

Epidemiological investigation of pneumonia cases infected with 2019-nCoV

(Third Edition, Jan 28, 2020)

This protocol is specifically developed to collect epidemiological information including the incidence, exposure history, and contact history of pneumonia cases infected by the 2019 Novel Coronavirus (2019-nCoV), to trace close contacts to determine if anyone else has become ill, and to prevent possible spread and transmission of pneumonia cases caused by the 2019-nCoV.

I. Objectives

1.1 To investigate the incidence, medical care seeking, clinical symptoms, risk factors and history of exposure;

1.2 To identify and manage close contacts of cases with 2019-nCoV.

2. Subjects for investigation

Suspected cases, confirmed cases, mild cases, asymptomatic pneumonia cases infected with 2019-nCoV, and clustered cases of the pneumonia caused by 2019-nCoV.

3. Investigation contents and methods

3.1 Case investigation.

After receiving the report of the case of 2019-nCoV, the Center for Disease Control and Prevention (CDC) at the county/district level should complete the epidemiological case investigation within 24 hours, which can be carried out by reviewing document, interviewing cases, informants and physicians. If the health condition of the case permits, the case should be investigated first, and then his/her physicians, family members, and informants could be interviewed.

The contents of investigation includes basic demographic information, onset and treatment, exposure history and risk factors, laboratory tests, close contacts, etc. See the attached table for details.

1. *Basic information*: name, gender, age, address, contact information, etc.

2. *Onset and diagnosis & treatment*: clinical manifestations, process from onset of symptoms to care seeking.

3. *Risk factors and history of exposure*: Investigation of the history of exposure within 14 days before the onset of the case, mainly to investigate the history of travel or residence in Wuhan or other areas where local transmission of virus persists before the onset of illness, the history of contact with patients with fever or respiratory symptoms, visits to hospitals, farmer's market and other related exposure history.

4. *Laboratory testing*: specimen type, sampling time, test results, etc.

5. *Identification of close contacts*: Close contacts are identified via tracing and screening their activities and contacts with population after the the onset of illness of suspected cases, confirmed cases, or mild cases who already present the symptoms, or those with asymptomatic infection but being tested

as positive with novel coronavirus. Definition and determination of close contacts follows the instructions in the *Management of close contacts of pneumonia cases with new coronavirus infection (Third Edition)*.

3.2 Cluster investigation.

The county (district) level disease control agency shall, based on the internet-based report and case investigation report, and the definition of the *Surveillance Plan on the novel coronavirus Infected Pneumonia (Third Edition)* to determine whether an aggregated epidemic occur, and conduct an investigation immediately. In addition to information on the source of infection and close contacts of all cases, the investigation shall focus on investigating the epidemiological links among cases, analyzing the chain of transmission, and fill in the basic information, initial, progress and final report of the incident in accordance with the requirements stipulated in the *National Working Standards for the Management of Information Reports on Public Health Emergencies (Trial)*.

4. Organization and implementation

According to the principle of "Localized Management", the health administrative department at the county/city/district level, where the place of the case's residence before the onset of the disease, the scope of activities after the onset of the disease, or the care seeking medical institution is located, delegates the local CDC to carry out the epidemiological investigation on the pneumonia cases of 2019-nCoV. The investigation agency shall rapidly set up a field investigation team to clarify the purpose of the investigation and to determine the composition of the investigation team and team members' responsibility and respective work according to the investigation plan. During the investigation, investigators should carefully wear recommended personal protective measures. In light of the on-site needs in dealing with the outbreak, the municipal, provincial, and national CDC will organize related healthcare professionals to participate in the fieldwork and form a joint investigation team with the previous one that arrived earlier to carry on field epidemiological investigation.

5. Data report and analysis

The CDC at the county/district level shall timely report their finished investigation forms or special investigation report via the network reporting system within 2 hours after completing the designated case investigation or clustered outbreak investigation. The specific reporting methods and web sites will be notified separately. The report on epidemiological investigation and analysis shall be submitted to the health administrative department at the same level and the CDC at the superior level simultaneously.

Attachment: a case survey of pneumonia cases of a novel coronavirus infection

annex

Case survey of pneumonia cases with novel coronavirus infection (Third Edition)

Questionnaire number: _____ ID number: _____

Basic information

1. Name: _____; if child, name of guardian _____
2. Gender: Male Female
3. Date of birth: year, month, and age (if the date of birth is unknown, the actual age: _____ years or _____ months)
4. Current address: _____ Province _____ City _____ County (district) _____ Township (street) _____ Village (community)
5. Contact number: _____
6. Date of Onset: Date _____
7. Date of diagnosis: year, month, day _____
8. Type of diagnosis: suspected case confirmed case test positive
9. Clinical severity: Asymptomatic infection Mild case General pneumonia Severe pneumonia Critical Pneumonia

Onset and medical service-seeking

10. Symptoms and signs: fever: maximum temperature _____°C
 chills dry cough sputum nasal congestion running sore throat
 headache fatigue muscle soreness joint soreness
 Shortness of breath Dyspnea Chest tightness Chest pain
- Conjunctival congestion
 nausea vomiting diarrhea abdominal pain other _____
11. Are there any complications: Yes No
If yes, please choose (multiple choices): Meningitis Encephalitis Bacteremia / Sepsis
 Myocarditis Acute lung injury / ards Acute kidney injury Epilepsy
 Secondary bacterial pneumonia Other _____
12. Is the blood routine test detected: No Yes
If yes, test time: year, month and day _____ (if multiple testers fill in the first test results)
Test results: wbc (number of white blood cells) _____ $\times 10^9 / l$; l (number of lymphocytes) _____ $\times 10^9 / l$
l (percent lymphocyte) _____%; n (percent neutrophil) _____%;
13. Chest x-ray test whether there are imaging characteristics of pneumonia: not detected no yes If yes, test date _____
14. Is there a chest CT imaging feature of pneumonia: not detected no yes
If yes, test date _____
15. Whether to see a doctor after the onset: No (Yes
If yes, date of first visit: year, month, day, _____ name of the visiting hospital _____
16. Is it quarantined: No, yes, if so, the quarantine start date: year, month, day _____
17. Whether hospitalization: No Yes, if yes, admission date: year, month, day _____
18. Whether ICU treatment is accepted: No Yes, if so, date of ICU admission: year, month, day _____

Risk factors and exposure history

19. Whether the patient is the following specific occupational group: medical staff other staff in the hospital pathogenic microorganism detection staff wildlife contact personnel poultry and livestock breeding staff others _____
20. Is the patient pregnant: Yes No
21. Previous medical history (multiple choices): no hypertension diabetes cardiovascular and cerebrovascular diseases

- Pulmonary diseases (such as asthma, pulmonary heart disease, pulmonary fibrosis, silicosis, etc.) Chronic kidney disease Chronic liver disease
 Immunodeficiency diseases Other _____

Have you had the following exposure history within 14 days before the onset or test was positive:

22. Is there a history of travel or residence in Wuhan or other areas with local cases of continuous transmission:
 History of Travel History of Residence No
23. Have you ever contacted a person who has fever or respiratory symptoms in areas where Wuhan or other local cases continue to spread:
 Yes No
24. Have you come in contact with people who have travel history or residence history in Wuhan or other areas where local cases have continued to spread:
 Yes No
25. Is there a history of contact with confirmed cases, mild cases, or asymptomatic infections:
 Yes No
26. Does the patient have a cluster disease in the same family, work unit, child care institution or school?
 Yes No Unclear
27. Is there a history of medical institution visits: No Yes
28. Is there a farmer's market around the place of residence (village / residential building):
 Yes, about _____ meters from your home No Unclear
29. Have you been to the farmer's market: Yes No Not sure
 If you have been there, the case is in the farmer's market: market practitioners supply / buyer consumers Others (including food delivery, finding someone, passing through, etc.)

Laboratory testing

30. Specimen collection and detection of new coronavirus (multiple choices)

Specimen type	sampling time (year month day)	Test results (Positive / negative / to be tested)
Throat swab		
Nasal swab		
Sputum		
Tracheal secretions		
Tracheal aspirate		
Alveolar lavage fluid		
Blood specimen		
stool		
Other (fill in specimen name)		
Not collected (don't fill in sampling time and results)		

Survey unit: _____ Investigator's signature: _____
 Survey time: year, month, day _____