Guide

on Active Epidemiological Investigation for Public Health Nurses In Response to COVID-19 in Japan

Second Edition

Regarding this guide

This guide is aimed to support Public Health Nurses (PHNs) who are working on the active epidemiological investigation for coronavirus disease 2019 (COVID-19), especially for those who have urgently been placed as support.

Based on “Guidelines on conducting active epidemiological investigations for COVID-19 patients” published by the National Institute of Infectious Diseases, this document describes the rationale of identifying clusters through active epidemiological investigations as well as key points in conducting the survey. Please use this document along with the Guidelines.

”Guidelines on conducting active epidemiological investigations for COVID-19 patients” by the National Institute of Infectious Diseases [in Japanese]
URL: https://www.niid.go.jp/niid/ja/diseases/ka/corona-virus/2019-ncov/2484-idsc/9357-2019-ncov-02.html

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Acknowledgements

In creating this document, we have received a lot of input from many PHNs.
We would like to thank Ms. Mieko Kikuchi-Conbere and Dr. Noriko Koyama for English translation of this guide.

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1. Positioning of cluster response in active epidemiological investigation

1-1. Characteristics of COVID-19

We found in Japan, not all COVID-19 patients (confirmed cases) generate secondary cases (confirmed cases), but only about 10-20% of all patients generate secondary cases (confirmed cases). This means that 80% of the patients do not infect anyone else, while some of them infect many others.

Why is the disease spreading if most of the infected individuals are not infecting others?

R0 = (0+0+0+0+10) ÷ 5 = 2

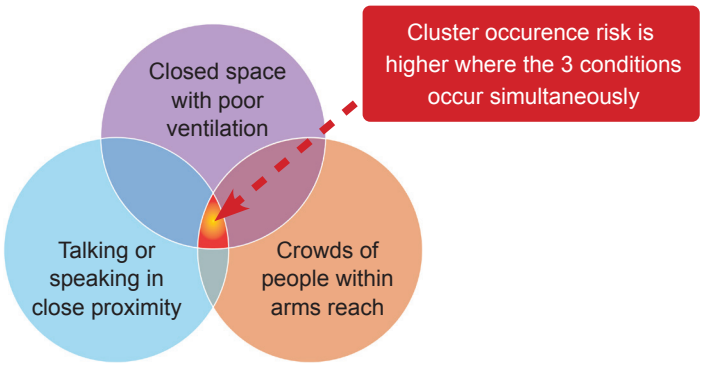
Unless 1 person is infecting many while most are not infecting anyone, the spread of the disease CANNOT be explained.

We defined "cluster" as group of >5 infected individuals that have been connected from cases without known epidemiological links.

1-2. Why is cluster response necessary?

Major community transmission occurs from chain of clusters or mega clusters, generating high volume of secondary transmissions. As such, the key to prevent increase in transmissions is a prompt identification of clusters of cases that have occurred within a region and appropriate response.

1-3. Under what conditions do clusters occur?



"The 3Cs"
(closed, crowded, close contact)
Plus additional conditions

- □ Loud voices / Singing
- □ Talking for a long time
- □ Activities that increase breathing
- □ Eating / Drinking

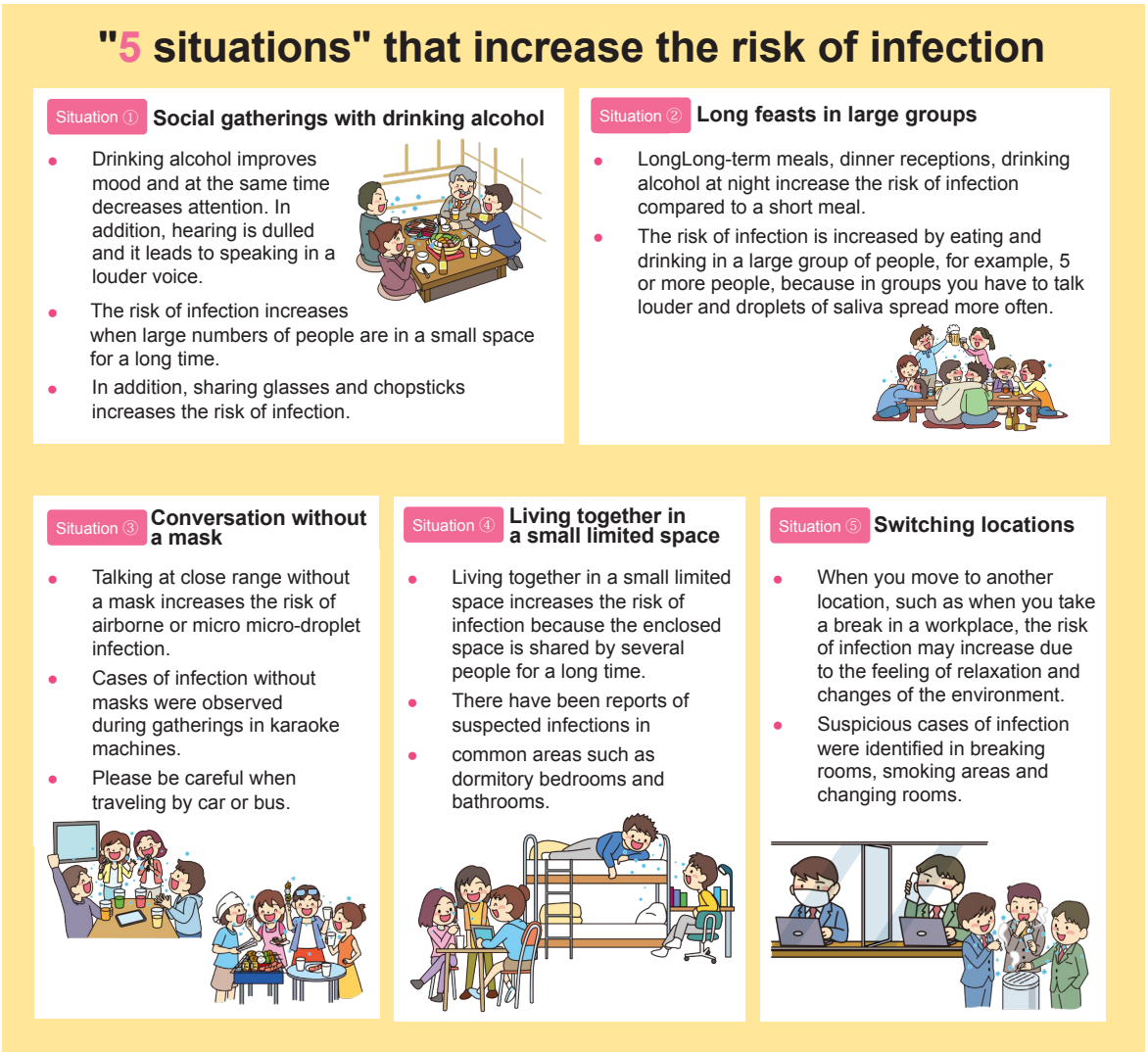
- Chances of forming clusters do not correlate with the severity of the disease. Rather, the mild cases are likely to be more active and increases the likelihood of forming clusters.
- The majority of people identified in clusters had only mild symptoms such as sore throat and slight fever.
- In an enclosed environment, the infection can spread over long distances (i.e., more than 1-2 m).

Please conduct interviews understanding of the characteristics of this virus, that anyone can be infected without knowing it and they can infect others.

Source: Hitoshi Oshitani, "Overview of Response to COVID-19" Japan Society of Public Health COVID-19 Related in Japanese Information Page URL: https://www.jsph.jp/covid/files/gainen_0402.pdf

1-4. "5 situations" that increase the risk of infection

Based on the knowledge of the spread of infection and findings from cluster analysis, the subcommittee on Novel Coronavirus Disease Control, the advisory board of the government, has specified "5 situations" that increase the risk of infection.



Source: Office for Novel Coronavirus Disease Control, Cabinet Secretariat, Government of Japan
URL: https://corona.go.jp/prevention/pdf/en.5situations.pdf

2. Aim and steps of cluster response in the active epidemiological investigation

2-1. Aim of the active epidemiological investigation

- □ Identify clusters by making presumptions on the source of transmission/mode of transmission.
- □ Create a foothold by identifying persons who had close contact with infected individuals and could be the source of the next cluster.

By isolating patients (confirmed cases) and those who have had close contact with them, a further chain of transmissions can be contained.

- □ Collect information about patients (first hand) and get it organized.

Sufficient and detailed clinical symptoms and behavior records between before becoming symptomatic and after becoming symptomatic and getting tested for confirmed cases become the starting point of the active epidemiological investigations.

2-2. Steps for the active epidemiological investigation

1. Check for incidence report

- □ Evaluate and estimate transmission risks from patient's age, sex, background (job, residence, range of activity, lifestyle, etc.).
- □ Check to see if the case had an identified/assumed contact or connections among patients
  - » Facility transmissions at healthcare facilities and nursing care facilities for elderlies, etc. will have different response methods. Check for appropriate responses based on rules put forth by each municipality.
- □ It would be good to think through what information needs to be collected before conducting the interview.

2. Contacting the patient

- □ Check where the patient is (self-isolating at home, hospitalized, somewhere else other than home, etc.).
- □ Decide on the interview method (in person, phone, etc.). Consider the risk of transmission and conduct phone interviews as much as possible. If it needs to be done in-person, implement prevention measures for contact and droplet transmissions.

Check! Appendix 2: Refer to the guideline for active epidemiological investigation.

- □ There may be reasons, such as the severity of symptoms (moderate to severe symptoms), that prevent patients from being interviewed. Check to see who might be available to be interviewed (someone who is aware of the behavior record of the patient).

3. Interview with the patient (or families, etc.) and enter into survey forms (check Appendix 2: Refer to the guideline for active epidemiological investigation)

Paperwork that needs to be completed (do not aim for 100%, speed is important)

Survey form 1: patient information (basic information, clinical information)

- Focus on necessary information and interview while giving considerations to the patient's status
- Be sure to check the current location, as it may be different from the current address.

Survey form 2: Behavior survey between 14 days before developing symptoms and diagnosis

- Make assumptions around the source of infection (who), mode of transmission (where), exposure to risk factors (3Cs), the link of infection, and find clusters.
- Even if a survey for the last 14 days isn't possible, be thorough in asking about "1 week before developing symptoms" which is when the risk of transmission is higher.

Survey form 3-1: Activity survey from 2 days before symptom onset to present

- Interview the patient (confirmed cases) about their behavior from 2 days before the possible symptom onset to the day the survey is conducted (present).
- whether or not if they have come into contact with others and how close the contact was, and identifying those who had close contact (list them on **Survey form 3-2**).

***Survey form 1**, **2**, **3-1**, and **3-2** are available on "Guidelines on conducting active epidemiological investigations for COVID-19 patients" published by National Institute of available on "Guidelines on conducting active epidemiological investigations for COVID-19 patients" published by National Institute of Infectious Diseases [in Japanese] (https://www.niid.go.jp/niid/ja/diseases/ka/ corona-virus/2019-ncov/2484-idsc/9357-2019-ncov-02.html)*

Priorities in active epidemiological investigation

Nov. 20. 2020. Office contact

Here, a summary of the high-priority issues that should be addressed when conducting active epidemiological investigations to prevent the spread of infection more effectively, based on the infection situation in the region

Conduct a behavioral history of the positive patient to see if any of the following situations exist, and prioritize those related to these (Priority is given to (1) and (2) in that order).

(1) Association with locations/groups with large numbers of persons at risks for severe disease.
(2) Based on the epidemiological information of the region, situations that are considered to be conducive to infection (e.g., environments related to the "high transmission risk/3Cs" or loud voices, or other situations where close contact is likely to occur).

Furthermore

□ In the identification of close contacts (prospective investigation), testing should be conducted as necessary even if the person is not in close contact.

□ Although the investigation for estimating the source of infection (retrospective contact tracing) is conducted during the 14 days before symptom onset of the positive patient, priority is given to the contact tracing during the 7 days before symptom onset.

Source: The MHLW's Novel Coronavirus Response Headquarters Nov. 20. 2020 [in Japanese] https://www.mhlw.go.jp/content/000678601.pdf

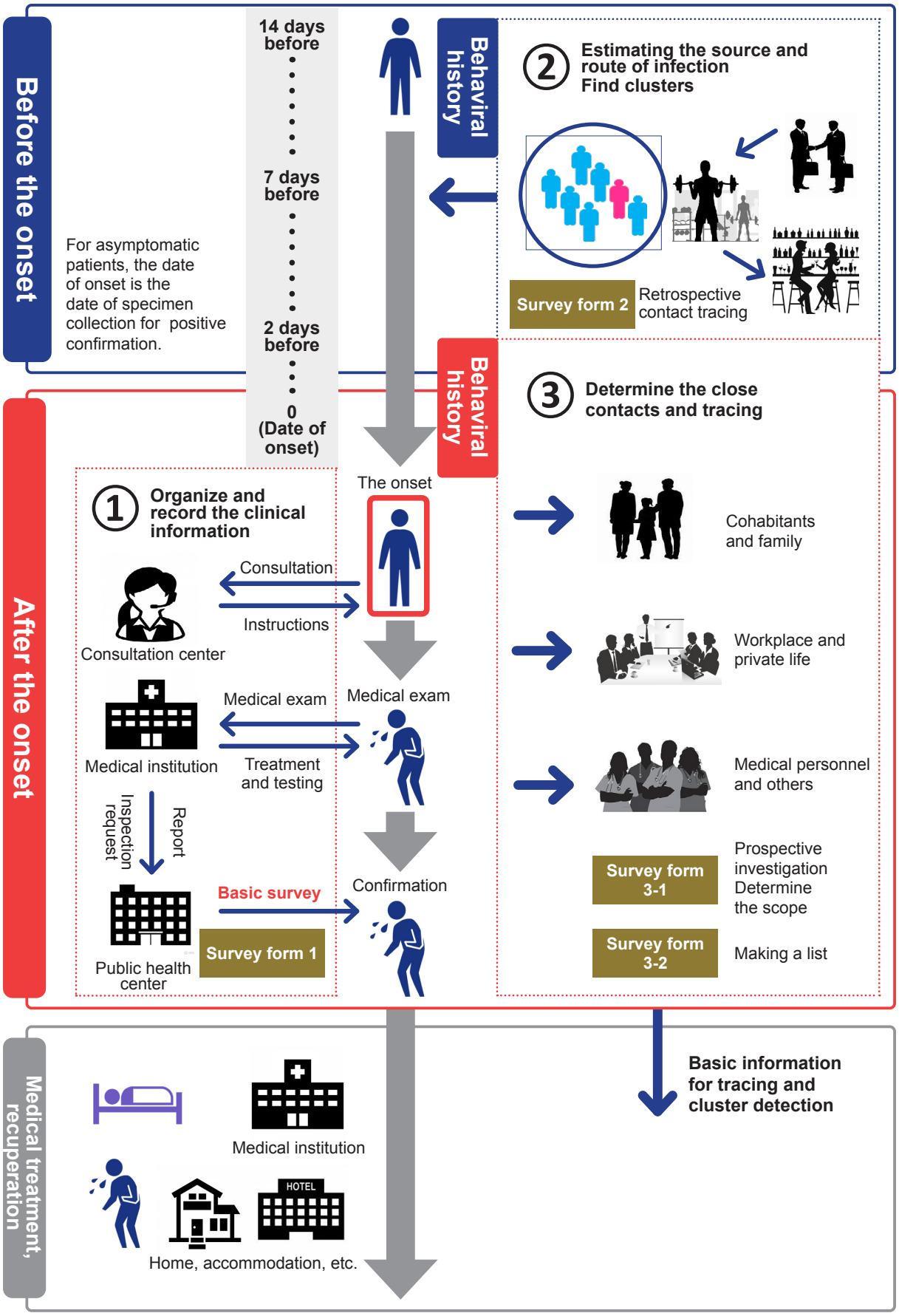


Fig.1 Image of active epidemiological survey and Survey from to be prepared

3. Tips for interviews

Questions should be based on each municipality-specific response policy. Please use this to prevent from forgetting to ask certain questions or leaving something out.

The points to be focused on and the points to be simplified differ by regional characteristics and local government rules. Please follow the rules of the health center where the survey is conducted.

3-1. Basic principles

Importance in building trusts

In interviews in a prospective epidemiological investigation, there are times when you have to discuss things that people may not want to talk about and keep a secret. It would be important to develop trust within the limited time and given situation.

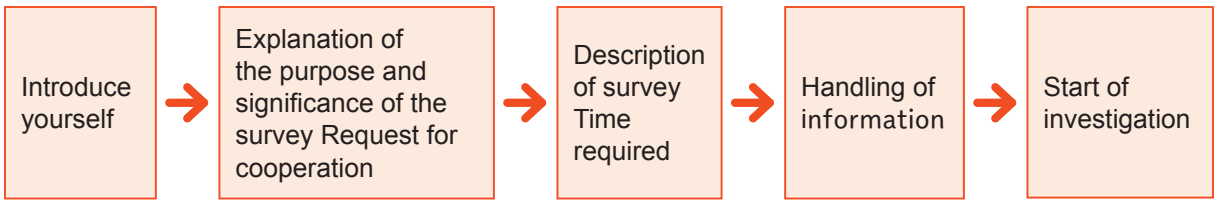
Understand the situation the patients are put in

There are cases where time has passed between developing symptoms to getting tested or between getting tested to getting a diagnosis and memory becomes hazy. There are times when they may not be in the best health conditions and cannot take sufficient time to do the interview. There are also times when they may have strong opinions (criticisms or complaints, concerns) regarding testing or access to healthcare and may express them.

Ask for cooperation while sympathizing with their concerns within the limited time available

Show empathy, such as “that must have been difficult” or “it is very worrisome what could happen going forward”, and ask for cooperation as much as their physical condition allows them.

3-2. Items to request (introduction)



- □ I am XXX (name) with XXX (affiliation). How is your current physical condition?
- □ I am contacting you to inform you that we have received an infection report of the COVID-19 case of Mr./Ms. □□ (patient’s name). We would like to talk to you about the subject’s current and recent behavior. The time required will be about 30 minutes. May I continue to speak with you?
- □ Identifying the location of possible infection is very important to prevent the further spread of the infection. Please cooperate with us to prevent the spread of the virus.

- □ Let me ask you about who or where you might have contact. We would not contact any persons or facilities without your permission. I would like to discuss with you at the end how to explain to them and how to contact them.
- □ I will ask you a few questions. If you feel uncomfortable or want to take a break, please do not hesitate to let me know.

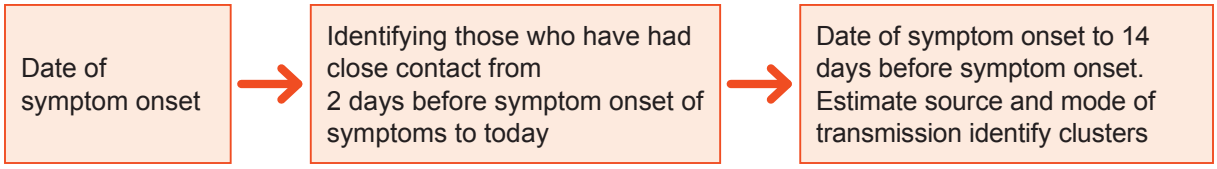
3-3. Identifying the date of symptom onset and progress of conditions

The date that I would like to ask you about your behavior will depend on when you first started feeling differently, so please let us know the date that your symptoms first appeared. Symptoms can be described as follows. On what date did you have these symptoms? What were the symptoms? How have the symptoms changed to date?

Fever (higher than usual, even if lower than 37.5 °C), cough, sluggishness, sore throat, headaches, diarrhea, joint pains/muscle pains, abnormalities in the sense of taste and smell.

By listing specific symptoms, there may be a light bulb moment when the interviewee may remember something and provide new information. Identifying the date of onset of symptoms will determine the scope of the interview, so do it very carefully.

3-4. Steps in interviewing



One week before symptom onset is particularly important

Two days before symptom onset, try to obtain information from both perspectives of identifying the close contacts and estimating the source and route of infection. I will ask questions by using “MM/DD (day of the week), when first symptoms appeared, as date of symptom onset”.

First, I will ask about (1) the period between MM/DD (day of the week; 2 days before symptom onset) and the present.

Next, I will ask about (2) the period between MM/DD (day of the week; Date of the onset) and MM/DD (day of the week;14 days before the symptom onset). If you suddenly remember anything during the interview, please do not hesitate to tell me even if it’s not in order.

» *Do not go through questions rapidly one after another, but verbally acknowledge that you are listening and repeat things back to the interviewee. Once the interviewee understands how the interview goes, they may begin to tell the story in order themselves.*

[A] Activities between 2 days before symptom onset and present: identifying those who had close contact Who is "those who have had close contact"

"People who have had close contact" are those who had contact with a patient (confirmed case) during the infectious period the following criteria (from guidelines)

- Have been living with a patient (confirmed case) or have had prolonged contact (including riding in a car or airplane, etc.)
- Have treated, nursed, or cared for a patient (confirmed case) without appropriate personal protective equipment
- Have high likelihood of having come into direct contact with patient's (confirmed case) airway secretions or other contaminants such as bodily fluids
- Other: Have been in contact for more than 15 minutes with a patient (confirmed case) without necessary preventive measures in place at an arms-length or face-to-face conversation distance (about 1m) (comprehensively judge infectiousness of patient from symptoms, etc.)

Check if there is anyone who falls under the category of close contact

□ I will ask you if any of the people you had contact with between MM/DD (day of the week), 2 days before the symptom onset, and MM/DD (today) fall under the category of close contacts.

□ Do you live with anyone? (Do you live in a group such as a dormitory?) How is their health?

□ Did you use airplanes or long-distance trains?

□ Is there anyone who has been with you in the room or in the car for a long time (more than 1 hour as a rule)?

□ Has anyone had contact within 1 meter without a mask for more than 15 minutes?

Association with places/groups with large numbers of people at risk for serious illness

□ I will ask you about your contact with people, if you went to a medical institution, nursing home, or elderly care facility, or if you had contact with people who are at risk of serious illness (elderly 65 years old or older) or with people who has a chronic disease, between MM/DD (day of the week), 2 days before symptom onset, and MM/DD (today).

Activities related to the "high transmission risk/3Cs" environments

□ I will ask whether you have gone to any locations or environments related to the "high transmission risk/3Cs" between MM/DD (day of the week), 2 days before symptom onset, and MM/DD (today).

Check! Refer to P11, "Environments and activities related to high risk of the "3Cs" scenes"

Check where they work/study

□ Did you go to work during the period between MM/DD (day of the week), 2 days before symptom onset of the disease, and MM/DD (today)? (What school do you go to? Do you have other part-time jobs?)

□ Does your employer/school know your current situation?

□ I will now ask about your activities and who you may have come into contact with at your work/ school.

Check! For tips on the specific interview, refer to P12 "priorities based on the situation"

In the above-mentioned contact, even if the person was wearing a mask, you should interview the person in detail about the situation, including the time, size of the room, ventilation, and whether they talk or not, and make a comprehensive judgment.

[B] Activities between symptom onset and 14 days before the onset: Find the source/mode of transmission, identify clusters

Association with locations/groups with a large number of persons at risk for serious illness

□ Did you have any occasion to go to places where there are many people (e.g., medical institutions, nursing homes, elderly care facilities) or groups of people who are at risk of serious illness (e.g., people aged 65 years or older, people with COPD (chronic obstructive pulmonary disease), chronic kidney disease, diabetes, hypertension, etc.) or where there is contact with such groups?

Check for contact with high infection risk environment

□ Let me ask you about your recent activities going to locations related to the "high transmission risk /3Cs". Have you ever been to any of these locations between MM/DD (date of symptom onset) and MM/DD (14 days before symptom onset)?

□ Who else was with you? Have you heard if any of them have become ill since then?

Narrowing down the period to be surveyed (prioritization)

□ In particular, I would like you to recall your activities from MM/DD, 7 days before symptom onset of the disease, so please tell me about them while keeping your schedule book, e-mail, and SNS history at hand.

Environments and activities related to the "high risk of transmission/3Cs" scenes

- In the case of on-side investigations, visualizing the high-risk environment using charts and graphs will make it easier to recall.

Dinner	Gatherings that include eating/drinking, Japanese-style pubs (izakaya), pubs, dining bars, snacks, bars, night clubs, girls' clubs, girls' bars, etc.
Events	Concert houses, clubs, concert venues, theaters, opera houses, indoor sporting events (kendo, judo, etc.), festivals, comic markets, meet and greets, photo sessions, talk shows, seminars, study groups, exhibitions, etc.
Leisure	Gyms, karaoke bars, pachinko, mahjong, net cafes, manga cafes, arcades, saunas, bedrock baths, yoga, off-the-clock gatherings, brothels, call girl businesses, etc.
Travel	Business trips, returning home, trips, tours, capsule hotels, hospital visits, nursing care facilities for elderlies
Other	Religious gatherings, PTA, townhall meetings, lessons, school events, camps, dorm life, share house or shared office, etc.

[Example 1] If the patient says they attended a dinner

i. Which date?
ii. Where was the location?
iii. How many hours did you spend there?

iv. How many people did you go with?
v. Do you remember the seating chart of the people at the same table?
vi. Were you dining in a private room?
vii. Do you know how big the restaurant was, and how many people were there?
viii. Was your seat close to other patrons?
ix. How was the ventilation?
x. Other (Did the staff wear masks? Did you take the temperature and disinfect your hands when entering the restaurant? Did you talk to anyone else other than those who you went with? Did the restaurant has a sticker declaring the prevention of infection?)

[Example 2] If the patient says they had been to a concert house

i. Which date?
ii. Where did you go?
iii. What was the maximum capacity at the venue, and how many people were there?
iv. How long were you there? Were you surrounded by people you know?
v. Was there a photo session or a meet and greet?
vi. Were there any crowded situations in the stores, locker rooms, or entry/exit areas?
vii. Did you meet up with anyone before and after the event and have a meal together?
viii. Were there any places or time to eat or drink (including drink exchanges and drinking breaks) during the concert?
ix. Were you seated the entire time? Were you not allowed to cheer or sing along?
x. How was the ventilation for the venue? Were there any breaks for ventilation?
xi. Other (Were the audience wearing masks? Do you know the schedule of those who were there with you?)

Priority based on situation

◎ **Must be asked** | ○ **Ask if possible** | △ **Ask if there is time**	
Work related If there are health support centers at your workplace of employment, it may be possible to ask your work about the details of your activities for your time during work hours. In such cases, please prioritize other items.	◎ Where do you work? Where is it located? ◎ What is your job? (mostly desk work, making phones, visit clients, etc.) ◎ Tell us about the size of the area where you work daily, the number of employers, ventilation, seating arrangement, and shared items (especially those that get splashed). ◎ When was the last day when you went to work? ◎ Do you have a health support center at the workplace and have an occupational physician or an occupational health nurse? (if yes) Can we contact the health support center at your workplace to ask for the status of your workplace? (if no) Can you provide contact information for someone we could reach out to regarding the health status of your workplace? ◎ Who at your work is most familiar with your situation? ◎ Please tell us the countermeasures against novel coronavirus infection in the workplace (checking temperature and physical condition, wearing masks, prohibiting eating together, ensuring ventilation, etc.) ◎ Were there any major events between 14 days before onset of symptoms and today?

Work related	◎ Even if many people do not congregate, are there areas where multiple people might get together, such as meetings or assemblies, lunchtime cafeteria, or break rooms? (If yes, please let us know the size of the area, number of participants, ventilation, whether it is blocked by plastic panels, etc., and seating arrangement. ◎ Were there business trips for which you used bullet trains or airplanes? When? Where did you go? With whom? ◎ Where were you eating lunch, and with whom? ◎ Do you use a changing room/break room? How many people use it? ◎ Were there any welcome parties or farewell parties? How many people participated? ◎ Have you participated in exhibits or business conferences? Was there anyone who seemed to be ill around you? ◎ Were there any people around you who were sick (diagnosed with COVID-19). ◎ Do you have any part time jobs outside of your normal job? Where were you working?
	○ Who were you with the most at work? ○ When did you come into contact with external people (clients, customers, etc.) ○ (if you smoke) Where do you smoke when you are at work?
	△ What is your commute route like? What time do you commute? △ What are your typical work hours? △ Between 14 days before symptom onset and today, what days were your days off? △ When you go out to meet clients/customers, do you use trains or a car? △ Do you ride in cars with other people? △ When and in what kind of place did in-person meetings at work take place? Is there a shared calendar that could show your activities?
School related	◎ Where do you go to school? Where is it located? ◎ When was the last time you went to school? ◎ When and in what kind of place (how many people in the classroom) were you participating in lessons/lectures? How was the ventilation? Did you wear a mask? ◎ Who would be the best person to contact if we were to reach out to your school? ◎ Are you part of a team or an organization? When was the last time you participated in an activity with them? ◎ How frequently were you participating in clubs/organization related activities? ◎ Were there any major events where many people congregated at the school between 14 days before symptom onset and today? ◎ Was there anyone at school who appeared ill (such as coughing)? Did anyone at school feel sick (coughing, etc.) or diagnosed with DOVID-19? ◎ Who did you spend most of your time with at school? ◎ Where were you eating lunch, and with whom? ◎ Who would best know your situation at the school?

School related	○ Were there any seminars, labs, exercises, practice, or trainings? What kind of environment and number of people did you work with? ○ Dose the school have a dormitory? ○ (if you smoke) Where do you smoke when you are at school?
	△ What is your school route like? What time do you go to school? △ What are your typical school hours? △ Are there club rooms/organization offices? When did you use them?
Part-time job related	◎ What is your part-time job? Please describe specifically. (such as retail, kitchen staff, cleaning, etc.) ◎ How frequently were you going into your part-time job? ◎ What is the infection prevention measures (room ventilation, hand washing, hand sanitizer, mask, etc.) at your part-time job? ◎ When was the last time you went to your part-time job? ◎ Who were you with the most at your part-time job? ◎ Were there anyone who was sick or diagnosed with DOVID-19 at your part-time job?
	○ How big is the break room/changing room at your part-time job and how many people use it? ○ (if you smoke) Where do you smoke when you are at your part-time job?
Individual activities/ lifestyle behavior	◎ When did you go out to eat? Did you go with anyone else? ◎ Did you go to a healthcare facility, dentist, or nursing care facility? ◎ Was there someone you saw often or a place you went to frequently?
	○ Did you go shopping somewhere? ○ Did you go to a salon/barber/massage/acupuncture/esthetician?

3-5. Summary of interviews and requests to provide information

□ Thank you for your cooperation with us for a long time even though you are not feeling very well.

□ Is there anything that you “forgot to mention, and just remembered” at this point?

□ We would like to confirm those who may have been infected around the same time and are already symptomatic as well as those who are still asymptomatic and ask them to refrain from going out and to monitor their health based on the information you provided.

□ Could you please share the contact information and full name of those who had contact with you at XXX and XXX?

4. Handling of those who had close contact with COVID-19 patients

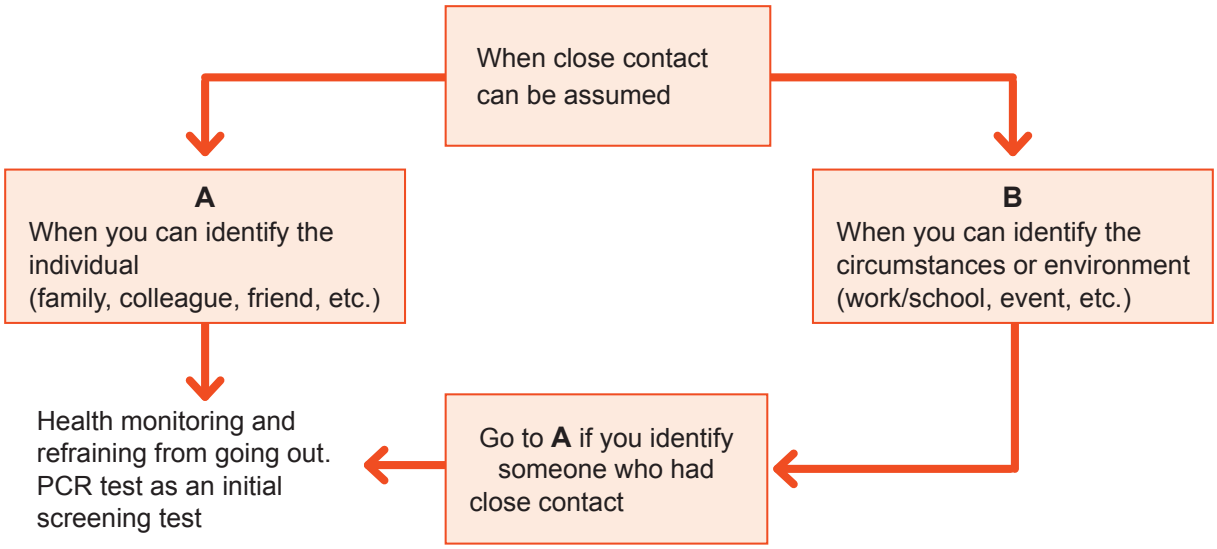
4-1. Basic principles (purpose)

Request for health monitoring for persons who had close contact and for refraining from leaving home

Among those who had contact with the patient (confirmed case) 2 days before symptom onset, identify those who either live with the patient or have had prolonged contact (including those who could develop symptoms or already have symptoms) and monitor their health and request for refraining from leaving home (The public health center in the area of residence of the close contact conduces 14-cay health monitoring and PCR testing as an initial screening).

Further search for sources and routes of infection and enclosure of new close contacts

Case investigation interviews should be conducted with the mindset to understand the overall environment surrounding the patient (confirmed case), such as whether the chains of transmissions could already be occurring, and if there may be people who have had close contact with the patient that may not have been able to be identified by his or her own statement provided.



4-2. How to handle those who had close contact

In the case of individual contact or when the individual in close contact has been identified respond while confirming the following: **A** When you can identify the individual, and in the case where the individual has not been identified but close contact is expected in a situation or environments such as workplace or school, respond while confirming the following: **B** When the location or environment is identified (see P.20) below.

[A] When you can identify the individual

Preparation

- □ You will check if the patient (confirmed case) has directly notified those who had close contact.
- □ You will understand the relationship and contact frequency/status between the patient (confirmed case) and those who had close contact.

[If the patient (confirmed case) has notified them directly already]

- □ You will check for the information provided by the patient (confirmed case) or public health center responsible for that region.

Explanation

- □ You will confirm the contact record and explain that they have been identified as someone who has had close contact. Confirm the contact history (when and under what circumstances) and explain to the person that he or she has been a close contact (carefully confirm the contact situation, as the patient's memory and the close contact's memory may differ).

[If the patient (confirmed case) has notified them directly already]

- □ As you have already heard from XXX (patient or public health center responsible for the region), I am contacting you because I was told that you had spent time for (frequency, condition) with XXX.

[If the patient (confirmed case) has not yet notified them directly already (or cannot contact)]

- □ Sorry to reach out to you out of the blue. I am XXX (name), a PHNs from public health center. Do you have some time right not to talk?
- □ I am reaching out to you because there was someone who had been infected with COVID-19 among those you spent time with at (contact details that you know, such as place, date, meeting/ party, etc.) Are you sure about this (contact) situation?
- □ Mr./ Ms. XXX wanted to reach out to you directly, but they are not feeling very well, so we are reaching out to you on their behalf.

[For both cases]

- □ First of all, please tell us your current residential address (to confirm your current residential address, as this will be handled by your local health center).
- □ Next, please tell me about your health status and whether you have any symptoms.

Priority based on health status

◎ Must be asked | ○ Ask if possible | △ Ask if there is time	
Health monitoring	◎ How are you feeling today? ◎ Temperature (whether or not they have a fever, is it higher than usual even if it isn't higher than 37.5oC) ○ Cough ○ Difficulty breathing ○ Sore throat ○ Sluggishness ○ Headache ○ Diarrhea, nausea, vomiting ○ Joint pains, muscle pains ○ Redness of eyes ○ Taste and smell problems **[If they already have symptoms]** ◎ When did you begin having symptoms? ○ Have your symptoms gotten worse? Has it gotten better? ◎ Have you sought help from someone, or seen a doctor? What did they say? **[If they are visiting medical institutions]** ◎ Whether or not they have had a PCR test If yes, check if they have gotten results. If no results yet, check when the results will be available. (Explain that even if the close contacts have already undergone PCR testing after the last contact date and have been confirmed negative, it is necessary to refrain from going on unnecessarily and to continue health monitoring during the health monitoring period because of the possibility of contracting the disease or transmitting it.) **[If they have not yet sought any help]** Please follow the response policy manual of each municipality and inform them about PCR testing.
Risk for developing severe symptoms	◎ Have you had any major diseases before? Are there any diseases for which you are currently visiting the hospital regularly for treatment? ○ Diabetes ○ Hypertension ○ Cancer ○ Cardiovascular disease ○ Smoking, COPD ○ Other diseases for which they are receiving treatment ◎ How is the status of that disease right now? (treatment details, how it is managed, etc.). ○ (If they are taking medication) Will there be medication until the end of the health monitoring period?

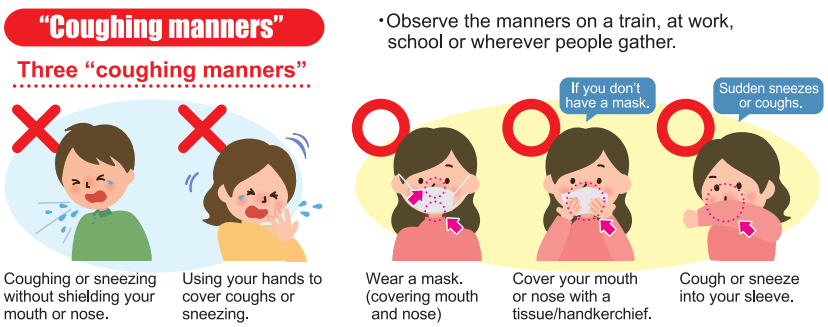
Jobs that are at higher risk of transmission or chances of coming into contact with those who are at high risk for developing severe symptoms	◎ What do you for a living? (healthcare worker, caretaker, restaurants, retail, etc.). ◎ Where do you work? Where is it located? ◎ When was the last day when you went to work? ◎ Are you taking care of anyone? (do the ones they are caring for have risk for developing severe symptoms such as diabetes, high blood pressure, high cholesterol, asthma, cancer, cardiovascular disease, etc.).

Risk factors for severe disease

Risk factors for severe disease	Underlying health conditions that need attention that are under evaluation, etc.
• Seniors 65 years and older • Chronic obstructive pulmonary disease (COPD) • Chronic kidney disease • Diabetes, high blood pressure • Hypertension • Cardiovascular disorders • Obesity (BMI 30 or more)	• Use of biological products • After organ transplant or other immunodeficiency • HIV infection (especially CD<200 or higher) • Smoking history • Pregnant woman • Malignant tumor

Source: COVID-19 Guide to Clinical Practice, 4th Edition [in Japanese] URL: https://www.mhlw.go.jp/content/000702064.pdf

Request 1. Monitor health for 14 days since the last contact	• I have two requests about how to spend your time from now until MM/DD (14 days from the last contact date). • First, I would like to check your health status every day via phone or e-mail (method will follow what is put forward by the local municipality). (Follow the rules of each health center for health monitoring of close contacts) **[If they ask why the health monitoring is necessary]** • Because this is the period when COVID-19 is most likely to develop. **[If they ask you about the possibility of transmission]** • Not everyone who has had contact with someone with the virus will get infected. There are cases where no one around a patient is infected. • However, there are also cases where a single patient has transmitted to multiple people. This is why we need to monitor you to make sure you do not become symptomatic.

Request 1. Monitor health for 14 days since the last contact	○ Can we agree on a rough time that I can contact you every day? Or I will tell you when (or how) I will contact you next time. ◎ Even if it is outside of the time that we agreed on, if you feel any concerning symptoms, please let me know. In particular, if you experience symptoms of possible COVID-19, such as fever or cold symptoms, please contact the XX Public Health Center before visiting a medical institution. My phone number is XXX -XXXX - XXXX.
Request 2. Refrain from going out	• Second is to refrain from going out and staying home until MM/DD (14 days since the last contact). • One of the characteristics of this COVID-19 is that the relationship between “how severe the symptoms are” and “whether or not you can infect others” is unclear. There have been cases where someone with just a sore throat had infected many others especially since they were able to remain active. • Please stay at home so that we can minimize the risk of you infecting others and increase the transmissions. • I would need for you to contact your work/school. Do you have any concerns? **Check!** Refer to “priority based on the situation” on P12-14 for interviews by the situation, such as work or school. • While you are staying at home, wash your hands, wear a mask and use good cough etiquette (if you are living with others). Separate rooms, ventilation, disinfection of common areas, etc. Please refer to the following information. “If your family member is suspected of having COVID-19 What to be careful in the household [in Japanese]” by the Ministry of Health, Labor and Welfare. *https://www.mhlw.go.jp/content/10200000/000603323.pdf* *MHLW “If a member of your family is suspected of the novel Coronavirus infection, we ask that you follow these points.”*  • If you have to leave home, please refrain from using public transit and wear a mask.

Request 2. Refrain from going out	**[If it is really difficult to get their cooperation to stay home]** • In various cases in Japan so far, even if a person has contact with an infected person, he or she can avoid further spread of the disease by avoiding contact with other people while monitoring his or her health for 14 days. **[If they are seeing the patient (confirmed case) as the perpetrator and seeing themselves as the victim]** • XXX and everyone else all got the virus somewhere through contact. No individual is at fault. **[If the PCR test is negative and they ask you if they can go out]** • The PCR test does no predict whether or not you will be infected after the test because it determines the infection at that time. 14 days is the period during which you may develop the disease, so please continue to refrain from going out even if the PCR test is negative.

Collect additional information

◎ Were there others present when you were meeting Mr./Miss. XXX?

◎ Are there any other people around you who have been diagnosed with DOVID-19 other than those who were in contact this time?

◎ Within the last 14 days, have you been at an event where many people were in attendance?

◎ Within the last 14 days, have you been overseas?

Check! Check for contact with high-risk environment referencing P12 based on the subject.

Sharing information

□ Symptoms, PCR test results, and other contact histories of a close contact should be relayed to the public health center responsible for the region where the patient (confirmed case) resides so that all information can be aggregated.

[B] Cases/organizations for which location or environment can be identified (people who had close contact will be selected later)

Cases where information on patient (confirmed case) will be disclosed (work, school, etc.)

Preparation

□ (To the patient (confirmed case)) Please tell me the contact information, organization, and name of someone who would be the point of contact. The point of person is typically someone who works in the health office (occupational physicians, occupational health nurses), Personnel and general affairs staff, BCP (Business Continuity Plan) department, or your direct manager (for students, often student affairs or school's consultation office). Going forward, we may need to contact them multiple times and aggregate information, etc. so it would be ideal to get in touch with someone who we could have smooth contact with.

- □ Please inform them that the public health center will be in touch with them.
- □ The public health center is planning to reach out to them on MM/DD. (If the location of the workplace, school, etc., is different from that of the patient (confirmed case), inform the patient that he or she will be contacted by the local public health center and that it may take a few days for coordination among public health centers.)

Explanation/investigation

- □ (To the contact person) As you may have already heard from Mr./Miss. XXX, it has been confirmed that Mr./Ms. XXX has been infected with COVID-19. As such, we are reaching out to their work/school to understand who they may have had contact with and the health status of people around them.
- □ Please let me visit you on-site and ask about contact. (or I would like to call and ask about the contacts.
- □ Please provide the seating chart. Also, please list the names of persons and how that contact occurred between MM/DD - MM/DD as well as their current health status (whether or not they have symptoms).
- □ From Mr./Ms. XXX, we have been told that they had contact with Mr./Ms. XXX, but please check to see if others have had contact. Mr./Ms. XXX said that the person who would likely know their activities the best would be Mr./Ms. XXX.

Check! Refer to “Work-related” for priorities based on the situation on P13-15 for interview items.

» It is recommended to prepare and distribute documents on requests, the process of investigation, and sanitization. The list of contacts should also be given with the items in the Survey form in advance to ensure smooth information collection.

Identifying people who had close contact/responding to workplace

- □ We consider Mr./Ms. A and Mr./Ms. B to be close contacts. We would like to ask for your cooperation in monitoring their health and refraining from going out unnecessary until MM/DD, which is 14 days after the last contact date.
- □ Close contacts will be contacted separately after coordinating information with the local public health center (the public health center in the area where the patient (confirmed case) lives) having jurisdiction over the patient. The public health center in the area where the close contacts live will contact them about their health monitoring and PCR testing.
- □ Disinfect the places by wiping down with a cloth containing alcohol (60-95%) or sodium hypochlorite (0.05%) mainly in areas where hands touch and droplets fly (disinfection should be done within 3 days of the last use by an infected person; if 3 days have passed, no special disinfection is necessary).
- □ For now, the public health center will not issue guidance to close down the facility based on the fact that the patient (confirmed case) began showing symptoms there.

Protection of personal information and measures against discrimination and prejudice

- □ Explain the rules for public disclosure of infected people and the rules in local governments for disclosing information about cluster outbreaks. As for information disclosure in workplaces and schools, it is important to implement it in each organization’s arrangement, but tell them to pay attention to the viewpoint of personal information protection.

- It is important to note that excessive restriction of information or deliberate delay in the release of information can lead to misunderstanding and speculation, which may lead to discrimination and prejudice.
- At the same time, ask them to consider how to prevent discrimination and prejudice against infected people and close contacts in the workplace (on-campus).

Cases where patient (confirmed case) information will not be disclosed

Explanation

- (For contact person) We have found out that a user of your facility developed COVID-19. We cannot disclose the name of the person, but we do know the date and time of use. Please let me check the facility and its usage directly at the site (or by this phone call).
- If you can identify people who were using your facility between XX:XX~XX:XX on MM/DD, please list them up. If you cannot identify, please provide roughly how many people might have been there.

Deciding how to respond

- Please notify those people who were using the facilities around XX:XX about the potential contact with an infected person by email or a written message. If contact is not available, please consider posting a notice at the entrance of your facility.

5. Q&A: when you are perplexed about a judgment when you don't know what to do

5-1. Regarding patient and their families' words or health/emotions at the time of interview

Q1. If you receive abusive language or complaints from a patient

Sometimes, patients and their families may take out their anger or dissatisfaction with you. When they are angry, they are not angry at the PHN. When a patient or a person who had close contact is showing anger, do not condemn or deny them, and accept their emotions. Once you have shown sympathy, ask what specifically they need help with.

Prior to visiting patients, agree on steps to take if or when this occurs (example: switch with a male staff, show help card, etc.). Abusive language and complaints could be as a result of emotional confusion. In such case, take a deep breath and calm yourself down to handle the situation. Please do not try to take it all on yourself and handle it as a team.

Q2. If a patient asked to cancel the interview because of their health condition

Let's always remember that pneumonia could be causing difficulty breathing, sluggishness, or high fever. Long interviews will increase stress on both your mental and physical health. Do not attempt to collect all information, but rather, see things from the patients' perspective and ask questions. If they ask to cancel, decide on additional information collection method or date and do it another time.

Q3. If a patient is experiencing deep sadness (suddenly developed severe symptoms, or handling families of deceased patients, etc.)

It is natural to cry when experiencing the loss of something important or someone important. Rather than providing superficial encouragement or consoling, it is important to listen and empathize. However, it is also important to accomplish the purpose of the interview. Do not try to resolve everything right there and then, but handle the situation by introducing appropriate support, etc. Do not get too close to their emotions and maintain a healthy distance.

5-2. Regarding the contacting person who had close contact, etc.

Check! Check for handling of those who had close contact with COVID-19 patients on P.14.

Q4. If they refuse to disclose contact information

Please ask for their cooperation by saying, "By knowing that there is a possibility that you have been infected, you can refrain from contact other people, carefully monitoring their health, and change behavior to prevent the spread of the disease. Please share the contact information so that correct information could be shared and stop the chain of transmissions." Please also let them know that the information will be handled with utmost care.

Q5. If they are OK with disclosing contact information but do not want their names disclosed

Please let them know that it is difficult to identify the people who have had contact without disclosing their name. If they still refuse, ask for a specific time and date of use and location by asking “we can keep your name discreet to the facility, but will you help to narrow down the people who may have had contact.”

Q6. If they ask for the public health center to not reach out to people who had close contact

Say things like “Would you be able to reach out to them directly, and ask to (1) refrain from going out, (2) reach out to XX as soon as their health condition changes, and keep in close contact? We can monitor their health through you and ask for necessary information” and creatively ensure that your contact with them remains intact.

Appendix 1:

Mental health care for PHNs who are participating in the active epidemiological investigation

Getting a lot of information from someone who you have never met directly (or someone who you are meeting for the first time) takes a lot of effort. Thank you so much for your hard work. It must be extra stressful to not be able to take time and trying to prevent a rapid increase in transmissions while you might be able to do this with ample time during normal times. In order for you to be able to face the survey in good condition tomorrow, you should take proper self-care and create a system throughout your workplace and organization.

The psychological impacts faced by PHNs and the four pillars of mental health care

PHNs, who are supporters, are also in the same situation as patients and families

Infectious disease control work requires decisions that directly affect the lives of residents, and mistakes are not tolerated. Also, the information that is updated daily causes confusion in the field, and the situation is highly stressful. If these situations were only temporary, we might be able to manage to endure them, but countermeasures against COVID-19 require medium- to long-term efforts.

Four pillars of mental health care

The following are the four pillars of mental health care for PHNs involved in DOVID-19 infection countermeasures.

self-care	Have the opportunity to restore your peace of mind and calmness of you, because as a public servant and professional, you are always expected to be a “resident first”. Be aware of your stress.
Mutual support	What we can do because we are close to each other: support each other and appreciate each other’s efforts. Have regular meetings as much as possible to share stresses and problems that arise in the course of work.
Organizational response	Create an open workplace culture and clarify the scope of responsibility. Provide a work environment in which either workforce supports the staff and the staff feels protected.
Support by professionals	Create a system that allows staff to receive professional supports through the normal health care system and existing community resources.

- Switching on and off
- Taking breaks and resting
- Don't take it all on yourself
- Awareness of stress signs
- Assigning value and meaning to work

Self-care

- Pay attention for what your colleagues are saying and doing, and be willing to talk to them if they are acting out or character
- Have regular time to check on each other and share problems

Mutual support

- Role assignment
- Clarification of scope of responsibility
- Job rotation
- Stress education
- Complaint handling

Organizational responses

- Use of health management system
- Interviews with employees working long hours
- Stress check system
- Consultations by psychologists and psychiatrists
- Utilization of local resources

Support by professionals

Check!

- □ If you see signs of stress, don't be ashamed and admit to the feelings and what you are finding stressful.
- □ Relieve yourself of your duties once giving a brief factual report on what investigations you have conducted.
- □ Positively evaluate your work… find meaning in your work.
- □ Talk among your team about what you have heard and how you are feeling about them.
- □ Don't try to do everything yourself. Know your limits, work with your team, and support one another.
- □ Take breaks. Stretch. Take a deep breath.
- □ Cherish the time you can spend with friends and family and rest up when you can.
- □ Think about how you may have grown through this experience.
- □ If you feel that your stress level is too high, are drinking more than usual, are feeling like you have to drink, or are experiencing careless mistakes, or feel that you are more easily distracted and suffering from remembering things, those are signs that should not be ignored. Take a break or talk to an expert.

Source: Care for medical personnel involved in the response to the new coronavirus infection (COVID-19) by Japanese Society for Traumatic Stress Studies. [in Japanese] URL: *https://www.jstss.org/ptsd/covid-19/page07.html*

Tokyo Bureau of Social Welfare and Public Health, Mental Care guideline in disasters (revised, May 2008) [in Japanese] URL: *https://www.fukushihoken.metro.tokyo.lg.jp/tamasou/sonota_jouhou/saigaitaisaku.files/saigai.pdf*

Appendix 2:
Active epidemiological investigation guidelines for COVID-19 patients

National Institute of Infectious Diseases, Infectious Disease Surveillance Center
January 8, 2021 ver.

Aim

This document was prepared for public health centers to promptly and effectively conduct active epidemiological investigations for COVID-19 patients (confirmed cases) and others, those identified in Japan, according to Article 15 of the Act on the Prevention of Infectious Diseases and Medical Care for Patients with Infectious Diseases (the Infectious Diseases Control Law).

Overview of Cluster Response for COVID-19

Since COVID-19 has been detected in Japan, cluster control measures that have been actually implemented in various regions have mainly consisted of the contact investigation, which has been established infectious disease control measures in Japan, including the estimation of the source(s) of infection (the retrospective investigation), identification of close contacts of infected persons, and appropriate management of close contacts (behavior restriction). If the source of a cluster is obvious and the listing of the close contacts is adequate, the next infection will occur within the already enclosed area and will not lead to a further chain of clusters.

However, SARS-CoV-2, which causes COVID-19, has been found to cause many asymptomatic and cases with mild symptoms, especially in young age groups. This poses a major threat to public health and medical care because of the potentially widespread occurrence of invisible clusters and of the risk of large outbreaks and high numbers of seriously ill people at the same time if the transmission of these invisible infections spreads to high-risk groups.

Since such outbreaks, which can be large and cause a large number of serious illnesses, occur at the regional or city levels, it is important for regional and metropolitan public health centers and municipalities to be constantly prepared, to analyze the trends of this infectious disease, and to confront this disease.

On the other hand, when COVID-19 patients (especially of severe cases) occur or are expected to occur on a scale that would put pressure on the healthcare system of the community, the entire society may take measures to ensure social distancing, i.e., strongly stopping social activities and eliminating the route of person-to-person infection. In the situation where such measures are being implemented, cluster measures that carefully address individual cases may not have a significant effect because measures are being taken to largely eliminate infection routes. Even if the situation does not lead to behavioral changes in a whole society, it may be important to conduct active epidemiological investigations effectively and efficiently, taking into consideration the priority of countermeasures, especially at the time when the number of positive cases in the community is rapidly increasing.

How to think about the active epidemiological investigation

The active epidemiological investigations of COVID-19 in each municipality are to ascertain the occurrence of clusters behind the individual patients (confirmed cases) and to try to contain it by identifying the common source of infection retrospectively as well as by restricting the behavior of

their close contacts. A cluster is a group of infected people that can be identified as a group that can be traced by links. The detection of clusters indicates that active epidemiological investigations are progressing well.

The active epidemiological investigations as counter-cluster measures allow us, directly, to identify and appropriately manage (conduct health monitoring and testing) the close contacts around the patients (confirmed cases), and indirectly, to take measures such as requesting the closure of facilities and refraining from individual activities that are considered to have a high risk of infection in association with the patient (confirmed case). These measures will prevent the continuous chain of clusters, and increase the possibility of containing the COVID-19 transmission. It is expected that the estimated sources of infection can be checked for the existence of clusters that have not yet been grasped from them, and that the search for new clusters will enable an early response to signs of the spread of infection.

The contact point for support for addressing COVID-19 by local governments will be centralized in the Cluster Task Force for the time being. However, requests for cooperation and coordination of field epidemiological investigation will still be accepted by the FETP (Field Epidemiology Expert Training Course) at the Center for Infectious Disease Epidemiology in the National Institute of Infectious Diseases.

Definitions

- "A patient (confirmed case)" refers to "a person who is suspected to have COVID-19 infection based on clinical characteristics and is diagnosed with the infection by testing for SARS-CoV-2."
- "An asymptomatic carrier" refers to "a person who does not exhibit clinical characteristics but it is confirmed to be infected with SARS-CoV-2 by testing
- "A Patient with similar symptoms" refers to "a person who is suspected to have COVID-19 infection based on clinical characteristics, etc., but for whom a definitive diagnosis of COVID-19 has not yet been obtained."
- "Infectious period of patients (confirmed cases)" is the period during which the patient (confirmed case) is considered to be capable of transmitting COVID-19 to others. In this Guide, based on the current knowledge, the period from 2 days before symptom onset suspected of COVID-19 (see below), including fever and acute respiratory symptoms such as cough and difficulty breathing, until the patient meets the criteria for discharge from the hospital or treatment of accommodation or home care.
    - » Fever, cough, difficulty breathing, sluggishness, sore throat, runny nose, stuffy nose, headache, joint/muscle pains, diarrhea, nausea, vomiting, etc.
- "The period of possible infection for asymptomatic patient" is the period during which the asymptomatic carrier is considered to be capable of transmitting COVID-19 to others. In this Guide, the period is from two days before the date of sample collection for the positive result until the patient meets the criteria for discharge from the hospital or termination of accommodation treatment or home care.
- "A close contact" refers to a person who has been in contact with a "patient (confirmed case)" (including "asymptomatic carrier"; the same shall apply hereinafter) during the period of possible infection until the patient is admitted to a hospital, receives accommodation treatment, or begins home care and who falls within the following criteria.
    - » Have been living with the patient (confirmed case) or have had prolonged contact (including riding in a car or airplane, etc.)

  - » Have treated, nursed, or cared for a patient (confirmed case) without appropriate personal protective equipment
  - » Have high likelihood of having come into direct contact with patient's (confirmed case) airway secretions or other contaminants such as bodily fluids
  - » Other: Have been in contact for more than 15 minutes with the patient (confirmed case) without necessary preventive measures in place at an arms-length or face-to-face conversation distance (about 1m) (comprehensively judge infectiousness of the patient from symptoms, etc.)
  - + In the case of an airplane, as a general rule, passengers within two rows in front of and behind the patient (confirmed case) on international flights, and passengers within two meters around the patient (confirmed case) on domestic flights. However, if a patient (confirmed case) did not wear a mask for a long period of time while onboard, if a patient showed symptoms such as fever and cough, or if many patients (confirmed cases) were confirmed on board the airplane, those who were on board in the area beyond these cases shall be considered as close contacts, if necessary, taking into account the risk of infection based on individual circumstances.
  - + In some cases, screening tests are conducted on a broader range of persons than those who fall into the category of "close contacts" described above. In such cases, for those who are not close contacts as well as whose screening tests are negative, it may not be necessary to take strict measures such as requesting them to refrain from activities. However if such a person subsequently becomes aware of any symptoms, it is important to take measures such as conducting another testing as in the case of close contacts.

- A "cluster (population) of patients" is a population of patients (confirmed cases) that can be identified as a population that can be traced by a link. If a cluster is left uncontrolled, it may lead to series of clusters (continuous chain of clusters), which can lead to a large-scale cluster (mega cluster). Based on the findings that not all infected patients in Japan have produced secondary infections, and that approximately 10-20% of all patients contribute to the development of secondary infections, prompt detection of this cluster and an appropriate response are the key to preventing the spread of infection.
- The "Contact Confirmation Application (COCOA)" is a smartphone application (app) developed by the Ministry of Health, Labor and Welfare. It uses Bluetooth to record proximity within 1 meter for more than 15 minutes in a mutually unrecognizable manner with the consent of the user. When a user of the app becomes a patient (confirmed case), the patient (confirmed case) resisters with the app based on the patient's consent, and the user of the application who comes into contact with the patient (confirmed case) can receive a notification. When a notification is received by the app, it indicates that there was certain proximity to the patient (confirmed case), but it does not capture whether there was a mask or conversation

Subject of active epidemiological investigation

- The subjects of active epidemiological investigations are "patients (confirmed cases")" and "close contacts" as described above. If there is a high probability that "patients with similar symptoms" will become a confirmed case, it may be subject to active epidemiological investigation on the assumption that it will become a confirmed case.

Understanding regional transmission status

- Public health centers will assess the risk of potential clusters in that region by comprehensively analyze the status of notifications of "patients (confirmed cases)" or "patients with similar

symptoms", information of the number of consultations and medical care related to COVID-19 at the Consultation Office for Returnees and People Who Had Contact (names vary by municipality: see URL below [in Japanese]. https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/kenkou_iryou/covid19-kikokusyasessyokusya.html), as well as information on people who came back from abroad (regions with information on the status of COVID-19).

- Understand the number of PCR tests, number of confirmed cases, the trend in positive rate, and the number of isolated cases without known links to other clusters at municipalities. Especially the rate of isolated cases without known links is important. When this rate becomes high, the cluster risk in that region is becoming high and will be considered as a highly important region for cluster response. If the proportion of unlinked cases is increasing and not only the number of tests is increasing, but also the proportion of positive tests is increasing, the risk of cluster outbreak is increasing due to the development of a potential epidemic situation in the region, and the region may be considered a priority area for cluster response.
- The outbreak status of COVID-19 nationwide should also be monitored, and attention should be paid to the occurrence of widespread cases that have commonalities with other regions. Consolidating wide-area virological information, such as genome analysis conducted by the NIID Genome Analysis Center as an administrative test, may be useful in clarifying epidemiological links.
- Regarding the flow of consultation, medical information, and consultation to the consultation center for DOVID-19, if a citizen has symptoms such as fever and is concerned about COVID-19, he or she should call their family doctor or a local medical institution. If the citizen does not have a family doctor, is not sure which medical institution to consult, or if the family doctor is not open on weekends or at night, the citizen can call the Fever Consultation Center (the name differs depending on the region). In addition to using the websites of local governments and medical associations, it is important to encourage people to check the local contact points mentioned above.

Investigation details

- Collect necessary information such as basic information, clinical information, the suspected source of transmission, people who had contact, etc. (Survey form 1, 2, 3-1, 3-2)
- For a suspected source of transmission, when there are multiple "patients (confirmed cases)", search across shared exposure source, identify risk factors of transmission, and implement appropriate measures to prevent the spread of infection (including alerting those who may have been exposed from a common source).
- In the investigation of contacts of a patient (confirmed case), it is important to check the behavioral history of the patient (confirmed case) more carefully if any of the potential contacts are found to be at high risk of serious illness (e.g., elderly, immunodeficiency, etc.), to have contact with persons at high risk of serious illness (e.g., medical or nursing personnel), or to contribute to the spread of infection.
- It is especially important to estimate the source of infection in the early stage of an epidemic, in times when the number of cases is increasing or decreasing, to further reduce the occurrence of clusters. In these periods, in terms of detecting and responding to clusters of patients (population), there are clusters around infected persons (e.g., patients (confirmed cases)) with no apparent link. Therefore, a retrospective and thorough investigation of common exposure sources will be effective, especially when multiple cases of infection are found in an area. Implementing these measures in a situation where there is a relatively small number of patient outbreaks will directly lead to the containment of the spread of infection in the region and eventually in Japan as a whole.

On the other hand, through situations where the risk of infection increases as a result of the spread of infection, the importance of estimating the source of infection by the retrospective contact tracing is relatively low, especially when the infection is occurring in many places of the area.

- In principle, the behavioral survey to search for contacts of “patients (confirmed cases)” should be conducted from 2 days before the onset of infection (two days before the collection of a positive sample in the case of asymptomatic patients) to the start of hospitalization, accommodation, or home care. However, it is assumed that there may be cases in which additional behavioral investigations are required during the period after the start of hospitalization, etc., within the period of possible infection, such as when nosocomial infection occurs in the medical institution where the patient was hospitalized.
- A behavioral survey before symptom onset should be conducted within 14 days before the onset of illness to estimate the source of infection, taking into account the incubation period.
- In conducting active epidemiological investigations, carefully narrow down the subjects based on the information on the behavioral investigation of “patient (confirmed case)’s”. It is known that secondary infection is more likely to occur when many people engage in vocal activities (singing, talking, etc.) in “close” situations, including face-to-face, especially in poorly ventilate “closed” spaces, and when there is a contact for a certain amount of time (“crowding”). In addition, it is useful to analyze whether the necessary infection control measures are being maintained even under normal circumstances for infections in medical institutions and facilities.
- To promptly detect positive cases, all “close contacts” targeted for investigation are subjected to testing (initial screening). Even if the test results are negative, their health status should be monitored for 14 days from the date of the last exposure to the patient (confirmed case) during the period of possible infection until the patient (confirmed case) is hospitalized, receives accommodation treatment, or begins home care. As a prospective follow-up, if they show symptoms of possible COVID-19, including fever, respiratory symptoms, malaise, etc., request them to contact a healthcare center before visiting a medical institution, and conduct tests regardless of the severity of their symptoms (Survey form attachment 3-3). As for the daily follow-up of close contacts, we would like to see efforts made to simplify and reduce the workload of communication between the healthcare center and the subject as much as possible, for example, by having the subject enter the date into HER-SYS instead of making daily phone calls
- A “close contact” is a person who is considered to be at high risk of infection. If any symptoms appear among the close contacts, or if symptoms are present and worsen even if the test results are negative, prompt testing is extremely important to contain the spread of infection in a population unit.
- On the other hand, in principle, asymptomatic contacts should not be subjected to COVID-19 testing after initial screening. Health monitoring should be conducted after taking measures to reduce the risk of transmission of infection to surrounding areas, such as staying at home or in facilities.
- As for testing asymptomatic individuals, it is unclear when the virus can be detected even if it is present, especially when the timing of infection is unclear, and a negative test result does not mean a negation of infection. It is important to ask asymptomatic individuals themselves or their guardians (in the case of children) to understand the significance of staying at home or in facilities. Among “close contact”, pay close attention to changes in the physical condition of elderly people and people with underlying health conditions, who are assumed to be at high risk of serious illness.
- In addition, the Government of Japan has requested prefectures, etc. to conduct thorough inspections of residents and care workers at elderly care facilities, etc. (*https://www.mhlw.go.jp/*

content/000697205.pdf [in Japanese]). Specifically, if any residents or care workers of elderly facilities show symptoms such as fever, they must be tested, and in such cases, the entire facility must be screened. In situations where there is a high probability that the virus has spread to the area, it is recommended to conduct simultaneous and regular testing of all people who work at medical institutions, elderly care facilities, or are hospitalized or admitted during that period (*https://www.mhlw.go.jp/content/000695267.pdf* [in Japanese]). Such testing, in addition to identifying close contacts and estimating the source of infection, will lead to the early identification of infected people.

- If a user of the MHLW's contact confirmation app becomes a patient (confirmed case), and resisters a positive result on the app based on the consent of the patient (confirmed case), users of the app who have contact with the patient (confirmed case) can receive notifications, which may lead to efficient and prompt identification of contacts with whom the patient (confirmed case) is not aware of having had a contact. If the patient (confirmed case) is using this app, the patent (confirmed case) is advised to register a positive result on the app, taking into account that the registration is based on the consent of the patient (confirmed case). To register a positive result in the app, a processing number must be issued by the Health Center Real-time Information-sharing System on COVID-19 (HER-SYS). For details, please refer to the procedure manual released by the MHLW (Regarding the order of priority of investigation).

Research priorities

- In situations where there is a rapid increase in the number of patients in a region, ensure that clusters that may spread to the elderly and other people at risk of severe disease are addressed. At the same time, a proactive epidemiological investigation may be conducted, taking into consideration the priority that needs to be responded to effectively prevent the spread of infection in the region.
- In the active epidemiological investigation for the identification of close contacts, the behavioral history of the positive person during the period under investigation* is checked, and the individuals who have had contact with the positive person are identified as possible close contacts. For behavioral history, first, check whether any of the following situations exist.

  (1) Contact with locations/groups where there are many people at risk of serious illness.

  (2) Based on the epidemiological information of the region, whether there was a situation that is considered to be conducive to infection (e.g., an environment related to the high transmission risk/3Cs and loud voices, and other situations that tend to cause close contact).

  Detailed behavioral history and identification of contacts should be conducted with priority given to those related to the above (Priority is given to (1) and (2) in that order.). It should be noted that if the positive person is associated with a situation where the infection is likely to occur and there is contact with an unspecified number of people, the infection is more likely to spread to the region if it does occur. Testing should be carried out as necessary even when the people involved around the positive person do not fall under the category of close contacts, including situations not covered in (1) and (2) above.
- In the investigation for estimating the source of infection, the source of infection is estimated by confirming the behavioral history of the positive person during the period under investigation, and ascertaining the history of contacts with the patient or suspected infected person, common behavior with other positive persons, etc. For behavioral history, first, check whether any of the following situations exist.

  (1) Contact with locations/groups where there are many people at risk of serious illness.

(2) Based on the epidemiological information of the region, whether there was a situation that is considered to be conducive to infection (e.g., an environment related to the high transmission risk/3Cs and loud voices, and other situations that tend to cause close contact).

Detailed behavioral history and identification of contacts should be conducted with priority given to those related to the above (Priority is given to (1) and (2) in that order.). It should be noted that if the positive person is associated with a situation where the infection is likely to occur and there is contact with an unspecified number of people, the infection is more likely to spread to the region if it does occur. In addition, special priority should be given to the 7 days before symptom onset of illness, since most incubation periods are 5-7 days. Similarly, for carriers, priority should be given to investigations of behavioral history during the 7 days before collection of the positive specimen.

- In addition to local epidemiological information, it is recommended to regularly check information from the Cluster Response Taskforce and the National Institute of Infectious diseases, etc., as a reference for understanding the conditions and risk factors that are likely to cause infection.

Preventive measures for transmission during investigation

- If face-to-face interview is to be conducted by a PHN conducting an active epidemiological investigation, it is necessary to wear a surgical mask and ensure appropriate hand washing, etc. is done.
- If an interview must be conducted with a subject who has symptoms such as a cough, get the patient to wear a surgical mask. In addition to the surgical mask and hand washing, the PHN should also wear eye protective gear (goggles or face shield).

Handling of people who had close contact

- Public health centers should issue guidance that people who had close contact should follow good cough etiquette and hand washing during the period when their health is monitored and to pay attention to their health status. Avoid going out unless essential. If they must go out, ask to avoid public transit. Also, ask to wear a mask when going out and make sure to keep hands sanitized.
- As mentioned above, as a general rule, “people who had close contact” but are asymptomatic who are under health monitoring would not be subject to COVID-19 testing. However, if the “person who had close contact” is a healthcare worker or working in jobs that has contact with high-risk populations and would necessitate the evaluation of transmission status or if clusters are occurring in succession and epidemiological investigation is deemed necessary, they could become subject to testing.
- Those who are living with “people who had close contact” should be told to wear masks and sanitize hands.
- Refer to “If you suspect COVID-19 for your family Things you need to be aware - 8 key points -” *https://www.mhlw.go.jp/cotent/10900000/000601721.pdf*
- Discarding trash and washing linens and clothes for those who had close contact should be done as usual.
- If someone who had close contact has a small child, refer to “How to deal with students who have come from abroad due to COVID-19 (as of 3/26) (notice) (March 26, 2020)” released by Ministry of Education *https://www.mext.go.jp/content/20200326-mxt_kouhou01-000004520_3.pdf*
- To ship samples from healthcare facilities, refer to “Manual for sample collection/shipment for 2019-nCoV (SARS-CoV2) infection”