Guidelines for Surveillance and Investigation of Coronavirus Disease 2019 (COVID-19)

(Version Date: February 21, 2020)

Surveillance of Coronavirus Disease 2019 (COVID-19)

The objectives of this surveillance are to:

1. Detect, investigate, and control the outbreaks of Coronavirus Disease 2019 (COVID-19)
2. Monitor the outbreak situations and epidemiology of COVID-19

Case Definition

1. Patients under investigation (PUIs) is determined based on **signs/symptoms**, along with **risk factors** as follows:

Scenario 1: Surveillance at Points of Entry Quarantine Stations

Patient has the following signs and symptoms:

Documented temperature ≥ 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 ≥ 37.5 °C, or history of subjective fever during current illness, accompanied by any of the following respiratory symptoms, i.e. cough, runny nose, sore throat, tachypnea or dyspnea

2.2 Pneumonia case of unknown etiology

Both 2.1 and 2.2 must be accompanied by one of the following history of exposure risks within 14 days prior to illness onset:

1) Having history of travel to or from, or lived in the areas reported to have been affected by ongoing outbreaks of COVID-19.
2) Individuals whose occupation subjected themselves to have close contact with tourists coming from the areas reported to have been affected by ongoing outbreaks of COVID-19.
3) Having history of close contact with or exposure to probable or confirmed case of COVID-19.

Note: Please refer to the areas reported to have been affected by ongoing outbreaks of COVID-19.

Scenario 3: Hospital-based surveillance

Patient has the following signs and symptoms:

Pneumonia case or suspected case of pneumonia of unknown etiology

Scenario 3 must be accompanied by one of the following history of exposure risks within 14 days prior to illness onset:

1) Having history of close contact with pneumonia case of unknown etiology

2) Is a healthcare worker

Scenario 4: Acute severe pneumonia case of unknown etiology or fatal case of acute severe pneumonia of unknown etiology

2. **Probable case** is defined as a PUI who has tested positive for genetic materials of SARS-CoV-2 by PCR from one (1) reference laboratory, or by genetic sequencing, or by culture.

3. **Confirmed case** is defined as a PUI who has tested positive for genetic materials of SARS-CoV-2 by PCR from two (2) reference laboratories, or by genetic sequencing, or by culture.

4. Asymptomatic case is defined as a person who has tested positive for genetic materials of SARS-CoV-2 by PCR from two (2) reference laboratories, or by genetic sequencing, or by culture, but has shown no signs and symptoms.

Outbreak reporting system

Operational procedure

1. When PUI is identified, the patient should be admitted to an isolation room based on the guidelines implemented by the Department of Medical Services (DMS).

2. Health facilities are required to immediately report the case to either Bangkok Metropolitan Administration (BMA)'s Health Department or their respective Provincial Health Office (PHO).

3. 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 24 hours of detection of PUI for COVID-19.

4. Office of Disease Prevention and Control (ODPC) Region 1-12 or Institute for Urban Disease Control (IUDC) should then assign a case ID and the data is entered into an online database.

Investigation of Coronavirus Disease 2019 (COVID-19)

Disease investigation team should conduct disease investigation using Form Novelcorona 2 (Appendix B).

Criteria for disease investigation in the event of detection of PUIs

District/Health Center	Province/BMA	ODPC/IUDC	National Level
All cases	Cluster of 2-4 PUIs in one (1) district	- Cluster of ≥5 PUIs from the same source - First PUI who has severe pneumonia in the province	All PUIs being hospitalized at Bamrasnaradura Infectious Disease Institute (BIDI)

<u>Note:</u> In the event of the first PUI of the local area and, following assessment of preparedness of the local disease investigation team, it is determined that support from a higher level of disease investigation team is needed, request may be made to have them join the local disease investigation team in the disease investigation efforts.

Criteria for disease investigation in the event of detection of confirmed cases

District/Health Center	Province/BMA	ODPC/IUDC	National Level
All cases	All cases	- Index case of the province - Cluster of 2-4 confirmed cases	- All confirmed cases being hospitalized at BIDI - Cluster of ≥5 confirmed cases

Criteria for contact tracing and monitoring of close contacts

District/Health Center	Province/BMA	ODPC/IUDC	National Level
All cases	Close contact of the first confirmed case of the district	- Close contact of the first confirmed case of the province - When requested by the province	- Close contacts of all confirmed cases being hospitalized at BIDI - Close contacts of a confirmed case(s) in a cluster of ≥5 confirmed cases

Criteria for discontinuation of case investigation

Once the patient is diagnosed as not being infected by SARS-CoV-2 and discharged from hospital, or in the event that the patient has not been hospitalized and has completely recovered.

Criteria for disease investigation in the event of an outbreak of influenza-like illness (ILI)

To enhance sensitivity of the surveillance system so that any COVID-19 cases can be rapidly detected in the local area, ILI outbreak investigation should also be conducted. Specimen collection for detection of SARS-CoV-2 should be performed in the following cases.

District/Health Center	Province/BMA	ODPC/IUDC	National Level
- Cluster of ≥5 ILI cases whose rapid test results for flu A & B came back negative. - Cluster of ≥3 ILI cases **among healthcare workers** whose rapid test results for flu A & B came back negative.	- Cluster of ILI cases in which a confirmed case(s) of COVID-19 is/are detected.	Cluster of ILI cases in which a first confirmed case of COVID-19 is detected in the province.	Cluster of ILI cases in which a first confirmed case of COVID-19 is detected in the region/health zone.

Disease investigation for Patients under Investigation (PUIs)

1. **Interview the patient, his/her relative and perform chart review, as well as taking photo of chest radiographs, if available.** Precautions should be taken by members of disease investigation team according to Appendix C. In addition, it is also important to focus on the following issues:

   - As for information on exposure risks of those who have returned from the areas affected by the outbreaks, history of contact with COVID-19 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 COVID-19, 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 SARS-CoV-2 PCR.

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

2.2.1. **Non-intubated patients:** Collect sputum sample in sterile container[1] for SARS-CoV-2 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 SARS-CoV-2 PCR.

2.2.3. Fatal cases: Specimen collection for laboratory analysis should be performed according to Item 2.2.2. In case of non-intubated patient, collect lung biopsy in sterile container containing saline solution[(2)].

Notes: In the event laboratory results come back negative for COVID-19 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.

References:

(1) *CDC. Interim Guidelines for Collecting, Handling, and Testing Clinical Samples from Persons under Investigation (PUIs) for 2019 Novel Coronavirus (2019-nCoV) Published on February 2, 2020. Available at https://www.dcd.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html*

(2) *WHO. Interim guidance on laboratory testing of human suspected cases of novel coronavirus (nCoV) infection 10 January 2020. Available at https://apps.who.int/iris/bitstream/handle/10665/330374/WHO-2019-nCoV-laboratory-2020.1-eng.pdf*

Designated laboratory facilities

SARS-CoV-2 PCR will be performed at the following designated laboratories:

- National Institute of Health (Thai NIH) Laboratory, Department of Medical Sciences (DMSc)
- Certain regional Medical Sciences Centers with capacity to perform SARS-CoV-2 PCR
- Thai Red Cross Emerging Infectious Disease Health Science Center (TRC-EID) Laboratory
- Other laboratories designated by Department of Medical Sciences (DMSc)

(Refer to the guidelines for management of laboratory testing and reporting of laboratory results, version date: 05 Feb 2020)

Isolation of Patients under Investigation (PUIs)

1. If PUI is detected, place the patient in isolation according to the guidelines for clinical practices, diagnosis, and treatment provided by Department of Medical Services (DMS).
2. Responsible staff are deployed to conduct outbreak investigation and initially contain the outbreak.
   2.1 In the event that initial laboratory results came back negative:
      2.1.1 Assess the patient's condition. If not recovered, attending physician may consider collecting specimen for repeat test.
      2.1.2 At discharge, patient will be asked to maintain home isolation for another seven (7) days following the date of negative results. He/she will also be asked to wear face mask at all times during this home isolation period. After this home isolation period, if the patient has recovered, he/she may continue with his/her daily activities. If the symptoms have not improved or have deteriorated, he/she should inform health authorities immediately.
   2.2 If the patient has tested positive, hospital isolation is mandatory.

3. Completion of case isolation
   3.1 In case the patient has met the PUI criteria and initial test results came back negative, he/she may be placed under either hospital isolation or home isolation for at least seven (7) days following hospital visit or until he/she has completely recovered.
   3.2 In case of a probable/confirmed case, hospital isolation is mandatory until the patient's conditions have improved and test results came back negative from at least two laboratories. This must then followed by negative results from a repeat test from at least one laboratory at 48 hours following the initial test before case isolation can be completed.

Definitions of close contact of probable/confirmed case of COVID-19

Definitions:

Close contact is defined as a person who has had interactions with a confirmed or probable case of COVID-19. This can be divided into two groups.

1. Close contact who may be a reservoir, e.g. close contact of COVID-19 case within 14 days prior to illness onset of the case.
2. Close contact who may have contracted the virus from COVID-19 case, e.g. close contact of COVID-19 case from the date of illness onset.

High-risk close contact is defined as a close contact who is more likely to contract or transmit the virus with the patient, which includes:

- Close contact or a person having conversation with the patient within one-meter distance for >5 minutes; or being coughed or sneezed on by a patient who did not wear appropriate protective equipment, e.g. face mask.
- Those who are in an enclosed space without proper ventilation, e.g. in the same air-conditioned bus/air-conditioned room as the patient, and are within one meter of the patient for >15 minutes without wearing appropriate personal protective equipment.

Low-risk close contact is defined as a close contact who is less likely to contract or transmit the virus with the patient. This includes close contacts who have not met the definition for high-risk close contact.

* In the event of asymptomatic infection, the date the patient has tested positive for the virus should be considered the date of illness onset.

Classification of close contacts based on different levels of exposure risks

High-risk close contact	Low-risk close contact
Household contacts	
1) Family members, relatives, caregiver of symptomatic COVID-19 case 2) Individuals who live in the same household as a confirmed case of COVID-19	

High-risk close contact	Low-risk close contact
Healthcare-associated contacts	
1) Medical and clinical staff, other hospital staff, and those visiting hospitalized COVID-19 case without wearing personal protective equipment (PPE) according to standard precautions. 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 COVID-19 case and visitors of those patients who visited the patients when the COVID-19 case had yet to be moved to an isolation room. 3. Laboratory staff who did not wear PPE according to standard precautions while handling and processing specimens collected from COVID-19 case.	Hospital staff, laboratory staff, whose job is related to COVID-19 case, or visitors of hospitalized PUI, who were wearing PPE according to standard precautions.
Travel-related contacts	
1) In case of symptomatic COVID-19 case traveling on board a commercial flight: - Passengers on board the same flight as the Case; passengers in close proximity to and in the same row as the case, and in the immediate two front and back rows - All flight attendants in the same section of the plane where the case was sitting. - Co-travelers in the same group as the case, e.g. passengers in the same tour group 2) In case of symptomatic COVID-19 case traveling on other types of public transportation: - Individuals traveling with the case - Passengers or crew members who were exposed to respiratory secretions, cough, or sneeze from the case. - Passengers who were within 1 m of the case.	All passengers traveling in the same vehicle (except commercial flight) as COVID-19 case who do not meet the criteria for high-risk close contacts. Note: 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.
Close contacts at school, workplace, and community	
1) Students or co-workers include close friends who were **mingling with symptomatic COVID-19 case**; or who may have been exposed to respiratory secretions, cough, sneeze from COVID-19 case	1) Those who studied or worked in the same floor/room/department as COVID-19 case, whose symptoms have yet to meet the criteria for high-risk close contact.

High-risk close contact	Low-risk close contact
2) Individuals who live in the same community as COVID-19 case or in another community, who have been exposed to respiratory secretions, cough, sneeze of the case.	2) Individuals who live in the same community as COVID-19 case, who were found to be within 1 m of the symptomatic case and do not meet the criteria for high-risk close contact.

Monitoring of Close Contacts Based on Level of Exposure Risks

Upon detection of a probable or confirmed case of COVID-19, 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 COVID-19 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:	- N95 - Goggle
1. If the PUI criteria is met, proceed with PUI* investigation procedure as follows: 1.1 PUI is admitted to negative-pressure isolation room or kept in a designated temporary isolation area. 1.2 Specimens are collected according to Department of Medical Services (DMS) Guidelines for Management of COVID-19 Cases. *Note: Clinical staff should follow the Guidelines for Management of PUI for COVID-19.	Cover all (jumpsuit)
2. If the PUI criteria is not met: 2.1 High-risk close contacts will be asked to: - Take temperature by themselves for 14 days after the day of last contact with the confirmed case. Inform health officials immediately if they have fever. - Avoid going to crowded places/communities (home quarantine) - Protect themselves and people around them by frequently washing hands and wearing face mask. - Receive a daily follow-up phone call from member of disease investigation team	- N95 - Goggle - Water-proof, disposable gown - Gloves

2.2 One throat swab will be collected and contained in VTM. The specimen must be collected on Day 5 and beyond after the date of first exposure to a confirmed case of COVID-19. Specimen will then be shipped for SARS-CoV-2 PCR at reference laboratory, or at laboratory designated for each region by Department of Medical Sciences (DMSc).	

Low-risk close contacts:

1. They can go about their business as usual but should be advised to avoid crowded places. 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 COVID-19

Case Report Form for Patient with COVID-19

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 ..... ℃

☐Cough ☐Sore throat ☐Muscle pain ☐Runny nose ☐Sputum production ☐Dyspnea

☐Headache ☐Watery stool ☐Other (specify) ..... ☐Mechanical ventilation

Chest X-ray (first) ☐Not Done ☐Done, Date ..... Results .....

CBC (First): Date ..... Results: Hb ..... mg% Hct ..... % WBC .....

Platelet count ..... $x10^3$ 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

- 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 influenza-like illness (ILI) 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) .....

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

Appendix B:

Disease Investigation Form for Patient with COVID-19

Disease Investigation Form for Patient with COVID-19

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 visited a fresh market(s) selling poultry/wild animals/mammals/ seafood in Wuhan, Hubei, China?

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

2.2 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#.....

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

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

2.4 Within 14 days prior to illness onset, have you ever cared for or had close contact with patients with influenza-like illness (ILI) or pneumonia?

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

2.5 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

2.6 Within 14 days prior to illness onset, people you are familiar with had had influenza-like illness (ILI) 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/yyy).....

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 smoker, 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	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 2019-nCoV 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. Test performed.....

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

Results

.....

.....

2. Test performed.....

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

Results

.....

.....

3. Test performed.....

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

Results

.....

.....

4. Test performed.....

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

8. **Contact tracing Form** (list of close contacts who are sick, provide description of exposure, and if sick, specify symptoms)

No.	Full Name	Sex	Age	Address /phone number	Date of exposure	Description of exposure	Sick/Not Sick If sick, specify date of illness onset and symptoms	PPE used

Part 2: Post-investigation follow-up of symptoms

Signs and symptoms	Admission		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 and contact 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	Patient has 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 necessary supplies 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_____

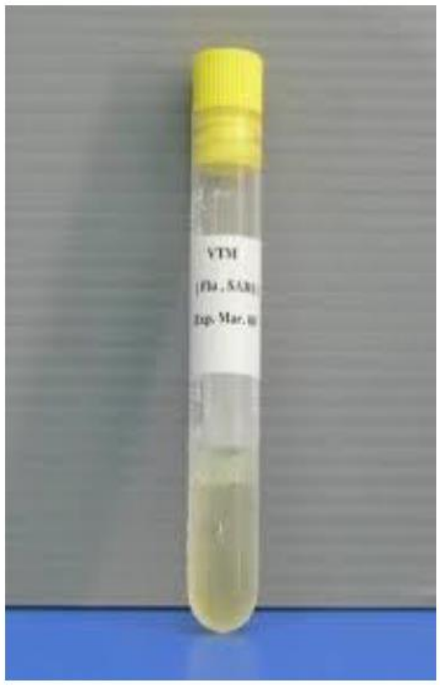
Date of specimen collection 30 Oct 2015

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)

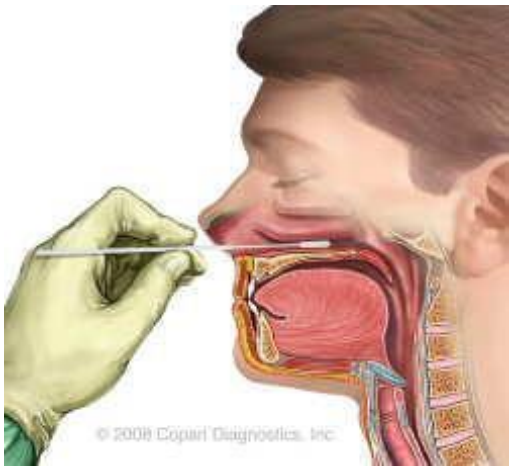
2. Nasopharyngeal Swab

Equipment and supplies

1. Viral Transport Media (VTM) or 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

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 nasopharynges, 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

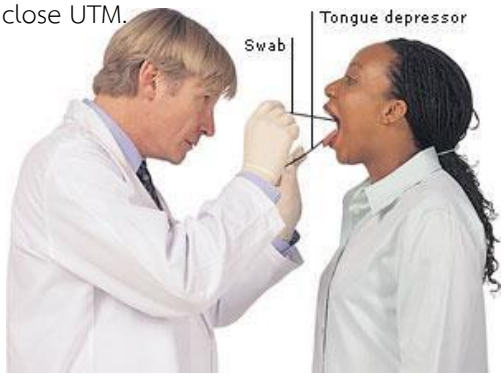
Equipment and supplies

1. Rayon tipped swab with plastic shaft

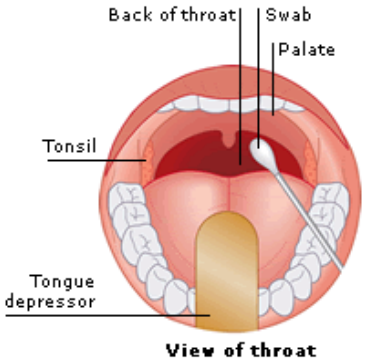
2. Tongue depressor

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

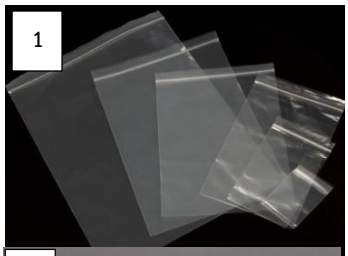
Storage procedure

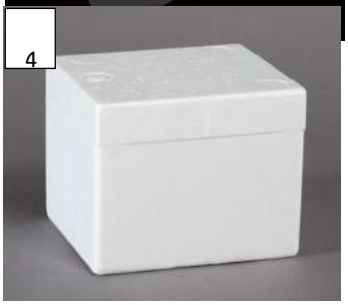
1. Wrap VTM/UTM or sterile container containing specimens with parafilm around the seal of the container cap to prevent leakage.
2. Specimens will then be kept in a refrigerator at 2-8 °C and transported for laboratory testing within 72 hours. If this is not possible, store specimens in a freezer at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

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 PUI for COVID-19 Infection

Specimens collected on admission:

NPS + TS contained in the same 2-3ml* VTM/UTM

+

Sputum contained in sterile container (in case of pneumonia)

↓

Specimens transported to regional Medical Sciences Center Lab; OR Thai NIH Lab, Department of Medical Sciences (DMSc); OR TRC-EID Lab; OR other local laboratories designated for performing 2019-nCoV PCR

Specimens collected during hospitalization:
In the event of laboratory-confirmed case of COVID-19:
One 3.5ml clotted blood sample is collected;
Leftover clotted blood sample collected on admission from other laboratories is also acceptable.

Specimens collected on discharge:
Only for laboratory-confirmed case of COVID-19, one 3.5ml clotted blood sample is collected.

Both clotted blood samples are submitted to BIDI Lab

Note: * In case of 1ml VTM/UTM, two samples will need to be collected and sent to the same laboratory.

Procedures for coordinating laboratory testing services:

1. Once a PUI is detected local health authorities will be informed of PUI detection in compliance with the guidelines implemented by each provincial health office. After that when ODPC SAT/IUDC has been informed of PUI detection, PUI eligibility criteria will be verified. If the criteria is met, a case code will be assigned and laboratory testing request along with reference number will be issued.
   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 DDC SAT.
   1.2 In case of specimens collected from patients being hospitalized at health facilities in Bangkok Metropolitan areas, the requester will provided with case code and reference number for specimen delivery form by IUDC.

1.3 In case of specimens collected from patients being hospitalized at health facilities under Health Zone 1-12, except BIDI, the requester will be provided with case code for requesting laboratory analysis services and reference number by ODPC SAT. To request laboratory testing services, a specimen delivery form should be sent to the laboratory performing the diagnostic test.

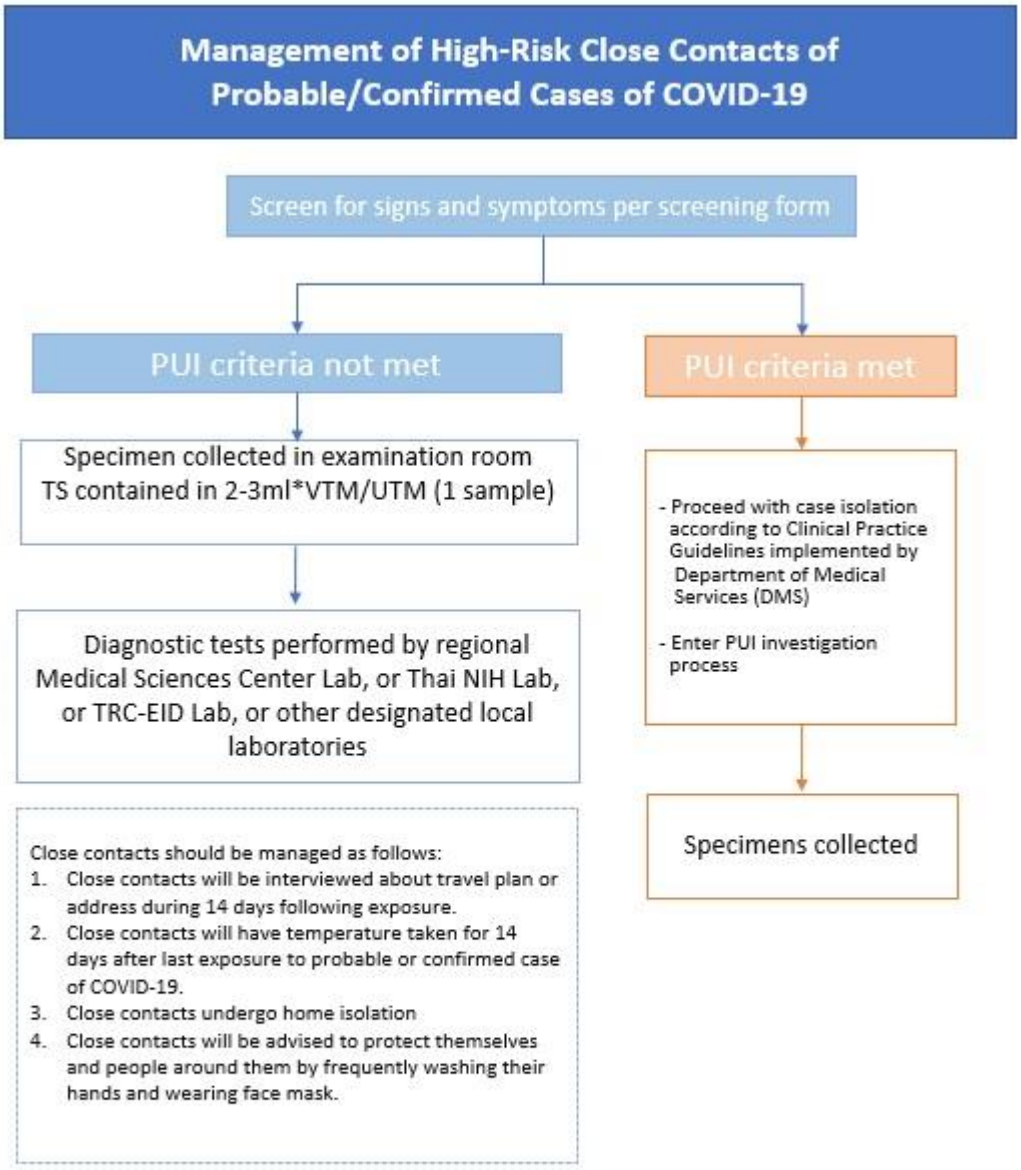
2. In case of specimens obtained from high-risk close contacts of a confirmed case of COVID-19, close contact code for requesting laboratory analysis and reference number for specimen delivery form will be issued by IUDC/ODPC. In case of high-risk close contacts, a specimen delivery form should be sent to a designated local laboratory.

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. Once the case code or contact code is confirmed, responsible staff should arrange for shipmen of specimens following the local guidelines for transportation of specimens, e.g. via regional medical sciences center, public transport (interprovincial bus), or others.
    - In Bangkok: Health facilities should be responsible for shipment of specimens to laboratory.
    - BIDI: Specimens from BIDI should be sent to Thai NIH Lab by Operations DDC.
    - Health Zone 1-12: Specimens should be sent to existing regional Medical Sciences Centers for laboratory diagnosis, or to other laboratories as appropriate. If the specimens are intended for laboratory testing at Thai NIH Lab, Department of Medical Sciences (DMSc), the shipment should be addressed directly to Thai NIH Lab.

Appendix E:

Guidelines for Management of High-Risk Close Contacts of Probable/Confirmed Cases of COVID-19



Note: * In case of 1ml VTM/UTM, two samples will need to be collected and sent to the same laboratory.

Appendix F

Screening Logbook for Close Contacts of Probable/Confirmed Case of COVID-19

Novelcorona 3

Screening Logbook for Close Contacts of Probable/Confirmed Case of COVID-19

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.
						Asymtopmatic	Date of illness onset	Fever	Cough	Sore throat	Muscle pain	Runny nose	Sputum production	Difficulty breathing	Headache	Other (specify)		Date of specimen collection	Specimen type	

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

Appendix G

Interview Form for Asymptomatic Close Contacts of Probable/Confirmed Case of COVID-19

1. Demographic information

Interview Form for Asymptomatic Close Contact of Probable/Confirmed Case of COVID-19

Full name..... Sex ☐Male ☐Female Age..... years

Nationality..... Race..... Relationship to patient.....

Occupation.....

In the event of healthcare worker, specify position ..... Department.....

Current address: No..... Village Group#..... Village/Condominium.....

Alley..... Road..... Sub-district.....

District..... Province..... Contact No.....

Place of residence in China (specify city)..... Passport No.....

2. Travel plan within 14 days of exposure to patient

Date of exposure/contact:.....

Date	Travel Plan	Co-traveler(s)

Interviewed by..... Agency..... Tel.....

Appendix H

Guidelines for Home Isolation for Patients with COVID-19 and Home Quarantine for Close Contacts

Guidelines for Home Isolation for Patient with COVID-19

Based on medical judgement if it is determined that the patient may undergo home isolation, the patient will be advised to:

- Stay home from school or work until complete recovery. After complete recovery (i.e. no fever, cough, runny nose) stay home for at least one more day to reduce the spread of the virus.
- In case of fever, take antipyretic, e.g. paracetamol, and other medications to reduce symptoms, for instance, expectorant, cold medication to reduce runny nose, as prescribed by physician or pharmacist.
- Periodically use tepid sponge/cloth to reduce fever. Start rubbing from the arms and legs toward the body, focusing on the forehead, armpits, groin areas, and crook of the arms and legs. Cover the patient's chest with a blanket while rubbing the limbs to prevent the patient from getting too cold. If chills are observed, stop rubbing immediately and put on the blanket to keep the patient warm.
- Drink plenty of potable water and fruit juice. Do not drink cold water.
- Eat mild foods that are easy to digest, e.g. rice porridge, rice congee, egg, and sufficient vegetables, and fruits.
- Get plenty of rest in a not-too-cold, well-ventilated room.

Patient should be advised to immediately seek medical care if he/she gets very sick, i.e. having high fever, getting more tired, experiencing chest pain, rapid breathing, shortness of breath, and loss of appetite. They may call..... Hospital (24/7 phone number should be provided here)..... as the disease may exacerbate during the second week of the illness. To stem further spread of the virus, the patient and/or relatives are encouraged to call ambulance services. In case the patient is taken to hospital in a private passenger car, the car windows should be kept open. **Hospital/disease investigation team will be closely monitoring your symptoms until resolution. For any questions or concerns, please call .....(hospital's phone number).....**

Prevention of household transmission

- Patient should sleep in a separate room. Do not go outside, avoid crowded and public places until at least one day after full recovery to ensure transmission period has passed.
- Eat separately from other members of the household. After the conditions have improved, the patient may eat with others but make sure that serving spoons are always used.
- Do not share personal items such as handkerchief, towel, tumbler glass, straw with others.
- If the patient is having cough, he/she should:
  - Wear a face mask, OR;

- Cover his/her cough or sneeze with a tissue, then throw the tissue in a plastic bag, tightly seal the bag, and throw it in the trash; **OR**
- If the patient doesn't have a tissue, cough or sneeze into his/her upper sleeve;
- And clean his/her hands with alcohol-based hand sanitizer, or wash hands with soap and water immediately.

- When in the house with other family members always wear a face mask and keep 1-2 meter distance from others, or at least at arm's length.
- Patient should avoid staying in close contact with other household members, especially the elderly and those with underlying medical conditions.
- Patient's caregiver must wear a face mask. After giving care to the patient, the mask must be removed and thrown in the trash. And the caregiver must clean his/her hands with alcohol-based hand sanitizer, or wash hands with soap and water immediately.
- All members of the household should wash their hand as frequently as possible to reduce transmission of the virus.
- Clean and disinfect the patient's living areas, for instance, bed, desk, his/her personal items including bathroom using 5% sodium hypochlorite bleaching agent (ratio of bleaching agent to water 1:99).
- Wash clothes, bed linen, towels, etc. using soap or detergent and water; or alternatively with 60-90 °C hot water.
- Keep monitoring symptoms of close contacts of the patient or members of the household for 14 days after exposure to the patient.

Note: In case the patient or his/her close contact is a breastfeeding mother, she can still continue to breastfeed her child as the virus is minimally shed in breast milk. However, the mother should always wear a face mask and properly wash her hands before and after breastfeeding her child.

Guidelines for Home Quarantine for High-Risk Close Contact of Patient with COVID-19

Close contact is advised to:

- Stay home from school or work for 14 days following exposure to COVID-19 case.
- Sleep in a separate room. Do not go outside, avoid crowded and public places.
- Eat separately from other members of the household.
- Not share personal items such as handkerchief, towel, tumbler glass, straw with others.
- If the close contact is having cough, he/she should:
  - Wear a face mask, OR;
  - Cover his/her cough or sneeze with a tissue, then throw the tissue in a plastic bag, tightly seal the bag, and throw it in the trash; **OR**
  - If the patient doesn't have a tissue, cough or sneeze into his/her upper sleeve;
  - And clean his/her hands with alcohol-based hand sanitizer, or wash hands with soap and water immediately.
- When in the house with other family members always wear a face mask and keep 1-2 meter distance from others, or at least at arm's length.
- Patient should avoid staying in close contact with other household members, especially the elderly and those with underlying medical conditions.
- All members of the household should wash their hand as frequently as possible to reduce transmission of the virus.
- Wash clothes, bed linen, towels, etc. using soap or detergent and water; or alternatively with 60-90 °C hot water.
- Keep monitoring symptoms of close contacts of the patient or members of the household for 14 days after exposure to the patient by taking their temperature and reporting it to the disease investigation team on a daily basis.

Note: In case the patient or his/her close contact is a breastfeeding mother, she can still continue to breastfeed her child as the virus is minimally shed in breast milk. However, the mother should always wear a face mask and properly wash her hands before and after breastfeeding her child.

Hospital/disease investigation team will be closely monitoring your symptoms. If you get sick or have any questions or concerns, please call .....(hospital's phone number).....