

*Combating Corona:  
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**Protocol on Prevention and Control of Novel  
Coronavirus Pneumonia**

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# **Protocol on Prevention and Control of Novel Coronavirus Pneumonia (Edition 6)**

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In order to prevent and control novel coronavirus pneumonia (COVID-19), ensure “early detection, early reporting, early isolation and early treatment”, prevent the spread of the outbreak, reduce infection rate, improve treatment rate and cure rate, reduce case fatality rate, protect people’s safety and health and maintain social stability, the 5<sup>th</sup> Edition of *the Novel Coronavirus Pneumonia Prevention and Control Protocol* is now revised to this 6<sup>th</sup> Edition according to the policy that novel coronavirus pneumonia is classified as a category B infectious disease but regulated as a category-A infectious disease and based on the epidemic evolution across the country and research advances, in order to implement evidence-based, tailored and specific approaches for different regions and stages in the prevention and control of the diseases.

## **I. Purposes**

To guide local efforts in timely detecting and reporting novel coronavirus pneumonia cases and clusters, conducting epidemiological investigations and outbreak responses, and standardizing close contact management in the prevention and control of the disease.

## **II. Etiology and epidemiological characteristics**

Novel coronavirus belongs to  $\beta$ -type coronavirus and its genetic characteristics are significantly different from SARSr-CoV and MERSr-CoV. The virus is sensitive to ultraviolet rays and heat. It can be killed by heating for a time period of 30 minutes at 56°C and lipid solvents such as ether, 75% ethanol, chlorine-containing disinfectant, peracetic acid and chloroform can also effectively inactivate the virus. Based on current epidemiological survey and research results, the incubation period is 1-14 days, mostly 3-7 days. The source of infection is mainly patients infected by novel coronavirus and asymptomatic infected persons may also become source of infection. Main transmission routes are droplet transmission and contact transmission. In a relatively closed setting exposed to high concentrations of aerosols for a long time, there exists the possibility of aerosol transmission, and other transmission routes still needs further investigation. All population is susceptible.

### **III. Surveillance case definitions**

#### **1. Suspect cases**

Considering both the following epidemiological history and clinical manifestations:

##### (1) Epidemiological history

- 1) History of travel to or residence in Wuhan and its surrounding areas, or other communities in China where cases have been reported, or other countries/areas with severe outbreaks, within 14 days prior to the onset of the disease;
- 2) In contact with novel coronavirus infected people (with positive results for the nucleic acid test) within 14 days prior to the onset of the disease;
- 3) In contact with patients who have fever or respiratory symptoms from Wuhan and its surrounding area, or from communities where confirmed cases have been reported, or from other countries/areas with severe outbreaks, within 14 days before the onset of the disease; or
- 4) Clustered cases (2 or more cases with fever and/or respiratory symptoms in a small area such families, offices, schools, workshops etc within 14 days).

##### (2) Clinical manifestations

- 1) Fever and/or respiratory symptoms;
- 2) The aforementioned imaging characteristics of NCP;
- 3) Normal or decreased WBC count, normal or decreased lymphocyte count in the early stage of onset.

A suspect case has any of the epidemiological history plus any two clinical manifestations or all three clinical manifestations if there is no clear epidemiological history.

#### **2. Confirmed cases**

Suspect cases with one of the following etiological or serological evidences:

- (1) Real-time fluorescent RT-PCR indicates positive for new coronavirus nucleic acid;
- (2) Viral gene sequence is highly homologous to known new coronaviruses.
- (3) NCP virus specific Ig M and IgG are detectable in serum; NCP virus specific IgG is detectable or reaches a titration of at least 4-fold increase during convalescence compared with the acute phase.

#### **3. Asymptomatic infected persons**

Asymptomatic people with COVID-19 virus detected in respiratory specimens or IgM detected in serum.

They are mainly found through close contact tracing, investigation of clusters and infection source tracing.

#### 4. Cluster of cases

Clusters of cases refer to 2 or more confirmed cases or asymptomatic infected persons in a small area such families, offices, schools, workshops etc within 14 days, with the possibility of human-to-human transmission or common exposures.

#### 5. Close contacts

People who had unprotected close contact with a confirmed or suspect case within two days before illness onset, or with an asymptomatic infected person within two days before sampling.

### **IV. Prevention and control measures**

#### **1. Precise prevention and control tailored to specific areas and levels.**

In accordance with *the law of the People's Republic of China on the Prevention and Treatment of Infectious Diseases* and *the Regulations on Emergency Response to Public Health Emergencies*, precise tailored prevention and control measures are to be implemented for different regions and at different levels. Every county/district (as a unit), based on its demographic and epidemiological situation, shall assess its epidemic risk level, and determine its adapted prevention and control strategies.

- 1) In low risk areas**, the strategy is to "strictly prevent importation". It includes strengthen the tracking and management of incoming people from areas with severe outbreaks and high-risk areas and enhance health monitoring and services. Fever clinics should strengthen the monitoring, detection and reporting of outpatients with fever, and the CDCs should carry out timely epidemiological investigations and management of close contacts. The government should urge and provide guidance to the urban and rural communities, government agencies, enterprises and public institutions to strictly implement community prevention and control measures, improve environmental hygiene, and popularize knowledge and skills of disease prevention to the general public.
- 2) In middle risk areas**, the strategy is "to prevent importation and stop transmission internally". It includes various measures taken for low-risk areas, and also the preparations for medical treatment, personnel, materials and venues required for disease prevention and control efforts, and isolated medical observation and management of close contacts. School class, building unit,

factory workshop and workplace office will serve as the smallest unit, the resources such as location and personnel for prevention and control and tailored measures can be determined and implemented based on the case discovery clue, epidemiological investigation and epidemic analysis. The townships, streets and urban and rural communities without confirmed cases can implement prevention and control measures with reference to low-risk areas.

- 3) **In high risk areas**, the strategy is "to stop transmission internally, prevent exportation and implement strict prevention and control measure". In addition to measures for the middle risk area, stopping aggregation activities and implement regional traffic control with the approval in accordance with the law and procedures. Every county should conduct a comprehensive screening of patients with fever, timely admission and management of suspect cases, confirmed cases and asymptomatic infected patients, close contacts are isolated and put under medical observation. Disinfection shall be conducted in sites with community transmission or clustered outbreaks in urban residential areas or rural natural villages, and control measures shall be taken to restrict the gathering, entry and exit of people from the above sites.

Carry out the dynamic research and analysis, adjust risk level in a timely manner, reduce emergency response level or terminate emergency response after the case number keeps declining steadily and the risk of epidemic spread is effectively controlled.

## 2. Early detection.

- 1) Health care facilities at various levels should raise awareness of diagnosing and reporting COVID-19 cases. For cases with respiratory symptoms such as fever and dry cough and digestive tract symptoms such as diarrhea caused by unknown reasons, their epidemiological history should be considered, and expert joint consultations organized while specimens collected for pathogenic testing.
- 2) Primary level organizations should put more efforts on screening people who travelled to or resided in Wuhan and its surrounding areas within recent 14 days, people who travelled to or resided in communities where confirmed cases have been reported and people who have respiratory symptoms, fever, chills, fatigue, diarrhea, conjunctival congestion and so forth. These people are key risk groups for screening. Their sampling and testing should be performed by professional institutions.
- 3) Make use of the existing surveillance networks of pneumonia of unknown causes, ILI cases and

hospitalized SARI cases to strengthen etiological surveillance.

- 4) Port health quarantine should be strengthened by strictly implementing temperature monitoring and medical inspection at the port. For people with respiratory symptoms such as fever and dry cough and digestive tract symptoms such as diarrhea, epidemiological investigation and medical screening should be conducted, and specimens collected according to the requirements.
- 5) Close contacts should be monitored of their health status. Patients with respiratory symptoms such as fever and dry cough and digestive tract symptoms such as diarrhea should be timely transferred to the designated healthcare facilities with their specimens collected.

### 3. Early reporting.

- 1) Case reporting. When suspect cases, confirmed cases and asymptomatic infected persons are detected, healthcare facilities at all levels and of all types should report the cases immediately via online direct reporting system. CDCs, upon receiving the report, should conduct investigation immediately, verify the report and complete the three-level confirmation and review within 2 hours in the online direct reporting system. Healthcare facilities without online direct reporting capacity should make a prompt report to the local county/district CDC and send out the notifiable disease reporting cards within 2 hours. The local county/district CDC should make online direct report upon receiving the notification and ensure the correction of subsequent information.
- 2) Revising report. Once suspect cases are confirmed or ruled out, the information should be corrected timely. If the asymptomatic infected persons have developed clinical manifestations, they should be corrected timely as “confirmed cases”. “Clinical severity” of all cases should be timely amended according to the progression of illness condition, with the most severe condition of the case as its final severity status. For dead cases, date of death should be entered within 24 hours.

When reporting asymptomatic infection cases, the “date of onset” should be “collection date of positive specimen” and “date of diagnosis” should be the “positivity detection date”. If the “asymptomatic infected persons” have been amended to “confirmed cases”, the “date of onset” should be the date when clinical symptoms appear.

- 3) Reporting of emergencies. According to the requirements of *the National Public Health Emergency Response Contingency Plan* and *the National Public Health Emergency Related Information Reporting and Management Rules (Trial)*, the index novel coronavirus pneumonia

confirmed case or cluster in the county/district should be reported within two hours by the local CDC in the jurisdiction through online direct reporting system for public health emergencies. The emergency level can be categorized as “unclassified” for the time being and should be adjusted and reported timely based on the investigation findings and assessment.

#### **4. Early isolation.**

- 1) **Case management.** Suspect cases and confirmed cases should be isolated and treated in single rooms in the designated healthcare facilities. Suspect cases should be isolated and treated in single rooms and can be ruled out as a suspect case if tested negative twice consecutively on the virus nuclear acid test (with at least 24-hour interval between two samplings) and specific IgM and IgG tested negative 7 days after onset.
- 2) **Management after discharge.** After the case meets discharge criteria and is discharged, it is recommended the patients continue to be monitored of their health status in isolation for 14 days. When possible, the provinces are encouraged to strengthen the follow up of discharged cases and testing of their respiratory specimens; those tested positive should be put centralized isolation for medical observation with the information submitted to China CDC.
- 3) **Management of asymptomatic infected persons.** Asymptomatic infected persons should be put under centralized isolation for 14 days. In principle, those tested twice consecutively on virus nuclear acid (with at least 24-hour interval between two samplings) can be removed from isolation.

#### **5. Early treatment.**

Healthcare facilities of all levels and of all types should transfer the detected suspect cases to the designated hospitals in a timely manner. The designated hospitals should be well prepared for case treatment in terms of personnel, medicines, facilities, equipment and personal protective equipment and provide treatment according to the most update COVID-19 diagnosis and treatment protocol. Efforts should be made to ensure that “all in need are tested, admitted, treated and isolated” so as to improve admission rate and cure rate, reduce infection rate and case fatality rate.

#### **6. Epidemiological investigation.**

**1) Case investigation.** The county/district CDC, upon receiving the report, should complete the epidemiological investigation of cases and asymptomatic infected persons within 24 hours. The investigation should be conducted following the requirements set out in the COVID-19 epidemiological investigation protocol issued by China CDC. Close contact tracing and registration should also be conducted following the requirements set out in the COVID-19 close contact investigation and management protocol issued by China CDC. For suspect cases, basic information of the case and close contacts should be registered.

**2) Cluster investigation.** The county/district CDC should conduct immediate investigation of clusters meeting the definition based on the online reported information and case investigation findings following the requirements set out in the COVID-19 epidemiological investigation protocol issued by China CDC.

**3) Information reporting.** The county/district CDC, upon completion of the case investigation of confirmed cases or asymptomatic infected persons, or investigation of clusters, should submit the case investigation form and investigation report timely via the online reporting system.

## **7. Close contact tracing and management.**

Close contact tracing and management are organized and implemented by the county/district health authority along with relevant departments. Close contacts are put under centralized isolation and medical observation; if not feasible, home isolation and medical observation can be implemented. The close contacts should be monitored of their temperature at least twice a day and asked whether they have respiratory symptoms such as fever and dry cough or digestive tract symptoms such as diarrhea. The medical observation period for close contacts is 14 days after the last unprotected contact with a case or an asymptomatic infected person. If a suspect case is ruled out as a suspect, his or her close contacts can be removed from medical observation following the requirements set out in the COVID-19 close contact investigation and management protocol issued by China CDC.

## **8. Specimen collection and lab testing.**

Healthcare facilities receiving the cases should collect relevant clinical specimens timely. The laboratories undertaking the testing of the specimens (eligible healthcare facilities, CDCs or third-party labs) should feedback the test result within 12 hours. Specimen collection, transportation, storage and



testing should be practised strictly in accordance with the requirements set out in the lab testing protocol issued by China CDD.

All the original specimens of clusters of five or more novel coronavirus pneumonia cases in each region should be sent to the Chinese Center for Disease Control and Prevention for verification and confirmation.

#### **9. Strengthen prevention and control measures targeting at key settings, institutions and populations.**

Strengthen the multi-sectoral joint prevention and control mechanism to minimize public gathering activities, and implement measures such as ventilation, disinfection and temperature taking in places with large population flow such as train stations, airports, ports, shopping malls, public toilets and closed vehicles such as cars, trains, and airplanes.

The health authorities should guide the enterprises to organize their employees to return to work in phases and batches, strictly conduct the ventilation, disinfection, temperature detection and other prevention and control work, provide the employees with necessary personal protective equipment, and adopt the approaches of partition operation and scattered dining, to effectively reduce the concentration of people; also provide health education among migrant workers from rural areas and strengthen temperature screening before their returning to work. Once abnormal situation is detected, timely reporting, screening and identification and response measures should follow to stop the risk people from going out.

After the school and kindergarten institutions re-open, the health authorities shall provide the health tips to and guide the health management of returning teachers and students and supervise the implementation of prevention and control measures such as morning /afternoon check, tracing and registration of illness absence/attendance. When a epidemic report is received, epidemiological investigation, response measures, guidance to the disinfection work in affected region should be carried out quickly.

For special institutions such as nursing homes, welfare institutions for the disabled, detention places, the government should further standardize the management of personnel entry and exit, strict ventilation, daily cleaning, disinfection and other health measures, and strengthen personal protection measures,

health monitoring, and the daily management of incapacitated and semi-incapacitated people.

Implement health inspection and quarantine at ports for people entering China. Enhance health management of people coming to China from countries and areas with serious epidemic situations; conduct screening, investigation, diagnosis, treatment and medical observation of suspect cases, confirmed cases and close contacts to strictly prevent the cross-border spread of the epidemic.

#### **10. Nosocomial infection control, disinfection of specific settings and personal protection.**

Healthcare facilities should follow the requirements set out in the technical protocol for novel coronavirus infection control and prevention in healthcare facilities to strictly implement nosocomial infection control and prevention measures. At the same time, strictly follow the requirements in the *Technical Guidelines for Disinfection in Healthcare Facilities* and *Hospital Air Purification Management Guidelines* to clean and disinfect medical equipment, contaminated articles, surfaces and floors, as well follow the *Medical Waste Disposal Regulations* and the *Measures for Medical Waste Management in Healthcare Facilities* for the disposal and management of medical wastes.

Implement effective disinfection of specific places used by COVID-19 cases and asymptomatic infected persons such as their households, isolation wards in healthcare facilities, transportation vehicles and medical observation sites. Ensure effective protection of professionals who carry out epidemiological investigations, work in isolation wards and medical observation sites, are involve in transporting of cases, infected persons and dead bodies, as well as environmental cleaning and disinfection, specimen collection and laboratory work. For requirements, see “Guidelines for site-specific disinfection” and “Guidelines for personal protection of specific groups” issued by China CDC.

#### **11. Public education and risk communication.**

Disseminate knowledge on COVID-19 prevention and control. Health education and risk communication shall be enhanced for key populations. Guide the public on personal protection through a variety of ways to reduce possible contact or exposure. With the progress in epidemic prevention and control efforts and better understanding of COVID-19, health education strategies should be adjusted timely and corresponding scientific public education should also be timely organized. Actively carry out public opinion monitoring; promptly respond to concerns and questions of the public and conduct risk communicating in relation to epidemic prevention and control.

## **V. Supportive measures**

1. Strengthening organization and leadership. Local governments should strengthen their leadership in the responses to the outbreak, ensure the availability of funding and materials, and implement prevention and control measures following the principles of “prevention first, integration of prevention and treatment, scientific guidance, and timely treatment”.
2. Enhancing joint prevention and control efforts. Strengthen cross-sectoral information sharing and regularly discuss and assess the epidemic trend. The health authorities at all levels are responsible for the overall guidance of epidemic control work. CDCs at all levels are responsible for case surveillance, epidemiological investigations, close contact management and lab testing. Healthcare facilities at all levels are responsible for case finding and reporting, isolation, diagnosis, treatment and clinical management, specimen collection and nosocomial infection control and prevention.
3. Strengthening capacity building. Provide technical training to health professionals in medical and health facilities on novel coronavirus pneumonia with focus on proactive prevention first. Strengthen scientific researches and give full play to the role of information technology in the prevention and control of infectious diseases. Conduct extensive investigations on the COVID-19 transmission dynamics, clinical features, and strategy assessment to provide scientific evidences for the optimization of prevention and control strategies. The use of traditional Chinese medicine in the prevention and treatment of infectious diseases is encouraged and supported.