

A cluster of stylized virus particles, represented as grey circles with radiating lines, is positioned in the upper right quadrant of the page. The background features a gradient of green and yellow wavy patterns at the bottom.

Diagnosis and treatment

COVID-19 Prevention and Control

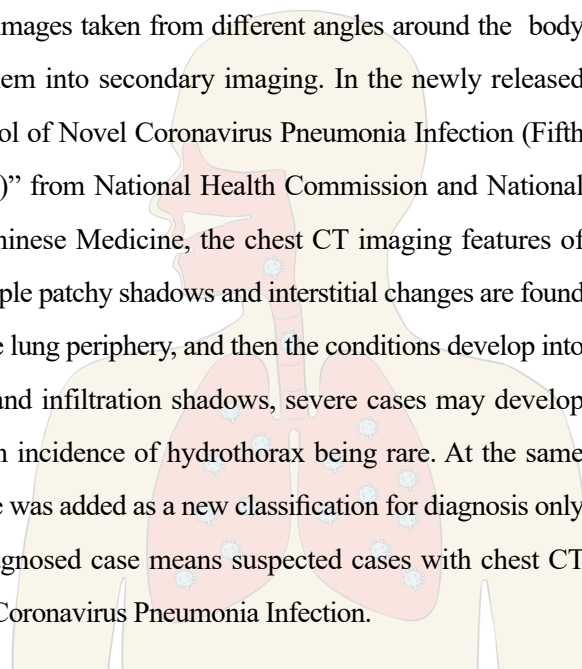


Diagnosis and treatment

1. How to detect 2019-nCoV?

The samples of nasopharyngeal swabs, sputum, lower respiratory tract secretions, blood and feces are first collected by public health staff, before the RNA of 2019-nCoV is detected by reverse transcription polymerase chain reaction (RT-PCR). Gene sequencing analysis can also be used for diagnosis by comparing it with the gene sequence of known 2019-nCoV. Nucleic acid detection and virus gene sequencing analysis can also trace the origin of the virus, guiding the prevention and control of new pathogens in the future.

A CT scan (computed tomography scan) is the scanning of a certain thickness of specific parts of the human body with X-ray beams. The principle of CT is that CT scan combines a series of X-ray images taken from different angles around the body and uses computer to process them into secondary imaging. In the newly released “Diagnosis and Treatment Protocol of Novel Coronavirus Pneumonia Infection (Fifth Edition for Trial Implementation)” from National Health Commission and National Administration of Traditional Chinese Medicine, the chest CT imaging features of COVID-19 were suggested: multiple patchy shadows and interstitial changes are found in the early stage, especially in the lung periphery, and then the conditions develop into multiple ground glass shadows and infiltration shadows, severe cases may develop consolidation of lung tissue, with incidence of hydrothorax being rare. At the same time, the clinically diagnosed case was added as a new classification for diagnosis only in Hubei province, clinically diagnosed case means suspected cases with chest CT imaging characteristics of Novel Coronavirus Pneumonia Infection.



2. How to diagnose 2019-nCoV infection?

Suspected cases: cases that meet any one condition of the epidemiological history and have any two conditions of the clinical manifestations. If there is no clear history of epidemiology, then the case should meet three conditions of the clinical manifestations.

History of Epidemiology:

- 1) Travel or residence history in Wuhan and its surrounding areas or other communities with reported cases within 14 days before the onset of the disease;
- 2) History of contact with 2019-nCoV infected patients (the result of the nucleic acid test showed positive) within 14 days before the onset of the disease.
- 3) Contact with patients with fever or respiratory symptoms from Wuhan and its surrounding areas or other communities with reported cases within 14 days before the onset of the disease.
- 4) Cluster infection

Clinical manifestations:

- 1) Fever and/ or respiratory symptoms;
- 2) The imaging features of pneumonia: multiple patchy shadows and interstitial changes are found in the early stage, especially in the lung periphery. And then the conditions develop into multiple ground glass shadows and infiltration shadows. Severe cases may develop consolidation of lung tissue, with incidence of hydrothorax being rare.
- 3) The total leukocyte count is normal or decreases, or the lymphocyte count

decreases in the early stage of the disease.

Confirmed case: suspected case with one of the following etiological evidences:

- 1) the result of RT-PCR used to detect the nucleic acid of 2019-nCoV in respiratory or blood samples is positive;
- 2) The result of virus gene sequencing analysis of respiratory or blood samples is highly homologous with the known 2019-nCoV.

(Reference: National Health Commission and National Administration of Traditional Chinese Medicine “*Diagnosis and Treatment Protocol of Novel Coronavirus Pneumonia Infection (Fifth Edition for Trial Implementation)*”)

3. Symptoms after 2019-nCoV infection, what should be paid attention to when 2019-nCoV infected patients go to the hospital ?

Patients with 2019-nCoV infection do not necessarily develop pneumonia, while it is possible that mild symptoms will heal by themselves in about a week. The main clinical manifestations of 2019-nCoV infection are fever, fatigue and dry cough. A few patients also develop symptoms such as nasal obstruction, runny nose, sore throat and diarrhea. A small number of patients may deteriorate to severe cases. Severe patients usually have dyspnea and / or hypoxemia in one week after the onset of the disease, and even develop rapidly into acute respiratory distress syndrome. There are also asymptomatic patients with positive nucleic acid analysis.

According to the different channels of transmission, speed and the degree of harm to human beings, Chinese current legally reported infectious diseases are divided into three categories, i.e. A, B and C, totaling 39 kinds. Pneumonia caused by 2019-nCoV infection has been included in the class B infectious diseases stipulated in



the Law of the People's Republic of China on the Prevention and Treatment of Infection Diseases , and the prevention and control measures for class A infectious diseases have been taken.



For the 2019-nCoV infected patients, the hospitals will transfer the patients to the designated hospital for quarantined treatment, and carry out etiological detection. The patient should provide a truthful and detailed account of the disease situation and the history of seeking medical treatment, especially recent history of travel and residence in Wuhan, history of contact with patients with infected or suspected patients, history of animal contact, and so on.

(Reference: National Health Commission and National Administration of Traditional Chinese Medicine “*Diagnosis and Treatment Protocol of Novel Coronavirus Pneumonia Infection (Fifth Edition for Trial Implementation)*” ; Chinese Academy of Medical Sciences and Peking Union Medical College Hospital “*PUMCH Novel Coronavirus Pneumonia Prevention and Precautions Handbook*”)

4. How are the treatment regimes available for Novel Coronavirus Pneumonia?

Suspected and confirmed cases should receive quarantined care in designated hospitals with effective quarantine and protective conditions, and suspected cases should be isolated in a single room, while confirmed cases can be admitted in the same clinic, and severe cases should be admitted to ICU as soon as possible.

The patients should rest in bed, strengthen supportive care, ensure sufficient energy intake, pay attention to the balance of water and electrolyte; effective oxygen



therapy measures should be provided in time, including a nasal catheter, mask oxygen inhalation and high-flow nasal cannula oxygen therapy. Currently, no effective anti-virus treatment options have been confirmed so far, but doctors may administer α -interferon atomization inhalation (for adults: 5 million U or equivalent dose, added with 2 ml sterile injection water, twice a day), Lopinavir Ritonavir (200mg / 50mg per pill) 2 capsules per serving, twice a day, or Ribavirin can be added (500mg each injection, iv. two to three times a day). Avoid blind or inappropriate use of antibiotics, especially the combination with broad-spectrum antibiotics.

A number of drugs already available in the market have been found to contain antiviral performance, such as Redcivir, Chloroquine Phosphate and Farravir, as well as some proprietary Chinese medicines. Now efforts are made to step up and conduct different phases of animal and clinical trials.

(Reference: National Health Commission and National Administration of Traditional Chinese Medicine “*Diagnosis and Treatment Protocol of Novel Coronavirus Pneumonia Infection (Fifth Edition for Trial Implementation)*”)



5. How long does it take to cure?

According to the statistics of the National Health Commission, barring Hubei, the average hospitalization stay of discharged patients in Hainan is the shortest at 5 days, and that of Guangdong is the longest at 12.75 days. If taking Hubei into consideration, the average hospitalization stay of discharged patients in China is a little over 9 days. The average hospitalization stays in Hubei is 20 days.

(Reference: *The People's Daily*)

6. What is the prognosis after infection? Will there be sequelae or after-effect?

According to the cases currently treated, most of the patients have a good prognosis and a few are in severe conditions. The prognosis of the elderly and patients with underlying chronic diseases is relatively poor and the symptoms of children are relatively mild.

(Reference: National Health Commission and National Administration of Traditional Chinese Medicine “*Diagnosis and Treatment Protocol of Novel Coronavirus Pneumonia Infection (Fifth Edition for Trial Implementation)*”)

7. Are discharged patients still contagious and will they be infected again?

It's highly unlikely. According to clinical experience, if the results of two nucleic acid tests for recovered and discharged patients are both negative, then there is no virus replication. At the same time, patients have produced their own antibodies within two to three weeks after the infection. In particular for the recovered patients, their antibodies will last six months or longer. It is highly unlikely for them to be infected again within six months, unless there is a viral mutation, which

is not supported by any evidence so far.

If the body temperature returns to normal for more than 3 days, the respiratory symptoms improve obviously, the pulmonary imaging shows that the inflammation obviously decreases, and the results of two consecutive nucleic acid test for respiratory pathogen are negative (the sampling interval should be at least 1 day), the patient can be removed from quarantine or transferred to the corresponding department to treat other diseases according to their conditions.

(Reference: National Health Commission and National Administration of Traditional Chinese Medicine “*Diagnosis and Treatment Protocol of Novel Coronavirus Pneumonia Infection (Fifth Edition for Trial Implementation)*”)