicate critical risk and event information to all communities and counter misinformation. F) Minimize social and economic impact through multi sectorial partnerships. This can be achieved through a combination of public health measures, such as rapid identification, diagnosis and management of the cases, identification and follow up of the contacts, infection prevention and control in health care settings, implementation of health measures for travelers, awareness-raising in the population and risk communication.

## Cases reports in Palestine

The index patients had symptoms onset on March 04, 2020 with high body temperature, headache, and unstable respiratory status requiring supplemental oxygen before they were transferred to a local hospital on the same day. At the hospital, they were found to be febrile (temperature as high as 39.6°C), with tachycardia, tachypnea, and hypoxemia (oxygen saturation, 90% while they was breathing ambient air). The consultant order medical therapy with full precaution including isolation and excessive follow up after 24 hours, the cases show no complications which clarified no evidence to hospital care. The Infection Control Center and Corona Outbreak Committee decide to transfer them to their home. With open contact and instruction how to deal with health isolation and self-follow up for any abnormal of sign and symptoms.

In that moment, several committees were formed (infection control, medical advisory, health quality consultation, and the Ministry of Interior). The tasks of these committees were summarized by making an inventory and statistics of the confirmed and suspected cases with daily reports and records. Currently, total cases in Palestine were (134) positive confirmed from (7553) test (RT-PCR), while healed, and (1) death. No progression cases at (until April 01, 2020), and total (14092) cases at quarantine distributed as (12342) home stay with medical supervision, and (1750) Ministry of Health Facilities.

## Study methods

Study oversight and supported by General Directorate of Internal Auditat Palestine Ministry of Health (Gaza Strip) and designed by the researcher. The study was approved by the institutional review board of the National Health Commission. The data were collected, analyzed, and interpreted by the author after auditing information and several global reports.

The researcher obtained the medical records and compiled data for hospitalized patients, Hospital Field, Quarantine, Home stay, and Outpatients with laboratory-confirmed Covid-19, as reported to the National Health Commission between March 05, 2020, and April 01, 2020; the data cutoff for the study was at April 01, 2020. Covid-19 was diagnosed on the basis of the WHO interim guidance. A confirmed case of Covid-19 was defined as a positive result on high throughput sequencing or real-time reverse-transcriptase-polymerase-chain-reaction (RT-PCR) assay of nasal and pharyngeal swab specimens. Only laboratory-confirmed cases were included in the analysis.

Date were collected after (RT-PCR) confirmed, and resident

patients whom arrive from ports or contact with Non Palestinian citizens, and transferred to isolation areas. Data were entered into a computerized database and continuously updating. A comparison between the countries and the number of new Cases, total Patients, recovering, number of deaths, and ways of infection. Depending on the region, the continent, and the provinces.

## Results

Due to Global updates and difficult to control of corona virus extension, after considered that Corona Virus (covid-19) as pandemic Disease by World Health Organization. The Ministry of Health-Palestine with funds from Palestinian Authority, and International Organization (WHO, Red Cross, Red Crescent) create emergency committees which follow up the procedures to control the disease and produced a protocols illustrate the way to control of the Corona Virus. As follow:

The Undersecretary of the Ministry of Health decided to consider all health teams in the quarantine centers with the returnees travelers until the expiration of the quarantine period, and that the employees of the hospital designated to treat the affected cases will have a working time of 21 days inside the hospital, 21 days of quarantine and 21 days of work allowance. In Gaza Strip, completely closed for all crossings and borders, except critical and emergency cases. The Ministry of Interior has started implementing the second degree of the contingency plan to tackle the Corona virus, since it was discovered that the two cases

were infected with the virus. Granted open leave for 400 inmates in correctional and rehabilitation centers of the owners of classified issues without serious. Securing 21 quarantine centers precautionary in all governorates of the Gaza Strip at the borders, schools, and hotels.

Center for Media and Government Information: communicate continuously with the supporting agencies, and issuing a daily report of the latest data of the disease.

The above Table 1 illustrates the incidence of cases at Palestine according to territories, as follow: in Jerusalem were 48 positive (RT-PCR) tests, while 171 suspects at home stay and under observation. In west bank governorates 74 cases confirmed infected by the virus, around 12171 home stay, and 70 Ministry of Health quarantine under observation. As well in Gaza governorate 12 individuals confirmed positively with the virus, and a 1680 at the ministry quarantine. It is also observed that there is little noticeable difference by age group for higher than 60 years old and lesser than 10 years. While the virus affects on youth age (20-29) years old with rate 27% of total patients. and age groups (10-19), (30-39), (40-49), (50-59) with rates (10%), (18%), (15%), and (16%) respectively of total patients as shown in Figure 1.

The last Table 2 clarifies the range the number of confirmed cases, incidence cases, and total death in several regions. And at first it demonstrates the Western Pacific Region the highest numbers according to countries. Starting with China recorded 82631 positive tests, and around 3321 death. In Republic in Korea the numbers of

| Territory  | No. of Confirmed Cases | Ministry Quarantine        | Home stay |
|--|------------------------|----------------------------|-----------|
| Jerusalem  | 48                     | 0                          | 171       |
| West Bank  | 74                     | 70                         | 12171     |
| Gaza Strip   | 12                     | 1680                       | 0         |
| Distribution of confirmed cases according to age group |                        |                            |           |
| Age (0-9)  | 3.7%                   | Age (40- 49)               | 15%       |
| Age (10-19)  | 10%                    | Age (50-59)                | 16%       |
| Age (20-29)  | 27%                    | Age 60+                    | 9.7%      |
| Age (30-39)  | 18%                    | Males (59%): Females (41%) |           |

**Table 1:** Clarify the distribution of confirmed cases, homestay, quarantine, according to age and governorate, until (April 01, 2020).

|    | Western Pacific Region | Total confirmed cases | Total confirmed new cases | Total deaths | Transmission classification |
|----|------------------------|-----------------------|---------------------------|--------------|-----------------------------|
| 1  | China                  | 82631                 | 86                        | 3321         | Local transmission          |
| 2  | Korea Rep.             | 9887                  | 101                       | 165          | Local transmission          |
| 3  | Australia              | 4707                  | 348                       | 20           | Local transmission          |
| 4  | Malaysia               | 2766                  | 140                       | 34           | Local transmission          |
| 5  | Japan                  | 2178                  | 225                       | 57           | Local transmission          |
| 6  | Singapore              | 926                   | 47                        | 3            | Local transmission          |
|    | European Region        | Total confirmed cases | Total confirmed new cases | Total deaths | Transmission classification |
| 1  | Italy                  | 110574                | 4053                      | 13155        | Local transmission          |
| 2  | Spain                  | 102136                | 9222                      | 9053         | Local transmission          |
| 3  | Germany                | 75676                 | 5453                      | 854          | Local transmission          |
| 4  | France                 | 52128                 | 7500                      | 3523         | Local transmission          |
| 5  | Switzerland            | 16108                 | 696                       | 1789         | Local transmission          |
| 6  | The United Kingdom     | 29474                 | 3009                      | 2352         | Local transmission          |
| 7  | Turkey                 | 13531                 | 2704                      | 214          | Local transmission          |
| 8  | Belgium                | 12775                 | 876                       | 705          | Local transmission          |
| 9  | Netherlands            | 12595                 | 845                       | 1039         | Local transmission          |
| 10 | Austria                | 10182                 | 564                       | 128          | Local transmission          |
|    | South-East Asia Region | Total confirmed cases | Total confirmed new cases | Total deaths | Transmission classification |
| 1  | Thailand               | 1771                  | 247                       | 12           | Local transmission          |
| 2  | Indonesia              | 1636                  | 565                       | 38           | Local transmission          |
| 3  | India                  | 1528                  | 114                       | 136          | Local transmission          |

**Table 2:** Europe and Asia Countries, with reported laboratory-confirmed COVID-19 cases and deaths. Data as of April 1, 2020.

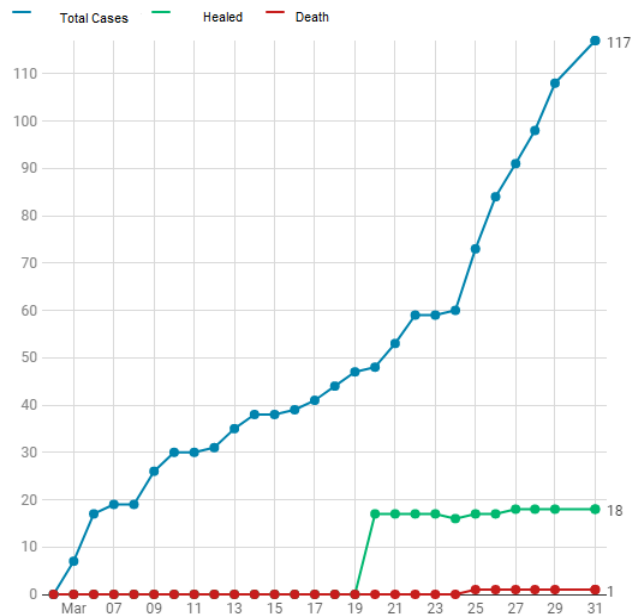


Figure 1: Clarify the Cumulative of confirmed cases, healed, and death rate in Palestine (March 04- 31, 2020).

|    | Eastern Mediterranean Region | Total confirmed cases | Total confirmed new cases | Total deaths | Transmission classification |
|----|------------------------------|-----------------------|---------------------------|--------------|-----------------------------|
| 1  | Iran                         | 47593                 | 3111                      | 3036         | Local transmission          |
| 2  | Israel                       | 5129                  | 298                       | 21           | Local transmission          |
| 3  | Pakistan                     | 2039                  | 174                       | 26           | Local transmission          |
| 4  | Saudi Arabia                 | 1563                  | 110                       | 10           | Local transmission          |
| 5  | Qatar                        | 781                   | 88                        | 2            | Local transmission          |
| 6  | Bahrain                      | 567                   | 52                        | 4            | Local transmission          |
| 7  | Egypt                        | 710                   | 54                        | 46           | Local transmission          |
| 8  | Lebanon                      | 463                   | 17                        | 12           | Local transmission          |
| 9  | Iraq                         | 694                   | 64                        | 50           | Local transmission          |
| 10 | Kuwait                       | 289                   | 23                        | 0            | Local transmission          |
| 11 | United Arab Emirates         | 664                   | 53                        | 6            | Local transmission          |
| 12 | Morocco                      | 638                   | 64                        | 36           | Local transmission          |
| 13 | Jordan                       | 274                   | 6                         | 5            | Local transmission          |
| 14 | Tunisia                      | 394                   | 32                        | 10           | Local transmission          |
| 15 | Occupied Palestinian         | 134                   | 17                        | 1            | Local transmission          |
| 16 | Oman                         | 210                   | 31                        | 1            | Local transmission          |
| 17 | Afghanistan                  | 192                   | 26                        | 4            | Local transmission          |

Table 3: Eastern Mediterranean Region EMRO Countries, with reported laboratory-confirmed COVID-19 cases and deaths. Data as of April 01, 2020

corona virus patients were 9887 with 165 deaths. Australia, Malaysia, Japan, and Singapore were as confirmed cases (4707, 2766, 926), and number of death (20, 34, 57, 3) respectively. In European region, the numbers of new cases and mortalities in rise day by day, and it concentrate in Italy, Spain, Germany, and France with positive cases (110574, 102136, 75676, 52128), and Death reached (13155, 9053, 854, 3523) respectively. In other European countries it demonstrates varies cases and death, with difficulties in control of the virus spreading.

Regarding South-East Asia Region, the same Table 3 illustrates low number of total cases and new cases and death, as shows in Thailand, Indonesia, and India. Even though these countries considered highest population and crowded cities.

At EMRO countries, most countries still in control with the virus, even the infected people raised slowly. But in Iran, since the first wave of this pandemic the numbers raised sharply in total cases, new cases and death numbers as (47593, 3011, 3036) respectively. In

Palestine it was discussed the numbers at cases reports paragraph. Also same point happen in Israel, with unstoppable new cases and death, and the last updates shows that total confirmed cases were 5129 and deaths 21. Then, in Pakistan, Saudi Arabia, Qatar, Egypt, United Arab Emirates, Bahrain, Iraq. With notable that the high cases focused in gulf area and countries.

In Table 4, shows that notable difference between countries in north and North Americas, concerning the incidence, total cases, and number of death. In the United States the total number of total cases reached 199273, and death 8698. The epidemiologist expects the number will increase peaky in few day or weeks. While in other countries still under control and the number rise slowly, with planning to avoid virus infection and exposed in new individuals.

At this study period, total confirmed cases in all regions recorded (823,626), new cases 72,936, new death 4193, and the total death reached 40,598 since the occurrence of the Coronavirus in December,

|   | Region of the Americas   | Total confirmed cases | Total confirmed new cases | Total deaths | Transmission classification |
|---|--------------------------|-----------------------|---------------------------|--------------|-----------------------------|
| 1 | United States of America | 199273                | 22559                     | 8698         | Local transmission          |
| 2 | Canada                   | 7695                  | 1378                      | 89           | Local transmission          |
| 3 | Brazil                   | 4579                  | 323                       | 159          | Local transmission          |
| 4 | Chile                    | 2738                  | 289                       | 12           | Local transmission          |
| 5 | Ecuador                  | 2240                  | 278                       | 75           | Local transmission          |
| 6 | Peru                     | 1065                  | 213                       | 24           | Local transmission          |
| 7 | Mexico                   | 1094                  | 101                       | 28           | Local transmission          |
| 8 | Panama                   | 989                   | 0                         | 24           | Local transmission          |
| 9 | Dominican Rep.           | 1109                  | 208                       | 51           | Local transmission          |
|   | African Region           | Total confirmed cases | Total confirmed new cases | Total deaths | Transmission classification |
| 1 | South Africa             | 1353                  | 27                        | 5            | Local transmission          |
| 2 | Algeria                  | 584                   | 73                        | 35           | Local transmission          |
| 3 | Burkina Faso             | 261                   | 15                        | 14           | Local transmission          |
| 4 | Senegal                  | 175                   | 13                        | 0            | Local transmission          |
| 5 | Ghana                    | 152                   | 0                         | 5            | Local transmission          |
| 6 | Cameron                  | 139                   | 0                         | 6            | Local transmission          |
| 7 | Côte d'Ivoire            | 169                   | 0                         | 0            | Imported cases only         |

**Table 4:** Americas and African Countries, with reported laboratory-confirmed COVID-19 cases and deaths. Data as of April 01, 2020.

| Reporting Country/ Territory | Total confirmed cases | Total confirmed new cases | Total deaths | Total new deaths |
|------------------------------|-----------------------|---------------------------|--------------|------------------|
| Subtotal for all regions *   | 822,914               | 72,736                    | 40,591       | 4193             |
| Grand total *                | 823,626               | 72,936                    | 40,598       | 4193             |

\*Numbers include both domestic and repatriated cases

**Table 5:** The Whole Countries, territories or areas with reported laboratory-confirmed COVID-19 cases and deaths. Data as of April 01, 2020\* Reporting Country/ Territory/ Area.

2019 as can be seen in Table 5. The number continues to increase every moment, with new cases and deaths recorded.

Terms: Community transmission is evidenced by the inability to relate confirmed cases through chains of transmission for a large number of cases, or by increasing positive tests through sentinel samples (routine systematic testing of respiratory samples from established laboratories). Local transmission indicates locations where the source of infection is within the reporting location. Imported cases only indicate locations where all cases have been acquired outside the location of reporting. Under investigation indicates locations where type of transmission has not been determined for any cases. Interrupted transmission indicates locations where interruption of transmission has been demonstrated.

## Conclusion

Coronaviruses are a fascinating group of viruses, providing animal models of pathogenesis, unusual molecular mechanisms of transcription and recombination, and new emerging pathogens. The emergence of SARS and the identification of a coronavirus as the etiologic agent of the disease was a surprise to the coronavirus community, as it was the first definitive association of a coronavirus with severe disease in humans. While it is not clear whether SARS-CoV will again emerge into the human population, it has spurred on the awareness to consider coronaviruses as the cause of human respiratory and perhaps other types of disease.

Palestinian ministry of health submits clear protocols which affect positively to control covid-19 spreading at the provinces. Furthermore, the rapid response to the outbreak of the disease. During this early period, published research primarily explored the epidemiology, causes, clinical manifestation and diagnosis, as well as prevention and control of the novel coronavirus. Although these studies are relevant to control the current public emergency. With world health organization protocols and recommendations, it could be to handle and overcome

of the virus spreading, raising morbidity and mortality in global.

The data gathered during the many following days and regions/countries records. The very quick development of a reverse genetics system for SARS-CoV was based on previous systems for other coronaviruses. The experience with development of coronavirus vaccines will aid the developments of vaccines for SARS as well. Future directions for SARS-CoV research include further understanding of the mechanisms of replication; elucidation of the molecular determinants of virulence and tropism and the immune response, with attention to the possible roles of group-specific proteins; development of vaccine strategies and antiviral therapies for animal and human viruses; and very likely the isolation and characterization of new pathogenic human coronaviruses.

## References

1. World Health Organization. Pneumonia of unknown cause- China. January 5, 2020.
2. World Health Organization. Novel Coronavirus- China. January 12, 2020.
3. Zhu N, Zhang D, Wang W, Gao F, Tan W, et al. (2020) A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med* 382:727-733
4. Centers for Disease Control and Prevention. Symptoms of coronavirus disease 2019 (COVID-19) (2020).
5. World Health Organization. Coronavirus disease 2019 (COVID-19): situation report- 72. April 01, 2020.
6. Corona Virus (COVID-19) in Palestine. Access at March 31, 2020.
7. Chen N, Zhou M, Dong X (2020) Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet* 395: 507-13.
8. Huang C, Wang Y, Li X (2020) Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020.
9. WHO. Clinical management of severe acute respiratory infection when Novel coronavirus (nCoV) infection is suspected: interim guidance. Jan 11, 2020. Accessed at March 24, 2020. [https://www.who.int/internalpublicationsdetail/clinicalmanagementofsevereacuterespiratoryinfectionwhennovelcoronavirus-\(ncov\)infectionissuspected](https://www.who.int/internalpublicationsdetail/clinicalmanagementofsevereacuterespiratoryinfectionwhennovelcoronavirus-(ncov)infectionissuspected).

10. Hussin AR, Siddappa NB (2020) The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *J Autoimmunity* 109: 24-33.
11. World Health Organization. Clinical management of severe acute respiratory infection when novel coronavirus (2019nCoV) infection is suspected: interim guidance. January 28, 2020.
12. Lu H, Stratton CW, Tang YW (2020) Outbreak of pneumonia of unknown etiology in Wuhan China: the mystery and the miracle. *J Med Virol* 92: 401-402.
13. Cui J, Li F, Shi ZL (2019) Origin and evolution of pathogenic coronaviruses. *Nat Rev Microbiol* 17: 181- 192.
14. Adhikari SP, Meng S, Wu YJ, Mao YP, Ye RX, et al. (2020) Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review. *Infect Dis Poverty* 9: 29-30.