

Guidelines for Surveillance and Investigation of  
Coronavirus Disease 2019 (COVID19)  
*(Version Date: January 30, 2020)*

## Surveillance of 2019 Novel Coronavirus (2019-nCoV) Infections

### The objectives of this surveillance are to:

1. Detect, investigate, and control the outbreaks of 2019 novel coronavirus infections
2. Monitor the outbreak situations and epidemiology of 2019-nCoV infections

### Case Definition

1. **Patients under investigation (PUIs)** is considered based on **signs/symptoms**, along with **risk factors** and **causal relationship to the area(s) affected by the outbreaks** as follows:

**Scenario 1: Surveillance at International Airport Quarantine Stations**

Patient has the following signs and symptoms:

Documented temperature  $\geq 37.5$  °C, accompanied by any of the following respiratory symptoms, i.e. cough, runny nose, sore throat, tachypnea or dyspnea

**Scenario 2: Hospital-based surveillance**

Patient has the following signs and symptoms:

2.1 Documented temperature  $\geq 37.5$  °C, or history of subjective fever, accompanied by any of the following respiratory symptoms, i.e. cough, runny nose, sore throat, tachypnea or dyspnea

2.2 Pneumonia case

(If the causes of the illness are unknown and the patient has history of close contact with a suspected case of 2019-nCoV infection, consider initiating disease investigation without having four risk factors below. If it is not definite, disease investigation will be considered on a case-by-case basis)

**Scenario 3: Patient who died of acute respiratory infection of unknown cause,** accompanied by the history of any of the following exposure risks within 14 days prior to the onset of illness:

- 1) Has arrived from the areas affected by the outbreaks of 2019-nCoV infections
- 2) Resided in the areas affected by the outbreaks of 2019-nCoV infections
- 3) Has had the history of close contact with patients with 2019-nCoV infections
- 4) Handled animals known to be reservoir of 2019-nCoV infections

**Areas where the outbreaks are reported:**

Mainland China (excluding Hong Kong, Macao, and Taiwan)

2. **Probable case** is defined as a PUI who has tested positive for genetic materials of 2019-nCoV by PCR from one reference laboratory.
3. **Confirmed case** is defined as a PUI who has tested positive for genetic materials of 2019-nCoV by PCR from two reference laboratories, or by viral genetic sequencing technique or culture.

### Outbreak reporting system

#### Operational procedure

1. When PUI is identified, the patient should be admitted to an isolation room at a local public/private/university hospital. Disease investigation team will be deployed to perform a preliminary outbreak investigation and containment. If necessary, a temporary isolation area, e.g. hotel rooms, may be designated.

2. Health facilities are required to report the case to either Bangkok Metropolitan Administration

(BMA)'s Health Department or their respective Provincial Health Office (PHO) using Novelcorona 1 Form.

3. Using Novelcorona 1 Form (Appendix A), PHO is required to report the case to its respective regional Office of Disease Prevention and Control (ODPC), while BMA Health Department is required to report the case to Institute for Urban Disease Control (IUDC), within three hours of detection of PUI for 2019-nCoV infections.

4. Office of Disease Prevention and Control (ODPC) Region 1-12 or Institute for Urban Disease Control (IUDC) should then report the case of 2019-nCoV infection to Situation Awareness Team (SAT) via phone number 061 663 9101 and e-mail: [viralpneumoniasat@ddc.mail.go.th](mailto:viralpneumoniasat@ddc.mail.go.th).

## Investigation of Human Cases of 2019-nCoV Infections

Field disease investigation team will be responsible for conducting disease investigation using Novelcorona 2 Form (Appendix B).

### Case investigation procedure for Patients under Investigation (PUIs)

#### 1. Interview the patient, his/her relative and perform chart review, as well as obtaining chest radiographs, if any (Precautions taken by members of disease investigation team According to Appendix C)

- As for information on exposure risks of those who have returned from the areas affected by the outbreaks, history of contact with 2019-nCoV case, exposure to animals, and hospital visit or hospitalization while in the affected area should also be collected.
- For those who have had no travel history to the areas affected by the outbreaks of 2019-nCoV, the information on history of hospital visit (or working in health facilities providing care for patients with respiratory disease) within 14 days prior to illness onset should also be obtained.
- Other exposure risks, e.g. close contact/ mingling with other patients, should be described in more details according to standard disease investigation practices (i.e. the nature of activities you attended along with patients, duration of activities, and frequency of the meeting/activities within 14 days prior to illness onset).

#### 2. Specimen collection for laboratory testing (refer to Appendix D)

##### 2.1. Patients with upper respiratory tract infection (URI) :

Collect and place **nasopharyngeal swab** and **throat swab/oropharyngeal swab** in the same 3ml VTM/UTM; or **nasopharyngeal aspirate, nasopharyngeal wash** placed in sterile specimen collection tube (no need to be placed in VTM/UTM) for 2019-nCoV PCR.

##### 2.2. Patients with lower respiratory tract infection (LRI) (e.g. pneumonia, ARDS), specimens according to Item 2.1 should be collected; AND

- 2.2.1. **Non-intubated patients:** Collect sputum sample in sterile collection tube for 2019-nCoV PCR.
- 2.2.2. **Intubated patients:** Collect tracheal suction secretion and place it in sterile (2-3 ml) container. If no secretion is obtained, cut a portion of suction line and place it in VTM/UTM for 2019-nCoV PCR.
- 2.2.3. **Fatal cases:** Specimen collection for laboratory analysis should be performed according to Item 2.2.2.

Notes: In the event laboratory results come back negative for 2019-nCoV and the patient's condition has not improved, this may be attributable to the specimen not being properly collected and processed or poor quality specimen. Procedures for specimen collection and transportation should be reviewed and specimen will have to be collected for repeat test 24 hours after the first collection.

#### **Specimens will be shipped for laboratory analysis at the following laboratory facilities:**

Coronavirus 2019 PCR will be performed by Thai Red Cross Emerging Infectious Disease Health Science Center (TRC-EID) Laboratory and National Institute of Health (Thai NIH) Laboratory, Department of Medical Sciences (DMSc).

## Definitions of close contact

1. Caregivers for a patient with 2019-nCoV infection (e.g. relatives, friends, or healthcare workers) and laboratory staff whose job is related to clinical samples collected from a patient initially determined to have possibly contracted the virus from a case of 2019-nCoV infection for quite some time before proper isolation of the patient. This should also include all medical and clinical staff in a department/ward into which the patient is admitted and any epidemiologically related departments.
2. Other patients in the same room/section as the case of 2019-nCoV infection and visitors of those patients during the same period of hospitalization of the 2019-nCoV case. In the event preliminary assessments suggest that potential transmission of the virus from the 2019-nCoV case may have occurred for quite some time before the case is properly placed in isolation, the definition of close contact should also encompass the following groups:
  - a. Those in the same department/ward in which the 2019-nCoV case is/was hospitalized; **or**
  - b. Departments that shared the same team of medical and clinical staff, **or**
  - c. Those who are related to the groups in Items 1, 2.1, or 2.2.
3. People in the same household as the 2019-nCoV case (both members of the household and visitors)
4. In the event of symptomatic 2019-nCoV case traveling on board the plane
  - 4.1 All passengers in the immediate two front and back rows as well as those in the same row as the case
  - 4.2 All flight attendants in the same section of the case
  - 4.3 Those traveling with the case or in the same tour group as the case
5. People traveling in the same vehicle as symptomatic 2019-nCoV case, e.g. public bus, commuter van, motor vehicle, passenger ferry, and any other vehicle used by the case. In case of large vehicles such as train, double-decker bus, and passenger ferry, only passengers in the same car or deck as the case will be treated as close contacts.
6. Individuals who study or work in the same floor/room/department as the symptomatic case
7. Individuals who live in the same community as, or in a different community with 2019-nCoV case, who talked to or stayed within one meter of symptomatic case.

### Classification of close contacts based on different levels of exposure risks

| High-risk close contact  | Low-risk close contact |
|--|------------------------|
| <b>Household contacts</b>  |                        |
| 1) Family members, relatives, caregiver of symptomatic 2019-nCoV case<br><br>2) Individuals who live in the same household as a confirmed case of 2019-nCoV infections |                        |

| High-risk close contact  | Low-risk close contact   |
|--|--|
| <b>Healthcare-associated contacts</b>  |  |
| <p>1) Medical and clinical staff, other hospital staff, and those visiting hospitalized 2019-nCoV case without wearing personal protective equipment (PPE) according to standard precautions.</p> <p>2) Other patients (with other medical conditions) who are/were hospitalized during the same period as, in the same room as, the same row as the 2019-nCoV case and visitors of those patients who visited the patients when the 2019-nCoV case had yet to be moved to an isolation room.</p> <p>3. Laboratory staff who did not wear PPE according to standard precautions while handling and processing specimens collected from 2019-nCoV case.</p>   | <p>Hospital staff, laboratory staff, whose job is related to 2019-nCoV case, or visitors of hospitalized PUI, who were wearing PPE according to standard precautions.</p>  |
| <b>Travel-related contacts</b>   |  |
| <p>1) In case of symptomatic 2019-nCoV case traveling on board a commercial flight:</p> <ul style="list-style-type: none"> <li>- Passengers on board the same flight as the case</li> <li>- Passengers in close proximity to and in the same row as the case and in the immediate two front and back rows</li> <li>- All flight attendants in the same section of the plane where the case was sitting.</li> </ul> <p>2) In case of symptomatic 2019-nCoV case traveling on other types of public transportation:</p> <ul style="list-style-type: none"> <li>- Individuals traveling with the case</li> <li>- Passengers or crew members who were exposed to respiratory secretions, cough, or sneeze from the case.</li> <li>- Passengers who were within 1 m of the case.</li> </ul> | <p>All passengers traveling in the same vehicle (except commercial flight) as 2019-nCoV case who do not meet the criteria for high-risk close contacts.</p> <p><u>Note:</u> In case of large vehicles such as train, double-decker bus, and passenger ferry, only passengers in the same car or deck as the case will be treated as close contacts.</p>                                    |
| <b>Close contacts at school, workplace, and community</b>  |  |
| <p>1) Students or co-workers</p> <ul style="list-style-type: none"> <li>- Close friends who were mingling with symptomatic 2019-nCoV case; or</li> <li>- Individuals who have been exposed to respiratory secretions, cough, sneeze from 2019-nCoV case</li> </ul> <p>2) Individuals who live in the same community as 2019-nCoV case or in another community, who have been exposed to respiratory secretions, cough, sneeze of the case.</p>   | <p>1) Those who studied or worked in the same floor/room/department as 2019-nCoV case, whose symptoms have yet to meet the criteria for high-risk close contact.</p> <p>2) Individuals who live in the same community as or different community from 2019-nCoV case, who were found to be within 1 m of the symptomatic case and do not meet the criteria for high-risk close contact.</p> |

## Monitoring of Close Contacts Based on Level of Exposure Risks

Upon detection of a probable or confirmed case of 2019-nCoV infections, close contacts of the case should be followed immediately to assess their symptoms and rapidly detect potential new cases. Monitoring of close contacts may be carried out by local health authorities including Communicable Disease Control Unit (CDCU), epidemiology staff of local hospitals, Provincial Health Offices (PHOs), BMA Health Department, and health agencies under the Department of Disease Control (DDC).

### Guidelines for isolation of close contacts of probable/confirmed cases of 2019-nCoV infection and related activities

**High-risk close contacts** (follow the Guidelines in Appendix E and use Forms provided in Appendices F and G)

| Activities  | Minimum requirements for PPE  |
|---|---|
| Close contacts are screened for fever (using hand-held thermometer) and respiratory symptoms, and staff should proceed as follows:  | <ul style="list-style-type: none"> <li>- N95</li> <li>- Goggle</li> </ul>   |
| <p><b>1. If the PUI criteria is met, proceed with PUI* investigation procedure as follows:</b></p> <p>1.1 PUI is admitted to negative-pressure isolation room or kept in a designated temporary isolation area.</p> <p>1.2 Specimens are collected according to Department of Medical Services (DMS) Guidelines for Management of 2019-nCoV Cases.</p> <p>*Clinical staff should follow the Guidelines for Management of 2019-nCoV Cases.</p>   | Cover all (jumpsuit)  |
| <p><b>2. If the PUI criteria is not met:</b></p> <p>2.1 Close contacts are interviewed about their travel plan after having come into contact with a confirmed case of 2019-nCoV infection so that their symptoms can be monitored and temperature taken for 14 days after the day of last contact with the confirmed case.</p> <p>2.2 One throat swab will be collected and contained in VTM. The specimen must be collected within at least two (2) days of the date of first exposure to the confirmed case of 2019-nCoV infection. Specimen will then be shipped for 2019 Novel Coronavirus PCR at TRC-EID Lab. Additionally, specimen will also be aliquoted by TRC-EID Lab and transported for further laboratory analysis at Thai NIH Lab, Department of Medical Sciences (DMSc) using 2019 Novel Coronavirus PCR.</p> <p>2.3 Close contacts will be asked to:</p> <ul style="list-style-type: none"> <li>- Protect themselves and people around them by wearing face mask;</li> <li>- Avoid going to crowded places/communities</li> <li>- Inform health officials immediately if they have fever or develop any symptoms.</li> </ul> | <ul style="list-style-type: none"> <li>- N95</li> <li>- Goggle</li> <li>- Water-proof, disposable gown</li> <li>- Gloves</li> </ul> |

**Low-risk close contacts:**

1. They can go about their business as usual but should be advised to avoid crowded place. They will be asked to self-monitor symptoms for 14 days following the last exposure to a confirmed case.
2. They will be asked to inform health authorities immediately if they have fever or respiratory symptoms so that their specimens can be collected, symptoms monitored, and temperature taken according to the guidelines for monitoring of high-risk close contacts.

**For consultation or support services, please contact:**

- Notification of PUI detection, request for laboratory testing on PUI specimens: 061-663-9101 (SAT DDC)
- Disease investigation, contact tracing, delivery of specimens from close contacts: 061-663-9232 (OPS DDC)



Appendix A:  
Case Report Form (CRF) for Patients with 2019-nCoV  
Infections

### Case Report Form for Patient with 2019-nCoV Infection

#### 1. Demographic Information

Full Name..... Sex  Male  Female Age ..... Years.....Month(s)  
 Occupation (indicate nature of work performed and clearly specify in case of Healthcare worker)  
 ..... Nationality ..... Race .....  
 Current address in Thailand  House  Other .....  
 Number ..... Village Group No ..... Village Name..... Alley ..... Road .....  
 Sub-district..... District..... Province .....  
 Home phone..... Office phone ..... Cellphone .....

#### 2. Clinical Data

Date of illness onset (dd/mm/yyyy) ..... Date of first visit/hospitalization (dd/mm/yyyy).....  
 Name of health facility of first visit/hospitalization..... Province.....  
 Name of current health facility where case is being hospitalized..... Province.....  
 Signs and symptoms upon case detection: Temperature on admission ..... °C  
 Cough  Sore throat  Muscle pain  Runny nose  Sputum production  Dyspnea  
 Headache  Watery stool  Other (specify) .....  Intubated  
 Chest X-ray (first)  Not Done  Done, Date ..... Results .....  
**CBC (First)** : Date ..... Results: Hb ..... mg% Hct ..... % WBC .....  
 Platelet count ..... x10<sup>3</sup> N ..... % L ..... % Atyp lymph ..... % Mono ..... %  
 Results of influenza test (if any), Assay .....  Negative/Positive  Flu A  Flu B  
 Sample type ..... Date .....  
 Case classification  Admitted; Date ..... Admission diagnosis.....  
 Administration of antiviral medications  NO  YES; Date.....  
 Case status  Recovered  Remain hospitalized  Dead  Referred to (indicate hospital).....  
 Other (specify) .....

#### 3. History of exposure risks

- Contact with poultry within 14 days prior to illness onset  NO  YES
  - Direct contact with mammals within 14 days prior to illness onset; if "YES" specify species .....  NO  YES
  - Visit to poultry/wild animal/mammal/seafood market(s) within 14 days prior to illness onset; if "YES" specify.....  NO  YES
  - Resided in or returned from the area affected by the outbreaks within 14 days prior to illness onset; if "YES" specify .....  NO  YES
- Entered Thailand on (date)..... on (Airlines)..... Flight#..... Seat#.....
- Cared for or was in close contact with patient with flu-like symptoms or pneumonia within 14 days prior to illness onset  NO  YES
  - Hospitalization or patient visit in hospital in the country affected by the outbreaks within 14 days prior to illness onset  NO  YES
  - Severe or fatal pneumonia case of unknown cause  NO  YES
  - Healthcare worker or laboratory staff  NO  YES
  - Patient among a cluster of pneumonia cases  NO  YES
  - Other (please specify) .....  NO  YES

Reporting staff ..... Agency ..... Phone.....

Appendix B:  
Disease Investigation Form for Patient with 2019-nCoV  
infections

## Disease Investigation Form for Patient with 2019-nCoV infections

### Part 1:

#### 1. Demographic information

Full name:..... Sex.  Male  Female Age..... Years .....

Nationality..... Race..... Occupation .....

(specify nature of work performed, e.g. student, priest, soldier, inmate; in case of healthcare worker, clearly specify how he/she has been exposed to patient)

Workplace (specify name):..... Sub-district:.....

District..... Province .....

Office phone .....

Current address: House#:..... Village Group#:..... Name of village/community..... Alley.....

Road..... Sub-district..... District.....

Province..... Home phone..... Cellphone.....

Information provided by:  Patient  Relative (indicate relationship to patient)  Other (specify).....

#### 2. History of exposure risks

2.1 Within 14 days prior to illness onset, have you ever come into contact with (farm/backyard/wild) poultry? For example, handling, processing, burial, or eating undercooked poultry meat

NO  YES, specify details of exposure

2.2 Within 14 days prior to illness onset, have you ever had direct contact with pigs or other mammals that were sick/ died of unusual or unknown causes

NO  YES, specify date of contact (dd/mm/yyyy) Animal species.....

2.3 Within 14 days prior to illness onset, have you ever lived in the area where an unusually large number of sick and dead poultry had been reported or the virus has been detected in poultry populations or environments?

NO  YES

2.4 Within 14 days prior to illness onset, have you ever visited a fresh market(s) selling poultry/wild animals/mammals/seafood in Wuhan, Hubei, China?

NO  YES, specify name of market and animal species.....

2.5 Within 14 days prior to illness onset, have you ever visited the markets other than those mentioned in Item 2.4, which were selling poultry/wild animals/mammals/seafood?

NO  YES, specify name of market and animal species.....

2.6 Within 14 days prior to illness onset, have you ever resided in or returned from the area(s) affected by the outbreaks?

NO  YES, specify the following details:

Country..... City/Province..... District.....

Date of arrival ..... Reason for travel .....

Activities while in that foreign country:

Business travel: Nature of work..... Place..... Duration.....

Attending conference/training; Place..... Duration.....

Attending school/university..... Duration.....

Relative visit; street address..... Duration.....

Holiday

ACTIVITY.....PLACE.....DATE.....

ACTIVITY.....PLACE.....DATE.....

ACTIVITY.....PLACE.....DATE.....

ACTIVITY.....PLACE.....DATE.....

ACTIVITY.....PLACE.....DATE.....

Other, specify .....

Date of arrival in Thailand..... On (Airlines)..... Flight#..... Seat#.....

2.7 Did you receive treatment or visit a patient in hospital while in that foreign country?

NO  YES, specify date of visit..... Name of hospital.....

2.8 Within 14 days prior to illness onset, have you ever cared for or had close contact with patients with flu-like symptoms or pneumonia?

NO  YES, Specify relationship to patient..... Name (if possible).....

2.9 Within 14 days prior to illness onset, have you ever been exposed to severe/fatal pneumonia case who had died of unknown cause?  NO  YES

2.10 Within 14 days prior to illness onset, people you are familiar with had had flu-like symptoms or there had been pneumonia outbreak in the community?

NO  YES, Provide more details about other cases of pneumonia

Full name..... Date of onset.....

Symptoms.....

Diagnosis..... Hospital performing diagnosis.....

Relationship to this patient.....

**3. History of current illness**

3.1 Date of onset: Day..... Month..... Year .....

3.2 First treatment at (name health facility)..... Date (dd/mm/yyyy).....

Treated as  Outpatient  Inpatient, admitted into..... Date (dd/mm/yyyy).....

3.3 History of past illnesses or underlying health conditions  NO  YES (please check (✓) box(es) below)

Chronic lung diseases, e.g. COPD, chronic bronchitis, chronic bronchiectasis, BPD, or asthma currently on treatment

Heart diseases, e.g. congenital heart disease, cardiovascular disease, or congestive heart failure

Chronic liver diseases, e.g. cirrhosis  Kidney disease, renal failure

Diabetes  Hypertension  Immunocompromised condition  Anemia (thalassemia, sickle cell anemia)

Cerebral palsy  Pregnant, Gestational age..... weeks

Obesity; Height..... cm, Weight..... kg (BMI = .....

Cancer currently on treatment (specify type).....  Other.....

Tobacco use  NO  YES, if "YES"  Current smoke, amount.....cigarettes/packets per day/week

Quit smoking after having smoked for..... years

Alcohol abuse  NO  YES, if "YES"  Current drinker, amount ..... per day/week

Quit drinking after having been drinker for..... years

3.4 History of influenza vaccination  NO  YES, Date of last flu shot.....

3.5 Chief complaints.....

3.6 Signs and symptoms of the case from date of onset until date of investigation

| Signs and Symptoms  | Date of onset<br>..... |     | Days following date of onset |   |   |   |   |   |   |   |   |   |   |   |
|---------------------|------------------------|-----|------------------------------|---|---|---|---|---|---|---|---|---|---|---|
|                     | 0                      |     | 1                            |   | 2 |   | 3 |   | 4 |   | 5 |   | 6 |   |
|                     | Y*                     | N** | Y                            | N | Y | N | Y | N | Y | N | Y | N | Y | N |
| Fever (Temp.... °C) |                        |     |                              |   |   |   |   |   |   |   |   |   |   |   |
| Cough               |                        |     |                              |   |   |   |   |   |   |   |   |   |   |   |
| Sore throat         |                        |     |                              |   |   |   |   |   |   |   |   |   |   |   |
| Rhinorrhea          |                        |     |                              |   |   |   |   |   |   |   |   |   |   |   |
| Sputum production   |                        |     |                              |   |   |   |   |   |   |   |   |   |   |   |
| Dyspnea             |                        |     |                              |   |   |   |   |   |   |   |   |   |   |   |
| Tachypnea           |                        |     |                              |   |   |   |   |   |   |   |   |   |   |   |
| Generalized myalgia |                        |     |                              |   |   |   |   |   |   |   |   |   |   |   |
| Headache            |                        |     |                              |   |   |   |   |   |   |   |   |   |   |   |
| Watery stool        |                        |     |                              |   |   |   |   |   |   |   |   |   |   |   |

Y\*= YES, N\*\*= NO

Other symptoms, specify (if any) .....

Intubation  NO  YES, specify date of intubation.....  
 Administration of antiviral drugs  NO  YES, specify drug(s) administered.....  
 Dosage..... Start date..... End date.....

4. Laboratory findings

4.1 CBC #1: Date..... Results: Hb.....% Hct.....% WBC .....cell/ml  
 Neutrophil.....% Lymphocyte.....% Atypical lymphocyte.....% Monocyte.....%  
 Eosinophil.....% Platelet count.....cell/ml

#2 : Date ..... Results: Hb.....% Hct.....% WBC .....cell/ml  
 Neutrophil.....% Lymphocyte ..% Atypical lymphocyte % Monocyte % Eosinophil  
 % Platelet count .....cell/ml.....

4.2 Sputum gram stain: Date..... RESULTS.....

4.3 Sputum AFB #1: DATE ..... RESULTS.....

#2: DATE ..... RE.....

#3: DATE ..... RE.....

4.4 Sputum culture: DATE..... RESULTS.....

4.5 Hemoculture : DATE..... RESULTS.....

4.6 CXR #1: DATE ..... RESULTS.....

#2: DATE ..... RE.....

#3: DATE ..... S.....

4.7 Rapid test (for influenza): Specify assay used.....

DATE..... RESULTS.....

4.8 Renal function test: DATE..... RESULTS.BUN..... Cr..... GFR.....

4.9 Liver function test: DATE..... RESULTS..... SGPT..... ALP.....

Total Bilirubin..... Direct Bilirubin.....

Total Protein..... Albumin..... Globulin.....

5. Specimen collection for laboratory analysis  NO  YES, specify specimen type(s)

Nasopharyngeal swab + Throat swab/ Oropharyngeal swab in UTM Collection date.....

Nasopharyngeal aspirate in sterile collection tube Collection date.....

Nasopharyngeal wash in sterile collection tube Collection date.....

Sputum in sterile collection tube Collection date.....

Tracheal suction Collection date.....

Acute clotted blood, collection date Convalescent, date:.....

**Results of Novel Coronavirus 2019 PCR**

1. Specimen type..... Date collected.....Laboratory performing the test.....

Results

.....

2. Specimen type..... Date collected.....Laboratory performing the test.....

Results

.....

**Results of other laboratory assessments (specify) .....**

1. Specimen type..... Date collected.....Laboratory performing the test.....

Results

.....

2. Specimen type..... Date collected.....Laboratory performing the test.....

Results

.....

6. Admission diagnosis .....

Discharge diagnosis.....

7. In the event of fatal case, has post-mortem examination been performed?

- NO
- YES, specify results.....

|   |                            |
|---|----------------------------|
| Investigated by .....   | Agency .....               |
| Contact No .....  | Date of investigation..... |
| Case investigation report was submitted to ODPC Region (number)/IUDC on (date).....       |                            |
| Case investigation report was submitted to DDC outbreak investigation team on (date)..... |                            |
| Telephone: 061-6639232, 02-5903810; Facsimile: 02-5903810                                 |                            |





**Part 2: Post-investigation follow-up of symptoms**

| Signs and symptoms   | Admissio |     | Days after admission date |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
|----------------------|----------|-----|---------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|----|---|----|---|--|
|                      | 0        |     | 1                         |   | 2 |   | 3 |   | 4 |   | 5 |   | 6 |   | 7 |   | 8 |   | 9 |   | 10 |   | 11 |   | 12 |   |  |
|                      | Y*       | N** | Y                         | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N | Y  | N | Y  | N | Y  | N |  |
| Fever (Temp..... °c) |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Cough                |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Sore throat          |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Rhinorrhea           |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Sputum production    |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Dyspnea              |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Tachypnea            |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Muscle pain          |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Headache             |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Watery stool         |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Max. temperature     |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Min. temperature     |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Max. pulse           |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |
| Oxygen sat           |          |     |                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |  |

Y\* = YES; N\*\* = NO

Interviewed by.....Agency .....Phone No.....

Appendix C:  
Precautions Taken by Members of Disease  
Investigation Team

## Precautions Taken by Members of Disease Investigation Team

Patient will be asked to wear face mask. Interviewer is required to don the following personal protective equipment (PPE) as minimum requirement and strictly follow respiratory precautions and practices, i.e. proper hand washing after completing investigation of each case. It should be noted that PPE types required will depend on patient's symptoms and related activities as mentioned below.

| PPE  | Patient interview without specimen collection |              | Collection of respiratory tract specimens |
|--|---|--------------|---|
|  | Patient has no cough or slight cough          | Severe cough |   |
| Head cap   | -   | +/-          | +   |
| Goggle or face shield                                  | -   | +            | +   |
| Surgical mask  | +   | -            | -   |
| N95 respirator or higher                               | -   | +            | +   |
| Disposable gloves                                      | +/-   | +            | +   |
| Full-length gown or water-proof jumpsuit with head cap | +   | +            | +   |

Appendix D:  
Specimen Collection and Coordination Procedure

## Procedure for specimen collection and equipment

### 1. Label preparation

Two labels will be prepared per one specimen. The first label is attached to Viral Transport Media (VTM)/ Universal Transport Media (UTM), or sterile container. The second label is attached to outer (second-layer) zip lock bag. Mark the label using only water-proof indelible marker pen. The label should include the following details.

1. ID Code of the patient/individual from whom specimen is collected. This ID Code is provided by DDC.
2. Date of specimen collection
3. Types of specimen collected, e.g. Nasopharyngeal swab and throat swab

#### Sample label

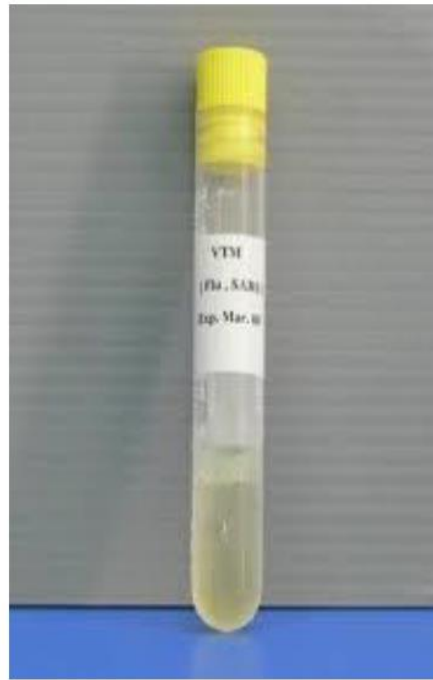
|  |
|--|
| ID Code _____<br>Date of specimen collection 30 Oct 2015<br>Specimen type: Nasopharyngeal Swab and Throat Swab |
|--|

## Viral Transport Media (VTM)/Universal Transport Media (UTM)

Label is attached on Viral Transport Media (VTM)/ Universal Transport Media (UTM). This VTM/UTM is used to contain both nasopharyngeal swab and throat swab together.



Universal Transport Media (UTM)



Viral Transport Media (VTM)

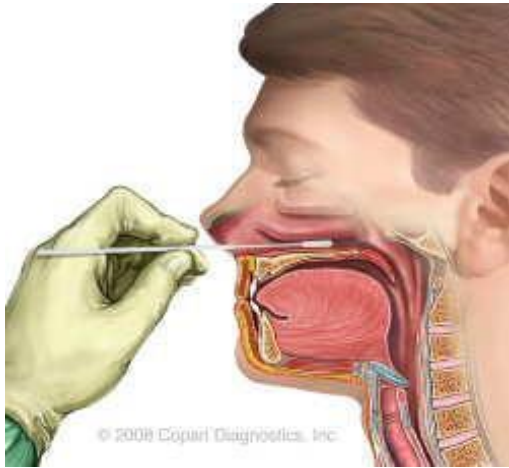
## 2. Nasopharyngeal Swab

- Equipment**
1. Viral Transport Media (VTM)/Universal Transport Media (UTM)
  2. Dacron or Rayon swabs made from straight wire or flexible plastic not coated with calcium alginate as it may interfere with PCR reading

*Picture below shows swabs made from straight wire shaft (top) and plastic shaft (bottom).*



Collection method



[www.rapidmicrobiology.com](http://www.rapidmicrobiology.com)

Use Dacron or Rayon swab of which shaft is made from straight wire or flexible plastic not coated with calcium alginate. Carefully insert the swab into a nostril, making sure the direction of the tip of the swab is perpendicular to the face (as illustrated) and close to the nostril partition wall, not parallel with the direction of the nostrils. Once the tip of the swab reaches the back of nasopharynxes, gently turn the swab for 5 seconds and then remove it. Place the swab into a red-cap UTM. Break a swab handle and close UTM cap temporarily before proceeding with throat swab collection.

### 3. Throat Swab

#### Equipment

1. Rayon tipped swab with plastic shaft

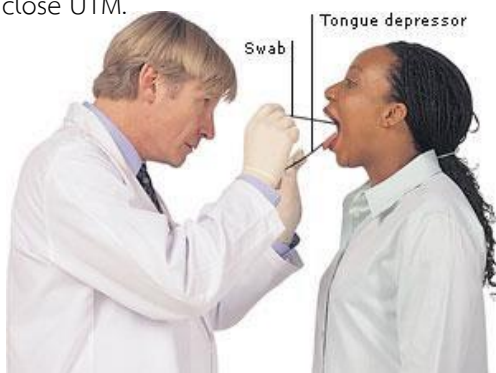


2. Tongue depressor

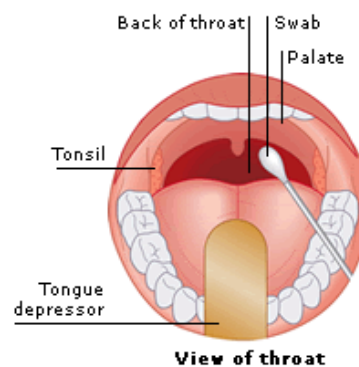


#### Procedure for specimen collection

Use tongue depressor to press down the patient's tongue. Then rub the swab on both tonsils and posterior pharynx. Place the swab into the red-cap UTM (the same tube as nasopharyngeal swab). Break the handle of swab and firmly close UTM.



<http://www.aviva.co.uk>





## Sputum collection

Equipment: Sterilized container



### Collection method:

Patient will be asked to expectorate or cough deeply. Sputum sample must be free of saliva and contained in sterilized container.

## Specimen storage

Equipment: Parafilm



### Storage procedure

1. Wrap VTM/UTM or sterile container containing specimens with parafilm around the seal of the container cap to prevent leakage.
2. Specimens will then be kept in a refrigerator at 2-8 °C and transported for laboratory testing within 72 hours. If this is not possible, store specimens in a freezer at -70 °C.

## Specimen transportation

### Equipment

1. Zip lock bag
2. Plastic container
3. Ice packs
4. Styrofoam box
5. Brown adhesive tape



## Procedure

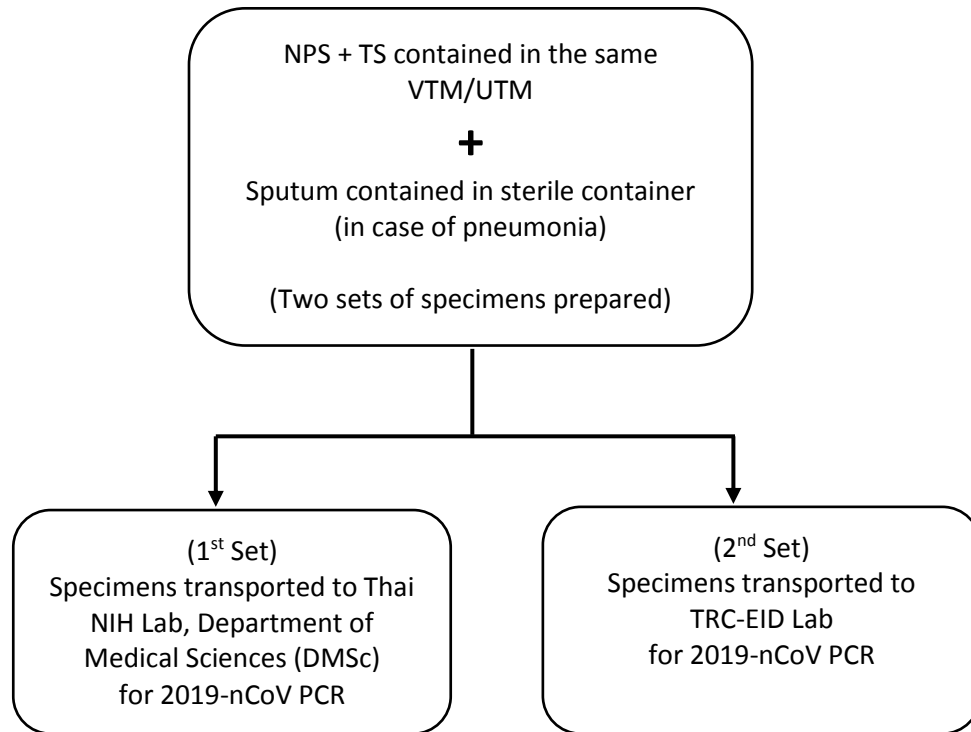
1. Place VTM/UTM containing specimens into three-layer Zip lock bags with specimen label being attached to second-layer Zip lock bag. Then place Zip lock bags in a plastic container.



2. Ice Packs will then be placed in a Styrofoam box and arranged in such a way that leaves sufficient room for containing plastic container. Keep plastic container in an upright position (do not make it tilt). Firmly close Styrofoam box and properly wrap its cover with adhesive tape to prevent the box cover from falling off during transportation.

## Specimen Collection from Patients with 2019-nCoV Infections

Specimens collected on admission



### Coordination procedure for requesting laboratory testing services:

1. Local health staff responsible for specimen transportation (in compliance with the guidelines implemented by each provincial health office) should contact SAT DDC via either switchboard number 061-663-9101 or chief of cluster number 061-291-8420, or 02-590-3901-2, to verify PUI eligibility criteria and have a case code assigned.
  - 1.1 In case of specimens collected from patients being hospitalized at Bamrasnaradura Infectious Disease Institute (BIDI), the requester (Operations DDC [Ops DDC]) will be provided with case code for requesting laboratory analysis services and reference number for specimen delivery form by SAT DDC.
  - 1.2 In case of specimens collected from patients being hospitalized at health facilities in Bangkok and Greater Bangkok areas and to be submitted by IUDC/ODPC for laboratory analysis, the requester will be provided with case code by SAT DDC, while reference number for specimen delivery form will be issued by IUDC/ODPC.
  - 1.3 In case of specimens collected from patients being hospitalized at health facilities outside Bangkok and Greater Bangkok areas (i.e. other provinces), the requester will be provided with case code for requesting laboratory analysis services by SAT ODPC and reference number for specimen delivery form will be issued by ODPC.
    - In the event of PUI, two specimen delivery forms will need to be issued (one for Thai NIH Lab and the other for TRC-EID Lab).
2. In case of specimens obtained from high-risk close contacts of a confirmed case of 2019-nCoV infection, close contact code for requesting laboratory analysis services should be sought from Operations DDC at phone number 061-663-9232 and IUDC/ODPC will be responsible for issuing reference number for specimen delivery form.
  - In case of high-risk close contacts, one specimen delivery form will be issued for TRC-EID Lab.

Note: Laboratory testing request and specimen delivery forms are available for download at the Department of Disease Control's official website, via this link: <https://ddc.moph.go.th/viralpneumonia/guidelines.html>. Specimens should always be accompanied by specimen delivery form. In case of specimens obtained from multiple cases, a list of samples should also be attached to the shipment.

3. Prior to specimen shipment, responsible staff should always contact SAT DDC so that case code can be verified and SAT DDC can work with BIDI's Point of Contact (POC) for laboratory testing services to prepare for specimen delivery.
4. Once the case code or contact code is confirmed, responsible staff should arrange for shipment of specimens to the address as illustrated below by following the local guidelines for transportation of specimens, e.g. via regional medical sciences center, public transport (interprovincial bus), or others.

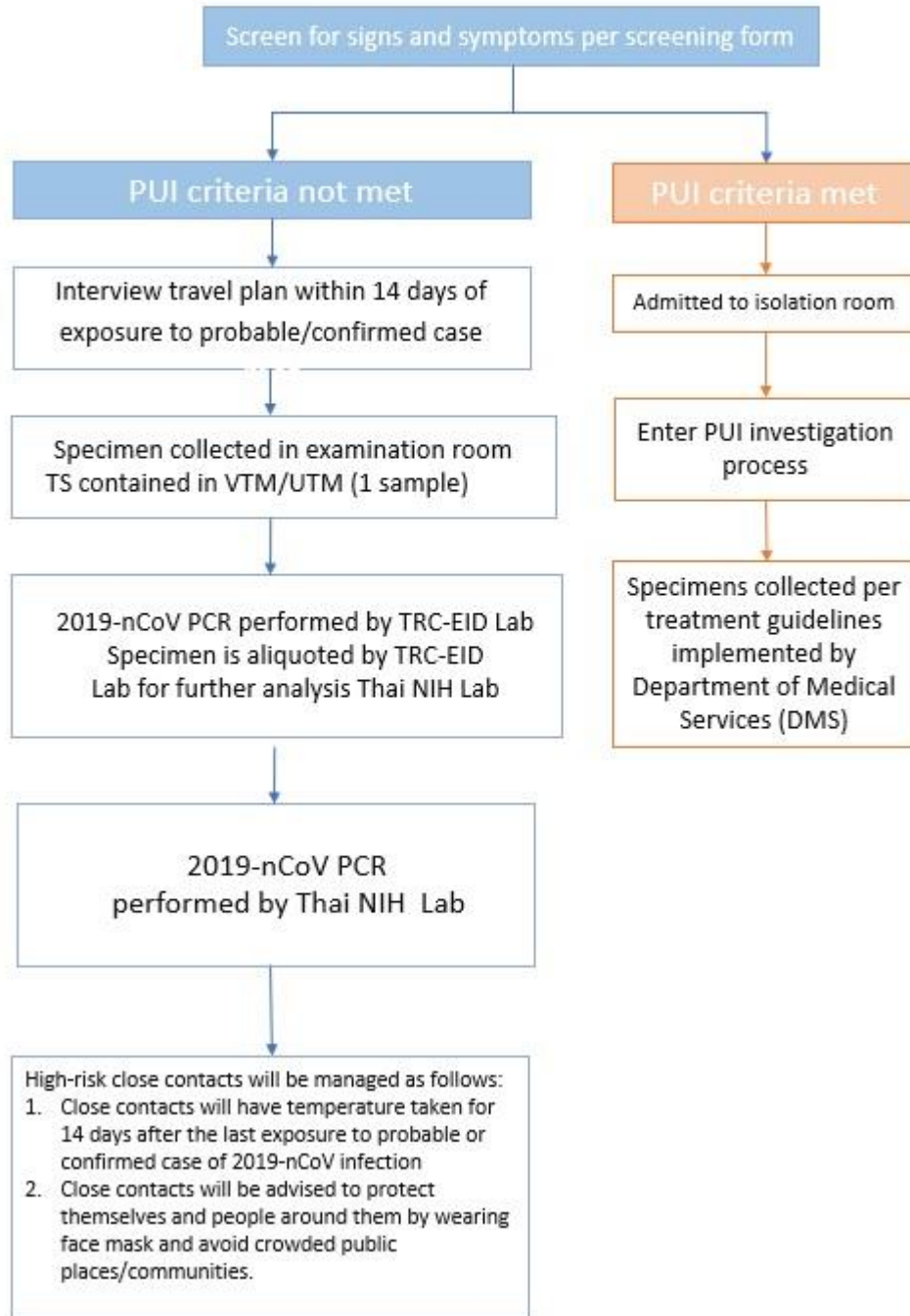
|  |
|--|
| <p><b>Sender:</b><br/> <b>Health agency</b>.....<br/> <b>Province</b>.....<br/> <b>Contact person</b>.....<br/> <b>Contact number</b>.....</p> <p style="text-align: center;"><b>Recipient:</b><br/> <b>National Institute of Health (NIH)</b><br/> <b>Department of Medical Sciences (DMSc)</b><br/> <b>Ministry of Public Health (MOPH)</b><br/> <b>Muang, Nonthaburi 11000</b><br/> <b>(Tel: 02-9511485)</b></p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> <p>To.....Bamrasnaradura Infectious Disease Institute (BIDI).....<br/>         .....Building 8, 2<sup>nd</sup> Floor.....</p> </div> |
|--|

\*\*\* Staff responsible for specimen shipment should always contact SAT DDC at 061-663-9101 when the shipment is transported out from their local area.

5. SAT DDC will then inform Operations DDC and BIDI POC. Operations DDC will be notified when the specimen shipment is received by BIDI so that Operations DDC will take the specimen for further laboratory testing at TRC-EID Laboratory.

Appendix E:  
Guidelines for Management of High-Risk Close Contacts of  
Probable/Confirmed Cases of 2019-nCoV Infections

## Management of High-Risk Close Contacts of Probable/Confirmed Cases of 2019-nCoV Infections



## Appendix F

### Screening Logbook for Close Contacts of Probable/Confirmed Case of 2019-nCoV Infections

| Screening Logbook for Close Contacts of Probable/Confirmed Case of 2019-nCoV Infections |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|---|-----------|----------|-----|-------------|------------|------------------|-----------------------|-------|-------|-------------|-------------|------------|-------------------|----------------------|----------|--|---------------------|-----------------------------|-------------|
| No  | Full Name | Age (yr) | Sex | Nationality | Occupation | Signs & Symptoms |                       |       |       |             |             |            |                   |                      |          | Relationship to the case (e.g. relative, lived in the same household with the case, traveled in the same tour group as the case) | Specimen collection |                             | Contact No. |
|   |           |          |     |             |            | Asymptomatic     | Date of illness onset | Fever | Cough | Sore throat | Muscle pain | Runny nose | Sputum production | Difficulty breathing | Headache |  | Other (specify)     | Date of specimen collection |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |
|   |           |          |     |             |            |                  |                       |       |       |             |             |            |                   |                      |          |  |                     |                             |             |

Reported by ..... Agency ..... Telephone .....



## Appendix G

Interview Form for Asymptomatic Close Contacts of Probable/Confirmed Case of 2019-nCoV Infections



