Guidelines for Surveillance and Investigation

of Coronavirus Disease 2019 (COVID-19)

Department of Disease Control

(Version Date: December 1, 2021)

(Last Updated: December 22, 2021)

Summary of Changes and Revisions from the Guidelines for Surveillance and Investigation of Coronavirus Disease 2019 (COVID-19), Version Date: August 11, 2021

1. **Page 4** has been added, i.e. the definition of Person under Investigation (PUI).
    1.1 Surveillance at international port of entries (POEs)
    1.2 Surveillance in health facilities
    1.3 Surveillance among healthcare workers (HCWs)
    1.4 Surveillance of clusters of ≥5 patients with acute respiratory infection (ARI) detected in the same place
    1.5 Surveillance in newborns aged 0-28 days
2. **Page 11, Section 3** has been added, i.e. antigen test using Antigen Test Kit (ATK) according to the guidance implemented by Ministry of Public Health (MOPH).
3. **Page 9, Section 2** with respect to patients with upper respiratory tract infection (URI) has been updated.
    2.1.1 Nasopharyngeal swab (NPS) or nasal swab (NS) is collected in 3ml VTM/UTM, OR
    2.1.2 Nasopharyngeal aspirate, nasopharyngeal wash or saliva is collected in sterile container (no VTM/UTM is needed) for SARS-CoV-2 testing using reverse-transcriptase polymerase chain reaction (RT-PCR) technique.
4. **Page 17, Sub-section 3** has been revised, i.e. for passengers in commercial flights, only those seated next/close to probable/confirmed case of COVID-19 within the same row and without the aisle between them while not wearing face mask/cloth face covering for a duration longer than 5 minutes will be considered close contacts.
5. **Page 19, Section 2** has been revised, i.e. for high-risk close contacts, one nasopharyngeal swab (NPS) or nasal swab (NS) will be collected in VTM/**UTM for at least one SARS-CoV-2 RT-PCR** following the last exposure to probable/confirmed case of COVID-19 for at least 7 days. In case where any local health authorities have RT-PCR capacity, one additional RT-PCR test may be performed upon detection of high-risk close contacts.
6. **A separate guidance for investigation of COVID-19 caused by SARS-CoV-2 variants of concern based on the guidance dated November 25, 2021** will also be implemented in addition to the main guidelines.

Case definition (as of December 1, 2021)

1. Case definition for surveillance

1.1 SARS-CoV-2 screening criteria

1.1.1 Individuals with one of the following signs/symptoms: subjective fever /documented fever ≥37.5 ℃, cough, runny nose, sore throat, loss of smell, loss of taste, watery stool, conjunctivitis, rash, tachypnea, dyspnea, or difficulty breathing, OR

1.1.2 Individuals with at least one history of:

(1) Within the past 14 days, have been to/arrived from a foreign country where COVID-19 outbreaks are reported on all commercial flights/through all international ports of entry (POEs);

(2) Have been exposed to probable/confirmed case of COVID-19 during 14 days following the exposure;

(3) Have visited public places or any venues with large gatherings of people, e.g. entertainment establishments, wet markets, outdoor markets, department store, and public transport systems in which probable/confirmed cases of COVID-19 had been recently reported during the past 14 days;

(4) Have worked in quarantine facilities, clinical/medical laboratories, hospitals, prison/detention facilities, or places with people with high risk for severe illness such as nursing homes and long-term care facilities.

1.1.3 Patients with pneumonia of unknown causes or pneumonia of which causes could not be determined within 48 hours of onset of illness, OR

1.1.4 Suspected of having contracted COVID-19 by treating physician

1.2 Laboratory criteria

1.2.1 Pathogen identification methods

- Real-time polymerase chain reaction (RT-PCR) on throat or nasopharyngeal swabs or saliva sample to identify genetic materials of SARS-CoV-2

- Antigen test using antigen test kit (ATK) on throat or nasopharyngeal swabs or saliva sample to identify genetic materials of SARS-CoV-2

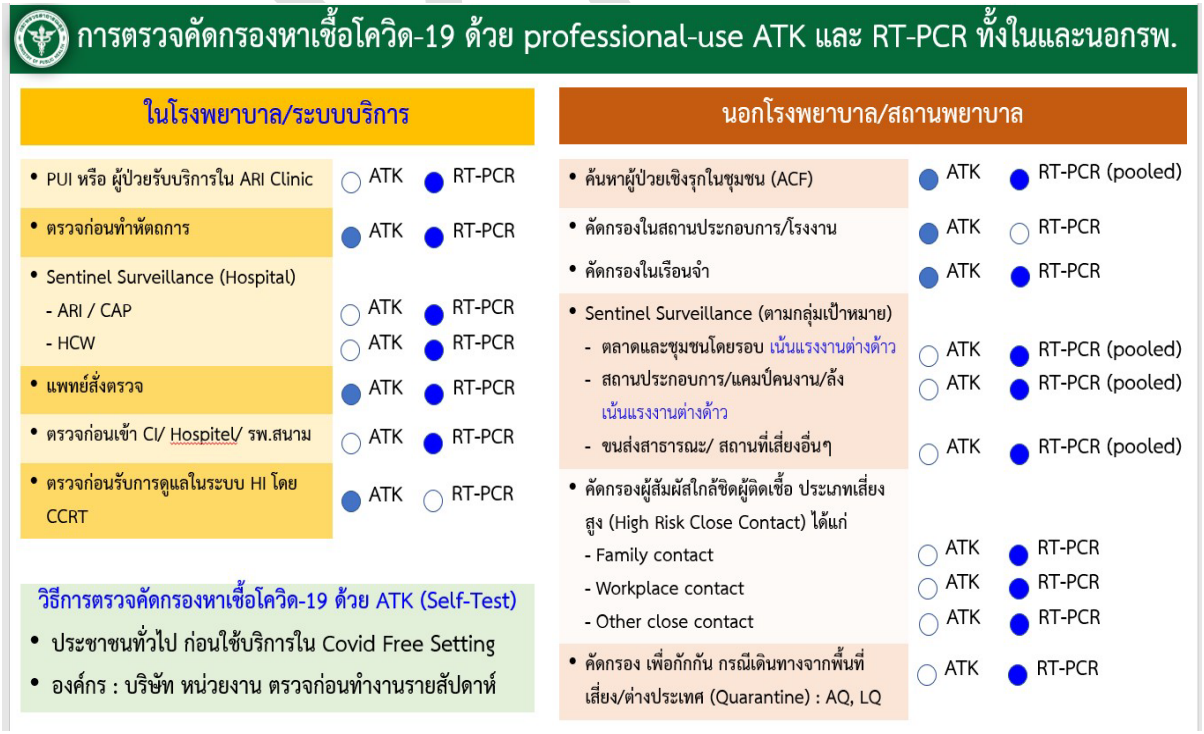
1.2.2 SARS-CoV-2 identification using RT-PCR or ATK

1) Persons meeting the screening criteria in 1.1.1 and have risk history according to 1.1.2 are required to have specimens collected for RT-PCR or ATK test as appropriate, except for those working in quarantine facilities, clinical/medical laboratories, hospitals, prisons/detention facilities, or places with people with high risk for severe illness such as nursing homes and long-term care facilities, for whom only RT-PCR are required.

2) Persons meeting the screening criteria in 1.1.1 but without risk history according to 1.1.2 will be subject to antigen test using antigen test kit (ATK).

3) Individuals without COVID-related symptoms but have risk history according to 1.1.2 (2) will be required to undergo RT-PCR test, whereas those without COVID-related symptoms but have risk history according to 1.1.2 (3) and 1.1.2 (4) will be subject to ATK-based antigen test.

4) Individuals (either symptomatic or asymptomatic) who have been to/arrived from/lived in a foreign country where COVID-19 outbreaks are reported within the past 14 days on all commercial flights/through all international ports of entry (POEs) will be subject to RT-PCR test.



2. Definition for Patient under Investigation (PUI)

2.1 Surveillance at international ports of entry (POEs): Individuals who have been to/arrived from a foreign country on all commercial flights/through all international ports of entry (POEs) and have tested positive for SARS-CoV-2 within 14 days following entry into the kingdom.

Clinical criteria for symptomatic patients include those who have documented fever ≥ 37.3 ℃, or those who have one of the following signs/symptoms including cough, runny nose, sore throat, loss of smell, loss of taste, watery stool, conjunctivitis, rash, tachypnea, dyspnea, or difficulty breathing.

Note: Surveillance at international ports of entry (POEs) includes designated hotels/facilities while pending first RT-PCR results following entry into the country.

2.2 Surveillance in health facilities: Infected persons with signs/symptoms according to the screening criteria who have been diagnosed with severe pneumonia, intubated, or died.

2.3 Surveillance among healthcare workers (HCWs): Infected persons with signs/symptoms according to the screening criteria, who work in health facilities including hospitals, clinics, community health centers (locally known as Tambon Health Promotion Hospitals), laboratory facilities, drug stores, or who are members of outbreak investigation team, or work in quarantine facilities, as deemed appropriate.

2.4 Surveillance of clusters of ≥5 patients with acute respiratory infection (ARI) detected in the same place (in the same place and week with epidemiological link)

2.5 Surveillance in newborns aged 0-28 days with history of one of the following:

1) Born to mother who is diagnosed with confirmed SARS-CoV-2 infection within 14 days prior to delivery to 28 days post-delivery
2) Been exposed to probable/confirmed case of COVID-19
3) Suspected of having contracted COVID-19 by treating physician

3. Case classification

3.1 Suspected case is defined as a person who meets the COVID-19 screening criteria and PUI definition.

3.2 Probable case

3.2.1) Those who have tested positive for SARS-CoV-2 by antigen test kit (ATK), both symptomatic and asymptomatic

3.2.2) PUI who is IgM positive for SARS-CoV-2 and has never been vaccinated against SARS-CoV-2.

3.3 Confirmed case

3.3.1) PUI who has tested positive for genetic materials of SARS-CoV-2 by RT-PCR, which is confirmed by one (1) reference laboratory designated by Department of Medical Sciences (DMSc), or by genetic sequencing, or by culture.

3.3.2) Asymptomatic infection is defined as a person who has tested positive for genetic materials of SARS-CoV-2 by PCR and confirmed by one (1) reference laboratory designated by Department of Medical Sciences (DMSc), or by genetic sequencing, or by culture, but without any signs and symptoms.

4. Reporting criteria

4.1 Case reporting should start from probable cases onward and information on COVID-19 cases should be entered into the National Disease Surveillance Report 506 using Disease Designation Code 92, together with the following ICD-10.

1. COVID-19, Virus identified (U07.1)
2. COVID-19, Virus not identified (U07.2)

Together with ICD-10 for specific disease, for instance, Pneumonia COVID-19 should be reported as J12.8, followed by either U07.1 or U07.2.

3. COVID-19 related complications such as Multisystem Inflammatory Syndrome (e.g. MIS-C or MIS-A) should be reported as U10.9.

4. Individuals with known history of COVID-19 and have fully recovered should be reported as U09.0, together with other current medical conditions. If previous COVID-19-related conditions have resulted in current illness, this should be reported as U08.9.

4.2 Any cases meeting the reporting criteria should be reported to the DDC Event-Based Monitoring System or Web-Based Outbreak Monitoring at: https://eventbased-doe-moph.go.th/eventbase/user/login/.

5. Data verification

5.1 The same patient who is reported twice within a 30-day period should be considered a duplicate case.

5.2 Data of all fatal cases of COVID-19 should be thoroughly verified.

6. Disease investigation

Case investigation:

- Severe pneumonia cases requiring intubation, e.g. acute respiratory distress syndrome (ARDS) or all fatal cases
- Those who have been infected by SARS-CoV-2 variant of concern (VOC) for the first time based the area-specific investigation criteria (according to the table provided under Section 7).

Outbreak investigation:

Outbreak investigation should be initiated in the event of a cluster(s) of cases with the potential for further transmission.

7. Disease investigation criteria

District/HSSC	Province/BMA	Regional Level	National Level
- Detection of cluster(s) of ≥5 patients detected within 1-week period in the same place, e.g. workplace, school - All fatal cases or severe pneumonia cases requiring intubation - All patients infected by SARS-CoV-2 variant of concern (VOC) for the first time in the district	- Detection of cluster(s) of ≥10 patients detected within 2-week period in the same place, e.g. workplace, school - All fatal cases or severe pneumonia cases requiring intubation - All patients infected by SARS-CoV-2 variant of concern (VOC) for the first time in the province	- Detection of ≥2 cases of nosocomial infection - Detection of cluster(s) of ≥20 patients detected within 1-week period in the same place or community - Two or more fatal cases which are epidemiologically linked to one another - All patients infected by SARS-CoV-2 variant of concern (VOC) for the first time in the health region	- Detection of cluster(s) of ≥50 patients detected within 1-2-week period in the same place or community - Two or more fatal cases in the same place or community - Outbreaks are reported in two or more places within one-month period. - All patients infected by SARS-CoV-2 variant of concern (VOC) for the first time in the country

Note: International passengers arriving from overseas who have tested positive for COVID-19 by RT-PCR within 14 days of arrival into the kingdom will be treated as imported cases. They can be considered locally transmitted cases only if local transmission is confirmed by disease investigation.

8. Remarks

8.1 In case of ATK positive test and RT-PCR result is inconclusive/not detected, specimen should be collected within 24 hours of first specimen collection for a repeat RT-PCR and the person should be deemed a probable case. Treatment will be provided at the discretion of treating physician.

8.2 In the event a person has tested positive for SARS-CoV-2 by self-test ATK performed during Home Isolation (HI) and Professional-use ATK test performed by healthcare worker came back negative, the person is considered a probable case. Professional-use ATK test will be repeated within 3-5 days of first specimen collection. Isolation will be done and treatment will be provided according to the clinical practice guidelines implemented by Department of Medical Services (DMS), Ministry of Public Health (MOPH).

8.3 All fatal cases meeting the case definition for COVID-19 infection by positive ATK test are subject to confirmatory testing by RT-PCR.

9. References

9.1 World Health Organization. Emergency use ICD codes for COVID-19 disease outbreak (Internet).(cited 2021 Sep10). Available from https://www.who.int/standards/classifications/classification-of-diseases/emergency-use-icd-codes-for-covid-19-disease-outbreak

9.2 Division of Epidemiology (DOE), Department of Disease Control (DDC), Ministry of Public Health (MOPH). Guidelines for Surveillance and Investigation of Coronavirus Disease 2019 (COVID-19), Version Date: August 11, 2021 (online version). (accessed on September 10, 2021). Accessed via: https://ddc.moph.go.th/viralpneumonia/file/g_srrt/g_srrt_110864.pdf

Disease designation codes used in case reporting in epidemiological surveillance network (Report 506)

Report 506 Code	ICD-10	Disease & Pathogen Code	Disease Designation in Thai
92	U07.1, U07.2	1. COVID-19, Virus identified (U07.1) 2. COVID-19, Virus not identified (U07.2)	โรคติดเชื้อไวรัสโคโรนา 2019 (COVID-19)

Disease investigation for probable/confirmed cases of COVID-19

Disease investigation will be conducted by Comprehensive COVID-19 Response Team (CCRT) using Form Novelcorona 2 (Appendix A). In case where the disease investigation is being conducted among healthcare workers (HCWs), Form Novelcorona 2H (Appendix B) should be used. For those people in state-designated quarantine facilities, Form Novelcorona 2Q (Appendix C) will be used for disease investigation purposes. The following guidelines will be followed as part of disease investigation:

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 D. In addition, it is also important to focus on the following issues:

- The information on exposure risks of those who have returned from the areas affected by COVID-19 outbreaks, history of contact with COVID-19 cases, 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 diseases) 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).
- History of vaccination against COVID-19
- When probable/confirmed cases of COVID-19 infection are identified in **state quarantine facilities**, they will be asked to provide additional information as follows:
- Exposure risks when in the country of origin, e.g. history of residence or accommodation, activities, wearing of face mask or protective equipment, symptoms experienced while in the country of origin, as well as history of previous testing for SARS-CoV-2, and medical treatments received in the country of origin
- Exposure risks while waiting to board the departure flight from the country of origin, e.g. physical distancing from other passengers and wearing of face mask and personal protective equipment.
- History of exposure risks while onboard the plane, including the distance from other passengers, wearing of face mask and personal protective equipment by the PUIs, other passengers nearby, and crew members

- While en route from the airport to a quarantine site, e.g. physical distancing between the PUIs and other passengers, wearing of face mask and personal protective equipment by the PUIs, nearby passengers, and staff of shuttle services.

- Quarantine facility management, environments, activities of daily living, e.g. whether or not quarantined individuals are allowed to do certain activities outside of their room.

- May also consider collecting environmental specimens to test for genetic materials of SARS- CoV-2, e.g. from air conditioning system, door knobs, etc.

If probable/confirmed cases of COVID-19 infection are **healthcare workers**, additional information on exposure risks should be obtained as follows:

- Nature of their work, activities, history of contact with patients, duration of contact, frequency, types of PPE worn while caring for patients, and whether there is another person observing while doffing PPE in order to prevent contamination;

- Hospital's guidelines for management of ARI patients including screening point, air ventilation system of health facility/isolation rooms, routes for patient movement, distance between patient beds, guidelines for performing aerosol-generating procedure for ARI patients, as well as procedures for cleaning and disinfecting beds, linens, curtains, fans, and waste disposal following patient discharge. This will also include the type of chemicals used for disinfection purposes, as well as duration and frequency of disinfection.

2. Specimen collection for laboratory testing to confirm diagnosis (refer to Appendix E)

2.1 Patients with upper respiratory tract infection (URI)

2.1.1 **Nasopharyngeal swab** or **nasal swab** is collected in 3ml VTM/UTM; or

2.1.2 **Collect nasopharyngeal aspirate, nasopharyngeal wash, or saliva** in sterile container (no need to be placed in VTM/UTM) for SARS-CoV-2 testing using reverse-transcriptase polymerase chain reaction (RT- PCR).

2.2 Patients with lower respiratory tract infection (LRI) (e.g. pneumonia, acute respiratory distress syndrome [ARDS]) specimens should be collected according to Item 2.1 above, and

2.2.1 **Non-intubated** patients Collect **sputum sample** in sterile container or VTM/UTM for SARS-CoV-2 RT-PCR.

2.2.2 **Intubated patients** Collect **tracheal secretion suction** in sterile container (2-3 ml). If no secretion is obtained, cut the end portion of suction line and place it in VTM/UTM for SARS-CoV-2 RT-PCR.

2.2.3 Fatal cases Specimen collection should be performed according to Thai MOPH Guidelines for Handling Fatal Cases due to confirmed or suspected COVID-19 infection.

Designated laboratory facilities for confirmatory testing of SARS-CoV-2

- National Institute of Health (NIH), Department of Medical Sciences (DMSc)
- Certain regional Medical Sciences Centers with capacity to perform SARS-CoV-2 PCR
- Other laboratories designated by Department of Medical Sciences (DMSc) (Refer to the current Notification by National Institute of Health (Thai NIH), Department of Medical Sciences (DMSc).

In the event that initial laboratory testing is performed by a laboratory not included in the DMSc notification, a repeat test must be subsequently done at one of the DMSc-designated laboratories.

For test procedures and interpretation of laboratory results, please refer to the guidelines implemented by Department of Medical Sciences (DMSc) (https://www3.dmsc.moph.go.th/)

Note:

- In the event that the patient has the history of vaccination against COVID-19 within 30 days prior to illness onset and has tested positive for COVID-19, the case should be reported and investigated according to the Guidelines for AEFI Surveillance and Investigation.
- 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 specimens. 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.
- As for special settings like prison and remand home (for juvenile offenders), responsible health officials may consider using MOPH-approved antigen test kit or antibody test for COVID-19 testing purposes.
- Other tests reimbursable by Department of Disease Control (DDC) will be subject to prior approval by the DDC management, i.e. Director of Division of Epidemiology (DOE), Director of Office of Disease Prevention and Control Region 1-12, or Director of Institute for Urban Disease Control (IUDC).

3. COVID-19 testing using Antigen Test Kit (ATK) (as per MOPH guidance)

3.1 COVID-19 testing by professional-use Antigen Test Kit (ATK)

Testing using Antigen Test Kit (ATK) must be performed by healthcare provider. Those eligible to receive testing by professional-use ATK include:

1) Patients receiving initial screening at health facility due to the presence of any of the following sings and symptoms: having history of fever or documented temperature ≥ 37.5°C, cough, runny nose, sore throat, loss of smell, loss of taste, tachypnea, dyspnea or difficulty breathing, conjunctivitis, rash, watery stool.

2) Patients referred from community-based active case finding

3) Individuals with history of close contact with confirmed case of COVID-19

4) People performing self-test ATK with positive results within the past 5 days

Tests may be performed at health facility or community, for instance, tests performed by Comprehensive Covid-19 Response Team (CCRT). Prior to the test, preparations should be made on facilities, personnel, supplies and equipment, and educational materials for the general public.

Use of ATK in the areas with widespread transmission:

As COVID-19 screening and diagnosis must rely primarily on RT-PCR tests, which cannot be performed in a timely manner in the areas with widespread transmission due to large numbers of confirmed cases, it is therefore difficult for health facilities to keep up with the demand for RT-PCR tests. In the areas with widespread transmission, ATK should be considered for the purposes of patient screening, treatment and disease control, particularly in the provinces with insufficient RT-PCR capacity. Taking into account the number of infected persons/PUIs/high-risk close contacts, provinces will be designated as **the area with widespread transmission** based on the following criteria:

1) Average number of weekly confirmed cases >500 per day
2) Number of high-risk contacts and PUIs > 2,000 per day
3) Case fatality rate (CFR) >5 per 100,000 populations per week

In the areas with widespread transmission with large numbers of confirmed cases, the likelihood of detection of false positive results is less than 10 percent. **As for patients whose signs and symptoms are consistent with COVID-19 in combination with ATK positive** performed at health facility, **these patients should be treated as confirmed cases of COVID-19** and symptomatic treatment according to the guidelines of Department of Medical Services (DMS) may be immediately initiated.

3.2 COVID-19 testing using self-test Antigen Test Kit (ATK)

Indications for use of self-test ATK

Individuals who are eligible for self-test ATK are those who have **signs/symptoms consistent with at least one of the criteria,** accompanied by at least **one of the following risk factors:**

Criteria on signs/symptoms:

1) Suspected cases of respiratory infections, for instance, those with one of the following signs or symptoms: having history of fever or documented temperature ≥ 37.5°C, cough, runny nose, sore throat, loss of smell, loss of taste, tachypnea, dyspnea or difficulty breathing, conjunctivitis, rash, watery stool.

2) As for close contacts (both symptomatic and asymptomatic), specimens should be obtained for laboratory testing 3-5 days following exposure.

Criteria on history of exposure risks:

1) History of residing in/visiting the area affected by COVID-19 outbreaks or the place where COVID-19 cases were reported within the past 14 days;

2) Family member(s)/friend(s)/coworker(s) is/are probable/confirmed case(s) of COVID-19 infection.

Operational procedure

1) Health facility staff consider providing self-test ATK to those eligible for the test and all information should be entered into the registration system.

2) Health facility staff provide to those who have received self-test ATK detailed description of the test kit(s), test procedure, and result interpretation. In addition, contact number of Point of Contact (POC) at health facility and local CCRT will also be provided.

3) Health facility staff record and report the results as required by Provincial Health Office and MOPH.

Note:

1) In the event that people want to do ATK self test at health facility, it is recommended that the area for ATK self test be provided by health facility. In addition, instructions on swap collection, test procedure, and result interpretation at health facility should also be provided. This is to ensure an increased access to COVID-19 testing and faster test result reporting.

2) In the event that people want to bring home an ATK for self-test at home, health facility should have in place a monitoring and reporting system so that test results are promptly communicated to health facility, thus ensuring timely treatment and disease control.

3) In the event there is a need for more than one ATK (Professional use) test using more than one commercial brand of ATK test kit, treating physician or responsible medical personnel may consider performing the tests at different time points, or a repeat test may be done according to the existing clinical practice guidelines.

Active case finding

Active case findings include the following three activities:

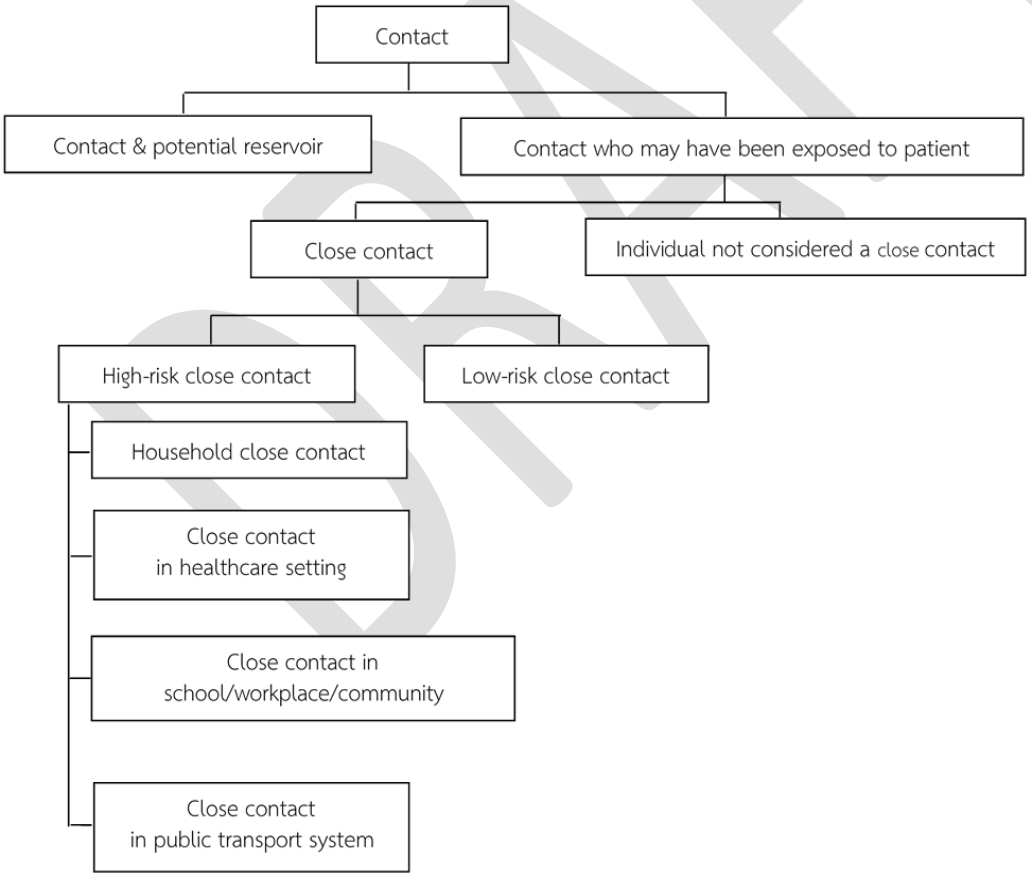
1. Close contact tracing
2. Active case finding
3. Rapid survey

1. Close contact tracing

Principal Concepts:

Close contact is defined as a person who has had interactions/activities with probable/confirmed case(s) of COVID-19 infection. This can be divided into two groups.

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



Close contact includes:

1. A person who has come into close contact or had conversation with probable/confirmed case of COVID-19 within two-meter distance for >5 minutes; or being coughed or sneezed on by a patient
2. Those who are in the same enclosed space without proper ventilation as probable/confirmed case of COVID-19 for >30 minutes (e.g. in air-conditioned bus/car/room)

Close contacts can be divided into:

1. **High-risk close contact,** defined as close contact who is more likely to contract or spread the virus with probable/confirmed case of COVID-19 through exposure to respiratory secretions of the patient while not wearing PPE according to standard precautions.
2. **Low-risk close contact,** defined as a close contact who is less likely to contract or transmit the virus with probable/confirmed case of COVID-19. This includes close contacts who have not met the definition for high-risk close contact.

Contact tracing – once a probable/confirmed case of COVID-19 is detected, contact tracing will be initiated to locate those who have been exposed to the patient and follow up on their health condition. Contact tracing will include the following key activities.

1. Obtaining information from the patient, individuals (e.g. patient's relatives) and other related information, e.g. travel information
2. Locating close contacts – to inform them that they may have been exposed to the viruses, facilitate their access to diagnosis and treatment services, and provide recommendations on quarantine. It is important for health authorities to ensure that those close contacts will not be subjected to stigmatization. In some cases, an identity of the patient should also be withheld.

Contact tracing is mandatory as part of disease control and in certain countries is mandated by the law. This must be carried out in compliance with ethical principles laid out in the Communicable Diseases Act B.E. 2558 (2015), which also calls for the quarantine of close contacts.

Reverse contact tracing or source case investigation – Upon detection of a probable/confirmed case of COVID-19, the patient will be asked whether he/she, during one possible longest incubation period prior to illness onset, had come into close contact with anyone who might be a patient, who may be a previously diagnosed patient, or who has never been diagnosed for COVID-19 infection and may warrant specimen collection for laboratory analysis. Nevertheless, reverse contact tracing may not be necessary in the areas with widespread transmission.

* In case of asymptomatic infection, the specimen collection date should be considered as 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 close contact	
1) Family members, relatives, caregiver of symptomatic probable/confirmed case of COVID-19, with a duration without face mask or cloth face covering of >5 minutes. 2) Individuals who live in the same household as symptomatic probable/confirmed case of COVID-19, with a duration without face mask or cloth face covering of >5 minutes.	
Close contact in home isolation (HI)/community isolation (CI)/field hospital/hospital	
1) Medical and clinical staff, other hospital staff, and those visiting probable/confirmed case of COVID-19 while the patient is being treated in home isolation (HI)/community isolation (CI)/field hospital/hospital without wearing personal protective equipment (PPE) according to standard precautions 2) Other patients (with other medical conditions) who are being treated during the same period as, in the same room as, in the same row as probable/confirmed case of COVID-19, and visitors of probable/confirmed case of COVID-19 who visited the patient when the patient had yet to be moved to an isolation room. 3) Laboratory staff who did not wear PPE according to standard precautions while handing and processing clinical specimens obtained from probable/confirmed case of COVID-19.	Hospital staff, laboratory staff, whose job is related to probable/confirmed case of COVID-19, or those visiting probable/confirmed case of COVID-19 while the patient is being treated in home isolation (HI)/community isolation (CI)/field hospital/hospital without wearing personal protective equipment (PPE) according to standard precautions
Close contact at school, workplace, and community	
1) Students or co-workers include close friends who were **interacting or mingling with** symptomatic probable/confirmed case of COVID-19; **AND** who may have been **exposed to respiratory secretions**, cough, sneeze from probable/confirmed case of COVID-19 2) Individuals who live in the same community as probable/confirmed case of COVID-19 or in	1) Students or co-workers who are in the same class/room/department as symptomatic probable/confirmed case of COVID-19 who do not meet the definition of high-risk close contact. 2) Individuals who live in the same community as probable/confirmed case of COVID-19 and were found to be interacting

another community, **AND** who have been exposed to respiratory secretions, cough, sneeze of the case 3) Individuals other than those in 1) and 2) who are within two-meter distance from probable/confirmed case of COVID-19 for >5 minutes without wearing face mask or cloth face covering	with symptomatic probable/confirmed case of COVID-19 within two-meter distance, who do not meet the definition of high-risk close contact.
Travel-related close contacts	
1) Passengers who have been exposed to patient's respiratory secretions, or cough, sneeze from probable/confirmed case of COVID-19 2) Co-travelers in the same group as the case, for instance, passengers in the same tour group 3) For passengers in commercial flights, only those seated next/close to probable/confirmed case of COVID-19 within the same row and without the aisle between them while not wearing face mask/cloth face covering for a duration longer than 5 minutes will be considered close contacts. 4) Passengers in the same bus as probable/ confirmed case of COVID-19; as for passengers in the same large vehicle as probable/ confirmed case of COVID-19, e.g. train, double-decker bus, passenger ferry, only those in the same carriage/compartment/ cabin as probable/confirmed case of COVID-19, with a duration without face mask or cloth face covering of >5 minutes, will be considered high-risk close contact. 5) Public bus driver and all staff onboard (<u>except for</u> commercial flight, in which only crew members who were providing inflight services in the area where probable/confirmed case of COVID-19 was seated and with a duration without face mask or cloth face covering of >5 minutes, will be considered high-risk close contact.)	All passengers who are in the same vehicle as probable/confirmed case of COVID-19 who do not meet the definition of high-risk close contact. <u>Note:</u> In case of large vehicles such as train, double-decker bus, passenger ferry, only passengers in the same carriage/cabin as probable/confirmed case of COVID-19 will be considered low-risk close contacts.

<u>Note:</u>

1. A duration without face mask or cloth face covering means the duration in which at least either a probable/confirmed case of COVID-19 or a close contact is not wearing face mask or cloth face covering when they are in close contact with one another.

2. For those who are close contacts in international transportation, the guidance for handling incoming international travelers should be followed.

Example of how close contacts are classified:

Close contacts in vehicle/public transportation who do not meet the criteria of close contacts in another group, who were without face mask/cloth face covering and were within a two-meter distance from a person infected by COVID-19 or talking with that COVID-19 case within such distance while the COVID-19 case was not wearing face mask for a duration of >5 minutes should be considered high-risk close contacts. However, if those close contacts were having face mask on at all times while talking with the COVID-19 case or when they were within a two-meter distance from the COVID-19 case, or stayed in the same enclosed space with the COVID-19 case for longer than 30 minutes, in this case they are considered as low-risk close contacts.

Tracing of Close Contacts Based on Level of Exposure Risks

Upon detection of a probable/confirmed case of COVID-19, close contacts of the case should be followed immediately in order to assess their symptoms and rapidly detect potential new cases. Tracing of close contacts may be carried out by healthcare workers/disease control officials/local health volunteers or by using designated mobile applications.

Guidelines for management of high-risk close contacts of probable/confirmed cases of COVID-19 and related activities

Group 1:

- Individuals with previous COVID-19 infection and have recovered for no more than three months.

- Those who have been vaccinated and have had some level of protection against COVID-19 infection according to MOPH COVID-19 vaccination requirements

- Incoming international travelers aged <12 years (regardless of history of COVID-19 vaccination) who are traveling with their fully vaccinated parents

Actions to be taken:

This group of high-risk close contacts will be kept at home for close observation and they will be instructed not to unnecessarily go outside, as well as strictly complying with DMHTTA measures. They will be closely monitored by disease control officials or CCRT for 14 days. One nasopharyngeal swab (NPS) or nasal swab (NS) will be collected in VTM/UTM for at least one SARS-CoV-2 RT-PCR following the last exposure to probable/confirmed case of COVID-19 for at least 7 days. In case where any local health authorities have RT-PCR capacity, one additional RT-PCR test may be performed upon detection of high-risk close contacts.

Group 2:

High-risk close contacts other than Group 1

Actions to be taken:

This group of high-risk close contacts will be required to undergo home quarantine and will be closely monitored by disease control officials or CCRT or designee. They will be provided with assistance as appropriate.

Activities	Minimum
1. High-risk close contacts are screened for fever (using hand-held thermometer) and respiratory symptoms immediately after detection and further screened daily during the quarantine period.	- N95 - goggles

2. **If the PUI criteria is met, proceed with PUI investigation procedure as follows:** 2.1 PUI is admitted to negative-pressure isolation room or kept in a designated temporary isolation area. 2.2 Specimens are collected according to Department of Medical Services (DMS) Guidelines for Management of COVID-19 Cases. <u>Note:</u> If close contact has history of vaccination against COVID-19 within 30 days prior to the onset of illness, the case should be reported and investigated according to the Guidelines for AEFI Surveillance and Investigation) as well.	Coverall (jumpsuit) <u>Note:</u> In case of working in the area where frequently touched surfaces are cleaned regularly, use of protective gown may be considered.
3. If the PUI criteria is NOT met: 3.1 High-risk close contact will be asked to: - Take temperature by themselves for 14 days after the day of last contact with the confirmed case. Inform CCRT immediately if they have fever. - Strictly follow home quarantine guidance. Avoid non-essential travel. Avoid visiting crowded public places/communities (home quarantine) - Protect themselves and people around them by staying away from others, staying in a separate bedroom, frequently washing their hands, and wearing face mask at all times. - Close contact will be followed daily by CCRT either by phone or designated mobile Application. 3.2 One nasopharyngeal swab (NPS) or nasal swab (NS) will be collected in VTM/UTM for at least one SARS-CoV-2 RT-PCR following the last exposure to probable/confirmed case of COVID-19 for at least 7 days. In case where any local health authorities have RT-PCR capacity, one additional RT-PCR test may be performed upon detection of high-risk close contacts.	- N95 respirator - Goggles - Waterproof, disposable gown - Gloves

Guidance for management of low-risk close contacts of probable/confirmed case of COVID-19

Those who are considered low-risk close contacts will be allowed to 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 probable/confirmed case. They will strictly follow the DMHTTA measures and ATK testing may be considered. They will also be asked to inform health authorities immediately if they develop 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.

Notes:

1. In the event a close contact is a healthcare worker, the applicable guidelines implemented by Department of Medical Services (DMS), Ministry of Public Health (MOPH) should be followed.

2. Those who are more likely to be exposed to respiratory secretions of probable/confirmed case of COVID-19, such as convenience store workers, movie theater cashiers/ticket sellers, local market vendors, should self-monitor themselves for 14 days from the date of last exposure risk. Health officials may consider obtaining specimens for laboratory analysis according to the guidelines for management of high-risk close contacts as they are more likely to contract the virus than low-risk close contacts.

3. In those places with large gatherings of people such as movie theaters, theaters, sports stadiums, concert venues, festivals, trade shows and exhibitions, religious ceremonies, local cultural events, etc., health officials may consider obtaining specimens for laboratory examination and implementing quarantine measures according to the guidelines for management of high-risk close contacts for the following groups of individuals:

1) Staff working at movie theaters, theaters, sport stadiums (including referees, umpires) venues where gathering activities are being organized;

2) Actors, singers, athletes or those involved in show rehearsals, sport training sessions, races, activities in the same room or area as probable/confirmed case of COVID-19;

3) Cleaning staff who have been exposed to respiratory secretions of probable/confirmed case of COVID-19;

4) Those who were in the same movie theater, theater, sport stadium, gathering or event as probable/confirmed case(s) of COVID-19 or in other communities where it was likely to be directly exposed to the patient's respiratory secretions through cough, sneeze, or shout, or through other contaminated surfaces;

5) Persons other than those in 1) - 4) who were within two-meter distance of the patient with a duration without face mask or cloth face covering of >5 minutes.

As for other people who were in that place, they will be asked to self-monitor symptoms for 14 days following the date of last exposure risk. At the discretion of CCRT, specimens may be collected from these individuals for laboratory analysis according to the guidelines for management of high-risk close contacts as they are more likely to contract the virus than low-risk close contacts.

2. Active case finding

When a probable/confirmed case of COVID-19 whose source of infection in the area affected by ongoing outbreak cannot be definitely established, it is more likely that the patient may have contracted the virus from the community he/she is residing or living.

It is also possible that there may be some other cases in the community or ongoing outbreak locally. Therefore, there is a need for active case finding in the community to detect potentially ongoing transmission of the viruses and rapidly isolate the patients. Typically, active case finding will further include the entire community where the confirmed case of COVID-19 infection is residing, not restricted only to his/her close contacts.

How large the extent of active case finding would be will depend largely on the principle of finding other patients who were likely to have common exposure as probable/confirmed case of COVID-19. For example, if a sixth grader is a confirmed case of COVID-19 infection, contact tracing will be restricted only to his/her close friends or classmates. However, active survey will further expand its scope to also include the entire school as the confirmed case may have used the elevator, cafeteria, gym, library, computer room, etc. If the patient had contracted the virus from these places, it is also likely that other students or school staff members might have been infected as well.

Active case finding is to be conducted among the following two population groups:

1. Individuals who meet PUI definition within 14 days prior to illness onset of a probable/confirmed index case until 28 days following the detection of the last probable/confirmed case of COVID-19 infection.

2. Individuals at risk for infection including:

2.1 Low-risk close contacts of probable/confirmed case of COVID-19. These are close contacts other than those meeting the definition of high-risk close contacts.

2.2 All those who live, work, study, or go about their daily life in the same community, the same place as probable/confirmed case of COVID-19, e.g. the same department/floor, school, living quarters (military barrack, prison), residential condominium, etc.

Operational procedures for active case finding:

1) All patients who remain symptomatic on the date of disease investigation should have specimen collected to test for SARS-CoV-2 (guidelines for specimen collection for PUIs should be followed). As for those who have shown no signs and symptoms, no specimen collection is needed.

2) All cases identified during active case finding, whether symptomatic or not, should be quarantined (stay home from work/school) for at least 10 days starting from the date of onset of symptoms, or from the date of specimen collection for asymptomatic cases despite full recovery or negative test results. In the event that a large number of cases are identified, a cohort ward may be set up in a hospital, or special facilities designated to accommodate a large number of patients, e.g. field hospital (cohort ward), by reporting to provincial governor and working closely with related supporting agencies such as military barracks, local administration organizations, etc.

3) Public events involving large gatherings or movement of people should be called off at the place where the outbreak was reported for 28 days after detection of the last probable/confirmed case of COVID-19 infection.

4) Disinfect the area where the outbreak has occurred or related to the outbreak following the guidelines provided by the Ministry of Public Health (MOPH).

5) Consider closing the places/venues as appropriate if there is a sustained outbreak for >14 days following the detection of probable/confirmed index case of COVID-19.

6) Prospective surveillance will be carried out for the next 28 days following the detection of the last confirmed case of COVID-19 infection. During this period, any individuals who meet the PUI criteria will have specimen collected to test for SARS-CoV-2 by RT-PCR or ATK.

3. Rapid survey

Rapid survey will be conducted when necessary. It is aimed to identify infections or illness among priority population groups or potential cases. Statistical sampling method will be used for the process intended to find out whether there are any infections and determine the prevalence rates of infection. The extent of rapid survey activities depends on frequency of case detection, density of the populations, and evolving local situation, while taking into account the efficiency and effectiveness of the effort in parallel with the implementation of social distancing measure.

Antibody tests for disease investigation and control purposes

To perform antibody test for disease investigation purposes, serum sample will be collected for antibody test using antibody test kits approved by the Food and Drug Administration (Thai FDA).

Criteria for antibody test

1. Disease investigation in the event of detection of cases with suspected late infection who have not been vaccinated

2. Containment of Coronavirus Disease 2019 in the workplace implementing bubble & seal measure

1. Disease investigation in the event of detection of cases with suspected late infection who have not been vaccinated

Case definition: Infected person with suspected late infection is defined as individual who is currently asymptomatic or used to have symptoms but had recovered for >1 month, whose test results using Reverse Transcription Polymerase Chain Reaction (RT-PCR) technique are positive for genetic materials of SARS-CoV-2 at cycle time (Ct) ≥36 and:

1) Serum IgG positive, or

2) Serum IgG negative and when repeat RT-PCR was performed (two RT-PCR tests performed 5-7 days apart) Ct did not decrease.

Note:

1) This case definition applies only to patients who have no history of COVID-19 vaccination.

2) Antibody test under this case definition does not include rapid test.

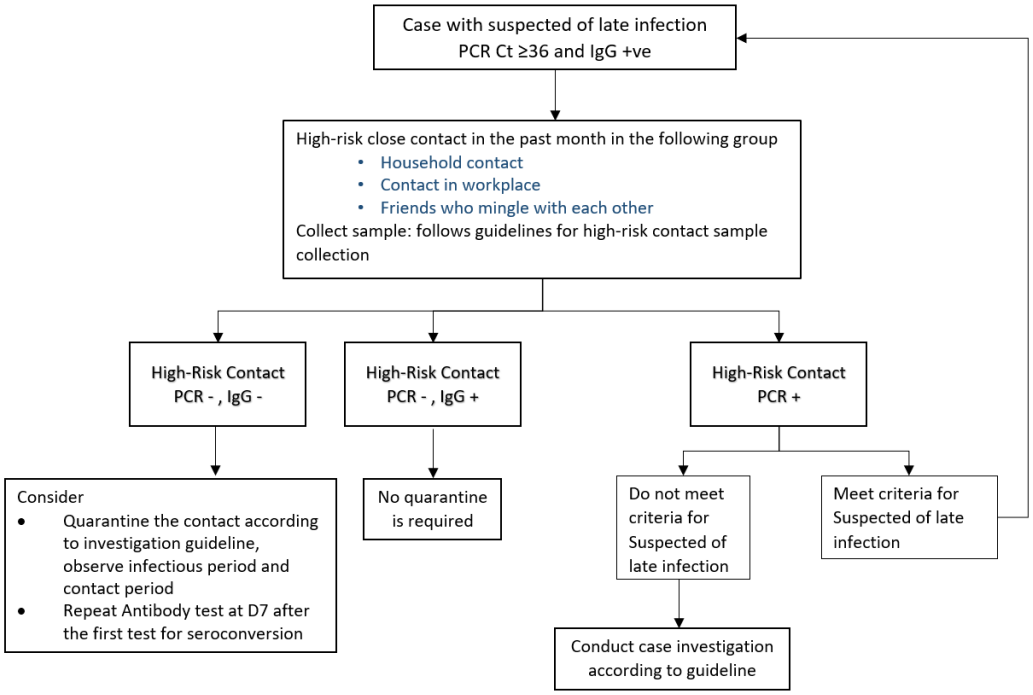
Operational procedure:

1) Patients should be isolated while pending test results. In case where late infection is confirmed no further isolation is needed if they are asymptomatic.

2) Testing, monitoring and quarantine of contacts should follow the procedures in the table attached.

Activities	Testing and monitoring of contacts
Specimen collection in close contacts	Specimens will be obtained from the following high-risk close contacts during the past 1 month: - Household close contacts - Workplace close contacts - Friends who were obviously mingling and interacting with one another NPS or saliva will be collected for laboratory testing using RT-PCR for SARS-CoV-2 and blood sample collected for antibody (IgG) test (one sample of 3-5 mL clotted blood is obtained from patient for testing for IgG antibody against SARS-CoV-2 ≥5 days after the date of last exposure to COVID-19 patient.
Contact quarantine	- No quarantine is required in the event the contact has RT-PCR -ve and IgG +ve, or RT-PCR positive for genetic materials of SARS-CoV-2 at cycle time (Ct) ≥36 and IgG +ve. - For other cases, it should be at discretion of the disease investigation team, taking into account duration of exposure to confirmed case of COVID-19 and duration of viral shedding by confirmed case of COVID-19.

Procedure for disease investigation in case of detection of cases with suspected late infection who have not been vaccinated



Note:

1. This guidance serves as a minimum requirement only. Flexibility is allowed for the disease investigation team to either utilize a routine disease investigation procedure instead or extend the duration for contact tracing retrospectively for more than 1 month.
2. If a cluster(s) of COVID-19 cases is/are identified and sustained transmission is suspected, disease investigation team may consider expanding the scope of disease investigation by further tracing all high-risk and low-risk close contacts using routine disease investigation procedure, OR
3. Consider conducting active case finding/rapid survey in individuals related to a confirmed case of COVID-19.

2. Containment of Coronavirus Disease 2019 in the workplace implementing bubble & seal measure

In many workplaces with a large number of close contacts of confirmed cases of COVID-19, where bubble & seal measure is being implemented, antibody test plays an important role in decision making to release close contacts. The procedures for antibody test in the workplace implementing bubble & seal measure will be implemented in compliance with MOPH requirements and may be adjusted based on the local context.

Contact information for consultation purposes

Outbreak reporting:

Please contact Surveillance System Development Section, Division of Epidemiology (DOE) at 02 590 3900

Disease investigation and control:

Please contact Outbreak and Health Threat Investigation and Response Section, Division of Epidemiology (DOE) at 02 590 3810

Appendix A

COVID-19 Case Investigation Form (Novelcorona 2)

COVID-19 Case Investigation Form 2019

1. Demographic data

Personal ID/Passport No.....

Full name..... Sex ☐ Male ☐ Female Age ..... years.....month(s) Nationality .....

If female: ☐ Not pregnant ☐Pregnant, pregnancy#..... Gestational age ..... week(s)

Type ☐ PUI ☐ Close contact of COVID-19 patient ☐ Active case finding/survey ☐ Sentinel surveillance ☐ Other.....

Occupation (indicate nature of work, e.g. healthcare worker, officials who have interaction with tourists) .....

Workplace/school/university..... Contact No.....

Phone number used to register "Mor Chana"Application.....

Address in Thailand when becoming sick ☐ House ☐ Other (specify).....

No. ..... Village Group# ..... Village ..... Alley ..... Road .....

Sub-district..... District ..... Province .....

Underlying medical conditions..... History of smoking ☐ Never ☐ Current smoker ☐ Used to smoke but has quit smoking

2. Clinical data

Date of illness onset (dd/mm/yyyy) ..... Date of 1st treatment (dd/mm/yyyy) .....

Health facility where 1st treatment is provided..... Province .....

Health facility of current hospitalization..... Province .....

Signs and symptoms when case is detected: ☐ Fever, documented temperature..... °C O_2 Sat.....% ☐ Use of mechanical ventilation

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

☐ Headache ☐ Watery stool ☐ Loss of smell ☐ Loss of taste ☐ Conjunctivitis ☐ Rash (indicate site).....

☐ Other, specify .....

(First) chest x-ray ☐ NOT DONE ☐ DONE, date ..... Results .....

(First) CBC: Date ..... Hb ..... g/dL Hct ..... % Platelet count ..... $x10^3$

WBC ..... (N..... % L ..... % Atyp lymph ..... % Mono ..... % Other .....)

SARS-CoV-2 confirmatory tests

Method	Date of specimen collection	Specimen Type	Lab/health facility performing test	Results
RT-PCR				☐ Detected ☐ Not detected
Antigen				☐ Detected ☐ Not detected
1st Antibody test				☐ IgM ..... : ..... ☐ IgG ..... : ..... ☐Neg
2nd Antibody test				☐ IgM ..... : ..... ☐ IgG ..... : ..... ☐Neg

Case classification ☐ Probable case ☐Confirmed case

Type of medical care ☐ Home Isolation ☐Community Isolation ☐ Field hospital/Hospitel ☐Hospital

Current health facility..... **Province** .....

Treatment of COVID-19 infection with antiviral medications ☐ NO

☐ Favipiravir, start date ..... ☐ Remdesivir, start date .....

☐ Other antiviral agents (specify) .....start date .....

Other medications administered for treatment of COVID-19 infection ☐ NO

☐ Corticosteroids (specify).....start date.....

☐ Andrographis paniculata, start date ..... ☐ Other medications (specify).....start date .....

Patient status ☐Recovered ☐ Ongoing hospitalization ☐ Dead ☐ Referred to (indicate hospital).....

☐ Other (specify) .....

3. **History of vaccination against COVID-19**

☐ NO ☐YES, Is vaccination record/certificate available? ( ) YES ( ) NO

1st **Dose:** Date ...../...../..... Vaccine Name.....Vaccination center.....

2nd **Dose:** Date ...../...../..... Vaccine Name.....Vaccination center.....

3rd **Dose:** Date ...../...../..... Vaccine Name.....Vaccination center.....

4. **History of exposure risks**

- Resided in or returned from the area affected by the outbreaks within 14 days prior to illness onset, city.....country..... ☐ NO ☐ YES
  Entered Thailand on (date)..... On (Airlines)..... Flight No..... Seat No .....
- Hospitalization or patient visit in hospital located in the area affected by the outbreaks within 14 days prior to illness onset ☐ NO ☐ YES
- 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
- History of exposure to confirmed case of COVID-19 within 14 days prior to illness onset, specify..... ☐ NO ☐ YES
- Having occupation that involves close contact and interaction with foreign tourists within 14 days prior to illness onset ☐ NO ☐ YES
- History of visit to crowded places, e.g. pub, boxing stadium, within 14 days prior to illness onset; specify ..... ☐ NO ☐ YES
- Be a patient among cluster of cases of acute respiratory tract infection (ARI) or pneumonia ☐ NO ☐ YES
- Be a severe or fatal pneumonia case of unknown etiology ☐ NO ☐ YES
- Be a healthcare worker or laboratory staff ☐ NO ☐ YES
- Other, specify .....

5. **Description of events, history of exposure risks prior to onset of illness**

.....

.....

.....

.....

Activities and travel history 14 days after onset of illness

Day	Date	Activities/Place	No. of participants (specify individuals, if possible)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

5. Contact tracing (list of close contacts of symptomatic case of COVID-19; please provide description of exposure; if sick also indicate symptoms)

No	Full Name	Sex	Age	Address/ Contact No.	Date of Exposure (indicate date range)	Date of Full Vaccination	Description of Exposure	Sick/Not Sick (if sick, indicate date of onset and symptoms)	Use of PPE

Reported by ..... Agency ..... Phone No..... Date of investigation.....

Appendix B

Coronavirus Disease 2019 Case Investigation Form for Healthcare Workers (HCWs) (Novelcorona 2H)

Coronavirus Disease 2019 Case Investigation Form for Healthcare Workers

1. Demographic information Personal ID No/passport No.....

Full name..... Sex ☐ Male ☐ Female; Nationality.....

If Female: ☐Not pregnant ☐Pregnant; Pregnancy No..... Gestational Age ..... Weeks
Date of Birth ...../...../.....Age ..... Years.....Months; Phone No.....

Current address in Thailand ☐ House ☐ Other (specify) .....No.....Village Group# .....Village.....

Alley..... Road .....Sub-district ..... District ..... Province.....

Underlying medical condition.....History of smoking: ☐NO ☐Current smoker ☐Quit smoking

Workplace (hospital/clinic).....Phone No.....

Type of work ☐ Physician ☐ Dentist ☐ Nurse ☐ Nurse Assistant
☐ Cleaning staff, maid
☐ Back office and support staff ☐ Other (specify)_____

Department (check all that apply)
☐ Patient ward providing treatment to confirmed cases of COVID-19 (e.g. cohort ward)
☐ Inpatient Department (IPD) (not for confirmed cases of COVID-19); Please specify_____
☐ Outpatient Department (OPD) Please specify_____
☐ Operating Room (OR) Please specify_____
☐ Emergency Room (ER)
☐ Intensive Care Unit (ICU)
☐ ARI Clinic
☐ Laboratory
☐ Other (specify)_____

2. Clinical data: Date of illness onset.....Date of 1st hospitalization.....

Health facility..... Province .....

Health facility of current hospitalization..... Province .....

Signs and symptoms on the date of case detection: ☐ Fever Temperature on admission ..... °C O_2Sat.....%

☐ Cough ☐ Sore throat ☐ Muscle pain ☐ Runny nose
☐ Sputum production ☐ Dyspnea ☐ Headache ☐ Watery stool
☐ Loss of smell ☐ Loss of taste ☐ Conjunctivitis ☐ Rash (indicate site).....
☐ Other (specify) .....

Use of mechanical ventilation: ☐ YES, please specify type
☐ O_2 canular
☐ O_2 mask with bag
☐ Intubation
☐ NO

First chest x-ray ☐ Not Done ☐ Done, Date .....Results.....

SARS-CoV-2 confirmatory tests

Methods	Date of Specimen Collection	Specimen Type	Lab Facility	Test Results
RT-PCR				☐ Detected ☐ Not detected
Antigen				☐ Detected ☐ Not detected
1st Antibody Test				☐ IgM ..... : ..... ☐ IgG ..... : ..... ☐Neg

2nd Antibody Test				☐ IgM ..... : ..... ☐ IgG ..... : ..... ☐Neg

Patient classification ☐ Probable case of COVID-19 ☐Confirmed case of COVID-19

Type of medical care ☐ Home Isolation ☐Community Isolation ☐ Field hospital/Hospitel ☐ Hospital

Name of current health facility..... Province.....

Administration of antiviral medications to treat Coronavirus Disease 2019 ☐ NO

☐ Favipiravir; Start Date: ..... ☐ Remdesivir; Start Date: .....

☐ Other antiviral drug, specify ..... Start Date: .....

Other medications for treatment of COVI-19 ☐ NO

☐ Corticosteroids, specify..... Start Date:.....

☐ Andrographis paniculata; Start Date: ..... ☐ Other drug, specify.....Start Date: .....

Severity ☐ Asymptomatic ☐ Mild, mild pneumonia ☐ Pneumonia ☐Intubation/ICU ☐Dead

3. History of vaccination against Coronavirus Disease 2019

☐ NO ☐ YES, Is vaccination record or proof of vaccination available ( ) YES ( ) NO

Date of 1st dose administration ...../...../..... Vaccine name.....Vaccination center.....

Date of 2nd dose administration ...../...../..... Vaccine name.....Vaccination center.....

Date of 3rd dose administration ...../...../..... Vaccine name.....Vaccination center.....

4. History of exposure risks

4.1 History of exposure risks in general

● Resided in or returned from the area affected by the outbreaks within 14 days prior to illness onset	☐ YES, Specify city .....Country..... Entered Thailand on (date)..... On (Airlines)..... Flight No..... Seat No..... ☐ NO
● Hospitalization or patient visit in hospital located in the area affected by the outbreaks within 14 days prior to illness onset	☐ YES ☐ NO
● Cared for or was in close contact with patient with influenza-like illness (ILI) or pneumonia **outside hospital** within 14 days prior to illness onset	☐ YES ☐ NO
● History of exposure to confirmed case of COVID-19 **outside hospital** within 14 days prior to illness onset	☐YES, please specify..... ☐ NO
● Having extra job with frequent exposure to foreign tourists **outside hospital** within 14 days prior to illness onset	☐YES, please specify..... ☐ NO
● History of visit to crowded places **outside hospital,** e.g. pub, boxing/sport stadium, concert, market, slum, place with large number of migrant workers, etc. within 14 days prior to illness onset	☐ YES, please specify..... ☐ NO

• You are a patient among cluster of respiratory tract infection or pneumonia cases	☐ YES ☐ NO
• You are a severe or fatal pneumonia case of unknown etiology	☐ YES ☐ NO

● You wear face mask at all times while outside hospital or when visiting public places	☐ Always ☐ Almost always ☐ Sometimes ☐ Occasionally

4.2 History of exposure risks specific to healthcare workers (HCWs)

4.2.1. History of adherence to guidance for prevention and control of healthcare-associated infections

● Have you ever participated in IPC training, e.g. on how to don/doff PPE?	☐ YES ☐ NO ☐ Not Sure
● Have you ever participated in training on collection of respiratory specimens, nasopharyngeal swab?	☐ YES ☐ NO ☐ Not Sure

4.2.2. History of exposure to COVID-19 patients in hospital setting

● Have you had history of close contact (<2 meters) with COVID-19 patients within 14 days prior to your onset of illness (or the date you had specimen collected and test results came back positive, in case of asymptomatic infection)	☐ YES ☐ NO ☐ Not Sure
If your answer is "YES"	
○ Specify number of contact	.....Times
○ Specify average duration of each contact	☐ <5 min ☐ 5-15 min ☐ >15 min

○ Have you ever had face-to- face contact with patient for >15 min?	☐ YES ☐ NO ☐ Not Sure If "YES," Did you wear PPE? ☐ YES ☐ NO ☐ Not Sure If you were wearing PPE, please specify type (check all that apply) ☐ Surgical mask ☐ N95 respirator ☐ Goggles ☐ Face shield ☐ Gloves ☐ Gown ☐ Coverall (jumpsuit) ☐ Head cap ☐ Boots ☐ Leg covers If you were wearing PPE, did you use them multiple times? ☐ YES, specify type..... ☐ NO ☐ Not Sure If you were wearing PPE, did you seal surgical mask with adhesive tape? ☐ YES, specify type ☐ Surgical mask ☐ N95 respirator ☐ NO ☐ Not Sure

○ If you wore gloves, did you remove them after contact with patient?	☐ YES ☐ NO
○ Did you wash your hands before contacting or performing procedure with patient?	☐ Always ☐ Almost always ☐ Sometimes ☐ Occasionally Using ☐ Alcohol gel ☐ Soap & water ☐ Water
○ Did you wash your hands after contacting or performing procedure with patient?	☐ Always ☐ Almost always ☐ Sometimes ☐ Occasionally Using ☐ Alcohol gel ☐ Soap & water ☐ Water
○ Did you perform aerosol generating procedure or were in the area where aerosol generating procedure was being performed (e.g. nasopharyngeal wash, intubation/CPR, bronchoscopy, post-mortem autopsy, nebulization)?	☐ YES, specify procedure.....☐ NO ☐ Not Sure If "YES," Did you wear PPE? ☐YES ☐ NO ☐ Not Sure If you were wearing PPE, please specify type (check all that apply) ☐ Surgical mask ☐ N95 respirator ☐ Goggles ☐ Face shield ☐ Gloves ☐ Gown ☐ Coverall (jumpsuit) ☐ Head cap ☐ Boots ☐ Leg covers If you were wearing PPE, did you use improvised type of PPE? ☐ YES, specify type ..... ☐ NO ☐ Not Sure If you were wearing PPE, did you use them multiple times? ☐ YES, specify type..... ☐ NO ☐ Not Sure If you were wearing PPE, did you seal surgical mask with adhesive tape? ☐ YES, specify type ☐ Surgical mask ☐ N95 respirator ☐ NO ☐ Not Sure

○ Were you exposed to patient's secretions?	☐ YES, specify type of secretion..... ☐ NO ☐ Not Sure If "YES," Did you wear PPE? ☐YES ☐ NO ☐ Not Sure

	If you were wearing PPE, specify type (check all that apply) ☐ Surgical mask ☐ N95 respirator ☐ Goggles ☐ Face shield ☐ Gloves ☐ Gown ☐ Coverall (jumpsuit) ☐ Head cap ☐ Boots ☐ Leg covers If you were wearing PPE, did you use type of PPE? ☐ YES, specify type ..... ☐ NO ☐ Not Sure If you were wearing PPE, did you use them ☐ YES, specify type..... ☐ NO ☐ Not Sure If you were wearing PPE, did you seal surgical mask ☐ YES, specify type ☐ Surgical mask ☐ N95 respirator ☐ NO ☐ Not Sure
● Have you had history of contact with patient's equipment or personal items?	☐ YES ☐ NO ☐ Not Sure
If your answer is "YES"	
○ What equipment/items did you have contact with? (check all that apply)	☐ Clothes ☐ Personal items ☐ Bed linen or pillow cases ☐ Medical devices used by patient, specify ..... ☐ Other, specify .....
○ How many times?	.....time(s)
○ Did you wear PPE?	☐ YES ☐ NO ☐ Not Sure If you were wearing PPE, specify type (check all that apply) ☐ Surgical mask

	☐ N95 respirator ☐ Goggles

	☐ Face shield ☐ Gloves ☐ Gown ☐ Coverall (jumpsuit) ☐ Head cap ☐ Boots ☐ Leg covers If you were wearing PPE, did you use improvised type ☐ YES, specify type ..... ☐ NO ☐ Not Sure If you were wearing PPE, did you use them multiple times? ☐ YES, specify type..... ☐ NO ☐ Not Sure If you were wearing PPE, did you seal surgical mask with adhesive tape? ☐ YES, specify type ☐ Surgical mask ☐ N95 respirator ☐ NO ☐ Not Sure
○ If you wore gloves, did you remove them after contact with patient's equipment or personal items?	☐ YES ☐ NO
○ Did you wash your hands before contact with patient's equipment or personal items?	☐ Always ☐ Almost always ☐ Sometimes ☐ Occasionally Using ☐ Alcohol gel ☐ Soap & water ☐ Water

○ Did you wash your hands after contact with patient's equipment or personal items?	☐ Always ☐ Almost always ☐ Sometimes ☐ Occasionally Using ☐ Alcohol gel ☐ Soap & water ☐ Water
● Have you had history of touching environmental surfaces in the patient's room?	☐ YES ☐ NO ☐ Not Sure
If your answer is "YES."	
○ What environmental surface(s) did you touch? (check all that apply)	☐ Bed ☐ Bathroom ☐ Ward hallway ☐ Patient's desk ☐ Other, please specify .....
○ How many times did you touch it(them)?	.....Time(s)

○ Were you exposed to patient's secretions contaminated on environmental surfaces around the patient?	☐ YES, specify type of secretion..... ☐ NO ☐ Sot Sure If "YES," Did you wear PPE? ☐ YES ☐ NO ☐ Not Sure If "YES," What PPE did you wear? (check all that apply) ☐ Surgical mask ☐ N95 respirator ☐ Goggles ☐ Face shield ☐ Gloves ☐ Gown ☐ Coverall (jumpsuit) ☐ Head cap ☐ Boots ☐ Leg covers If you were wearing PPE, did you use improvised type of PPE? ☐ YES, specify type ..... ☐ NO ☐ Not Sure If you were wearing PPE, did you use them multiple times? ☐ YES, specify type..... ☐ NO ☐ Not Sure If you were wearing PPE, did you seal surgical mask with adhesive tape? ☐ YES, specify type ☐ Surgical mask ☐ N95 respirator ☐ NO ☐ Not Sure
○ Did you wash your hands following exposure to environmental surfaces around patient?	☐ Always ☐ Almost always ☐ Sometimes ☐ Occasionally Using ☐ Alcohol gel ☐ Soap & water ☐ Water
● Have you been exposed to your coworker(s) whose job is related to confirmed case of COVID-19 without wearing PPE?	☐ YES ☐ NO ☐ Not Sure If "YES," please provide more details. ☐ Eating together ☐ Talking without wearing face mask within 2-meter distance ☐ Working in the same room without wearing face mask ☐ Sharing bedroom

5. Description of event(s), daily activities, and history of exposure risks 14 days prior to illness onset (e.g. eating together with infected person, visiting the place affected by the outbreak, etc.)

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Activities and travel records from the date of illness onset

Day	Date	Activity/Place	Number of participants (indicate individuals if possible)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

Reported by ..... Agency ..... Phone No..... Date of Investigation.....

Appendix C

COVID-19 Case Investigation Form

in State-Designated Quarantine Facilities

(Novelcorona 2Q)

Code_____

COVID-19 Case Investigation Form in State-Designated Quarantine Facilities

Novelcorona 2Q

1. Demographic data

Personal ID/Passport.....

Full name..... Sex ☐ Male ☐ Female Age ..... years.....month(s) Nationality .....

Occupation (indicate nature of work, e.g. healthcare worker, officials who have interactions with tourists) .....

Workplace/educational institution..... Contact No.....

Address in **country of origin** ☐ House ☐ Other (specify) .....No ..... Village Group# .....

Alley ..... Road .....City..... State..... Country .....

Underlying health condition(s)..... History of smoking ☐ Current smoker ☐ Never ☐ Quit smoking

Type of quarantine facility..... Name of quarantine facility..... Province .....

2. Clinical data

Date of illness onset (dd/mm/yyyy) ..... Date of 1st hospitalization (dd/mm/yyyy) .....

Health facility of 1st hospitalization ..... Province .....

Health facility of current hospitalization..... Province .....

Signs & symptoms upon case detection: ☐ Fever, temperature on admission..... °C O_2 Sat.....% ☐ Use of mechanical ventilation

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

☐ Headache ☐ Watery stool ☐ Loss of smell ☐ Loss of taste ☐ Conjunctivitis ☐ Rash (indicate site).....

☐ Other (specify) .....

(First) chest x-ray ☐ NOT DONE ☐ DONE, Date ..... Results .....

(First) CBC: Date ..... Results: Hb ..... g/dL Hct ..... % WBC .....

Platelet count ..... $x10^3$ N ..... % L ..... % Atyp lymph ..... % Mono ..... %

SARS-CoV-2 confirmatory tests

Method	Date of specimen collection	Specimen type	Lab/health facility performing test	Results
RT-PCR				☐ Detected ☐ Not detected
Antigen				☐ Detected ☐ Not detected
1st Antibody test				☐ IgM ..... : ..... ☐ IgG ..... : ..... ☐Neg
2nd Antibody test				☐ IgM ..... : ..... ☐ IgG ..... : ..... ☐Neg

Case classification ☐ Probable case ☐Confirmed case

Type of medical care ☐ Home Isolation ☐Community Isolation ☐ Field hospital/hospitel ☐Hospital

Name of current place where treatment is being given..... **Province**.....

Treatment of COVID-19 using antiviral medications ☐ NO

☐ Favipiravir, start date ..... ☐ Remdesivir, start date .....

☐ Other antiviral agents (specify) .....start date .....

Other medications administered for treatment of COVID-19 ☐ NO

☐ Corticosteroids (specify)..... start date.....

☐ Andrographis paniculata, start date ..... ☐ Other medications (specify)..... start date .....

Patient status: ☐Recovered ☐ Ongoing hospitalization ☐ Dead ☐ Referred to .....Hospital ☐ Other (specify).....

3. History of vaccination against COVID-19

☐ NO ☐ YES, Is vaccination record/certificate available? ( ) YES ( ) NO

1st Dose: Date ...../...../..... Vaccine Name.....Vaccination center.....

2nd Dose: Date ...../...../..... Vaccine Name.....Vaccination center.....

3rd Dose: Date ...../...../..... Vaccine Name.....Vaccination center.....

4. History of exposure risks

- Resided in or returned from the area affected by the outbreaks within 14 days prior to illness onset, city.....country..... ☐ NO ☐ YES
  Entered Thailand on (date)..... On (Airlines)..... Flight No..... Seat No .....
- Hospitalization or patient visit in hospital located in the area affected by the outbreaks within 14 days prior to illness onset ☐ NO ☐ YES
- 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
- History of exposure to PUI for COVID-19 investigation or confirmed case of COVID-19 within 14 days prior to illness onset ☐ NO ☐ YES
- History of visit to crowded places, e.g. pub, boxing stadium, within 14 days prior to illness onset; specify ..... ☐ NO ☐ YES
- Be a patient among cluster of cases of acute respiratory tract infection (ARI) or pneumonia ☐ NO ☐ YES
- Be a severe or fatal pneumonia case of unknown etiology ☐ NO ☐ YES
- Be a healthcare worker or laboratory staff ☐ NO ☐ YES
- Other, specify .....

Description of events, history of exposure risks prior to illness onset while in the country of origin

- Within 14 days prior to departure did you live/stay with anyone?
  ☐ Stayed alone ☐ Stayed with others (indicate number) .....person(s) and name(s).....
- Within 14 days prior to departure, did you wear PPE, e.g. face mask, face shield, gloves, when going outside?
  ☐ YES (please specify PPE used)..... ☐ Always ☐ Sometimes ☐ NO
- Did you have any of the following symptoms (e.g. fever, cough, sore throat, headache, muscle pain, runny nose, sputum production, difficulty breathing, loss of smell, loss of taste or watery stood)?
  ☐ YES, date of diagnosis...../...../..... Treatment provided ..... ☐ NO
- Did you receive COVID-19 testing in the country of origin?
  ☐ YES, date ...../...../..... Results ..... ☐ NO

While waiting to board the plane in the country of origin:

- While waiting to board the plane, did you maintain a distance from other passengers?
  ☐ YES ☐ NO
- Did you wear PPE (e.g. face mask, face shield?

☐ YES, specify type..... ☐ At all times ☐ Intermittently ☐ NO

While on board the place:

- While on board the plane, was a proper distance maintained between you and other passengers?
  ☐ YES ☐ NO
- Did you wear PPE (e.g. face mask, cloth face covering)?
  ☐ YES, at all times ☐ YES, intermittently ☐ NO

- Did the passengers around you wear PPE (e.g. face mask)?
  ☐ YES, at all times ☐ YES, intermittently ☐ NO
- Did flight attendants wear PPE (e.g. face mask)?
  ☐ YES, at all times ☐ YES, intermittently ☐ NO

While on the way from airport to quarantine site:

- While on board shuttle bus from airport to quarantine site, did you maintain a proper distance from other passengers?
  ☐ YES ☐ NO
- Did you wear PPE (e.g. face mask, cloth face covering, face shield?
  ☐ YES, specify PPE type..... ☐ At all times ☐ Intermittently ☐ NO

5. Provide detailed description of events, history of exposure risks within 14 days prior to date of illness onset

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Activities and travel history 14 days after onset of illness

Day	Date	Activities/Place	No. of participants (specify individuals, if possible)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

Reported by..... Agency..... Phone No.....

Appendix D

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 mild cough	Patient has severe cough	
Head cap	-	+/-	+
Goggles or face shield	-	+	+
Surgical mask	+	-	-
N95 respirator or higher	-	+	+
Disposable gloves	+/-	+	+
Full-length gown or water-proof jumpsuit with head cap	+	+	+

Appendix E

Collection of Nasopharyngeal Swab/ Self-Nasal Swab

Procedure and Necessary Supplies and Equipment for Collection of Nasopharyngeal Swab/Self-Nasal Swab

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 patient/person from whom specimen is collected (issued by Department of Disease Control)
2. Date of specimen collection
3. Types of specimen collected, e.g. Nasopharyngeal swab

Sample label

ID CODE _____
Date of specimen collection: 30 October 2020
Specimen type: nasopharyngeal swab

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

Label is attached on Viral Transport Media (VTM) or Universal Transport Media (UTM) This VTM/UTM will be used to contain nasopharyngeal swab.

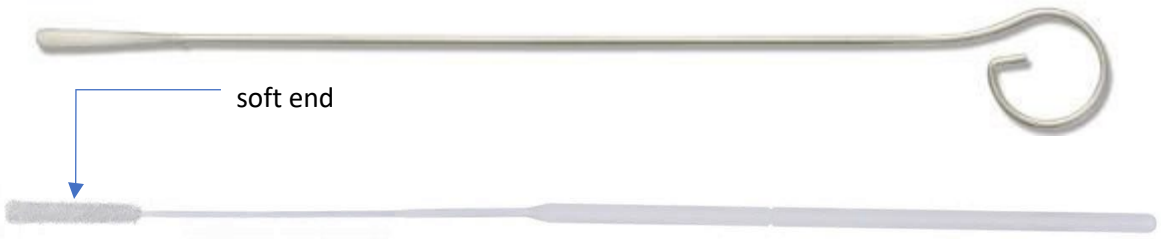
Viral Transport Media (VTM)

Universal Transport Media (UTM)

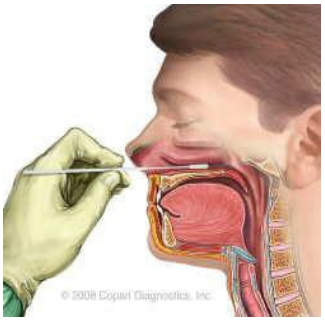
Equipment and supplies

1. Viral Transport Media (VTM) or Universal Transport Media (UTM)
2. Dacron or Rayon swabs made from flexible plastic not coated with calcium alginate as it may interfere with PCR result interpretation.

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



Procedure for collection of nasopharyngeal swab



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 red-cap UTM. Break a swab handle and close UTM cap.

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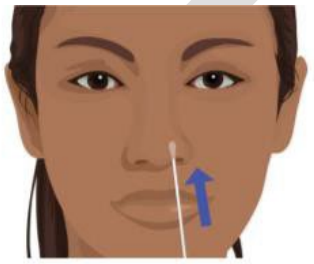
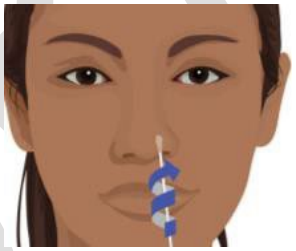
Procedure for collection of self-nasal swab

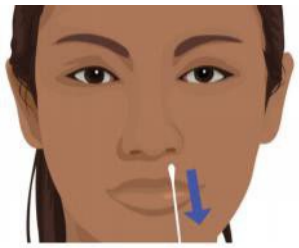
1. Properly wash your hands with soap and running water or hand sanitizer
2. Remove a swab from its package. Be careful not to touch a soft end of the swab.
3. Slowly insert a soft end of swab into a nostril for no more than 1.5 cm deep.



4. Turn the swab making sure the soft end contact nostril mucous membrane, keep turning the swab for approximately 15 seconds.



5. Carefully pull the swab from the nostril. Using the same swab, repeat the procedure in the other nostril.



6. Place the swab into VTM or UTM and break a swab handle. Then close VTM/UTM cap. Arrange for specimen transportation for laboratory testing.
7. Discard waste materials in a red bag and dispose of as per the guidelines for disposal of infectious waste.
8. Wash hands properly with soap and running water or hand sanitizer.

Note: Procedure for self-nasal swab collection is available at: https://youtu.be/1lH-PjVPUDA

References: https://www.cdc.gov/coronavirus/2019-ncov/testing/How-To-Collect-Anterior-Nasal-Specimen-for-COVID-19.pdf

Specimen storage

Equipment: Parafilm

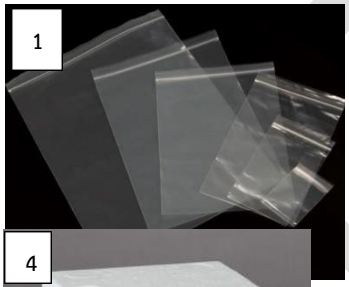
Storage procedure:

1. Wrap VTM/UTM or sterile container containing specimen with parafilm around the seal of the container cap to prevent leakage.
2. Specimens will then be kept in a refrigerator at 4-8 ℃ and must transported for laboratory testing within 72 hours. If this is not possible, store specimens in a freezer at -70 ℃.

Specimen transportation

Equipment

1. Zip lock bag
2. Plastic container
4. Ice pack
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 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 falling off during transportation.

Appendix F

Summary of Screening of Close Contacts of Probable/Confirmed Case of COVID-19

SUMMARY OF SCREENING OF CLOSE CONTACTS OF PROBABLE/CONFIRMED CASE OF COVID-19

No.	Full Name	Age (yr)	Sex	Nationality	Occupation	Signs and Symptoms													Relationship to patient (please specify, e.g. relative, living in the same household with patient, traveling in the same tour group as patient)	Specimen collection		Contact No.
						Asympto-matic	Date of onset	Fever	Cough	Sore throat	Muscle pain	Runny nose	Sputum production	Dyspnea	Headache	Loss of smell	Loss of taste	Other, please specify (e.g. rash, conjunctivitis, watery stool)		Date of Collection	Specimen Type	

Reported by ..... Agency ..... Contact No.....

SUMMARY OF CONTACT TRACING OF CLOSE CONTACTS OF PROBABLE/CONFIRMED CASE OF COVID-19

Patient's Timeline				Number of Contacts							Remark
Date	Time	Activities	Place	High Risk	Low Risk	Others that do not meet the criteria	Total	Target number of specimens	Number of specimens collected	Negative	
Total											