

Considerations in the investigation of cases and clusters of COVID-19

Interim guidance

22 October 2020



This document is an update to the interim guidance document entitled *Considerations in the investigation of cases and clusters of COVID-19*. This version has been updated to incorporate additional information on the implementation of contact tracing, including revisions to Figure 1, which provides examples of contact tracing flows in communities and health care settings. It also includes updated criteria for release from isolation. The update is based on recent evidence on controlling the spread of SARS-CoV-2, the virus that causes COVID-19, and scientific knowledge about the virus. The World Health Organization (WHO) will continue to update these recommendations as new information becomes available.

This document offers guidance to local, regional, or national health authorities for rapid investigation of suspected COVID-19 cases and clusters. It should not be considered a comprehensive guide to outbreak investigation but rather is intended to provide an overview of the key components of an investigation into cases or clusters of COVID-19. Detailed outbreak investigation guidance has been developed for other respiratory pathogens, including MERS-CoV² and non-seasonal influenza virus.³ This guidance is intended for use in all countries, but its implementation may need to be adapted based on available resources and the level of COVID-19 transmission. For this reason, it should be read in conjunction with the WHO interim guidance: *Critical preparedness, readiness and response actions for COVID-19*.⁴

Considerations in the investigation of COVID-19 cases and clusters

The table below serves as operational guidance for time-sensitive priority actions within first few days of notification of a COVID-19 case or cluster.

<p>Objectives of the investigation</p>	<p>The objectives of any investigation of a suspected COVID-19 case include:</p> <ul style="list-style-type: none"> • Rapidly identify, and test persons suspected of having COVID-19, isolate and care for probable or confirmed cases; • Rapidly identify, quarantine and monitor for any signs and symptoms of COVID-19 among contacts of probable or confirmed cases. <p>These objectives contribute to the overarching goal of controlling COVID-19 by slowing down transmission of the virus and preventing associated illness and death.⁵</p>
<p>Composition, protection of and tools for the investigation team</p>	<p>Composition</p> <p>Personnel must have the capacity, knowledge and authority to:</p> <ul style="list-style-type: none"> • Interview persons with suspected, probable or confirmed COVID-19⁶ and conduct contact tracing; • Triage suspected, probable or confirmed^a COVID-19 cases for clinical care, depending on clinical condition;⁷ • Identify close contacts of all probable or confirmed COVID-19 cases, especially the contacts at highest risk of infection (those with greater exposure, such as prolonged time in close proximity to a COVID-19 case) and/or those at high risk of developing severe disease if infected;⁷ • Collect respiratory specimens from suspected COVID-19 cases;⁸ • Recommend and implement infection prevention and control (IPC) measures to prevent further transmission.⁹ <p>Protection</p> <p>The SARS-CoV-2 virus mainly spreads through direct contact with secretions, such as saliva and respiratory secretions or respiratory droplets, expelled from an infected person. The virus can also spread through indirect contact through fomites and aerosol transmission in certain settings outside of health facilities, such as crowded indoor places with poor ventilation.¹⁰ In health-care settings, airborne transmission of SARS-CoV-2 can occur</p>

^a Including cases not strictly meeting surveillance case definitions, which should not be used for clinical diagnosis or treatment decisions.

	<p>during medical procedures that generate aerosols (“aerosol generating procedures”).⁹ Transmission can be amplified in crowded places, close contact settings and confined and enclosed spaces with poor ventilation.</p> <p>To minimize the risk that members of an investigation team become infected:</p> <ul style="list-style-type: none"> • Establish the smallest possible team assigned to come in close proximity with any suspected COVID-19 case. • Ensure all those in the investigation team are trained in IPC measures specific to SARS-CoV-2.⁹ • Interview suspected cases and contacts over the phone, if feasible, or, if in person, at a distance of more than 1 metre, with appropriate personal protective equipment (PPE)¹¹ in a setting with adequate ventilation, and following all IPC measures including hand hygiene. <p>Tools</p> <ul style="list-style-type: none"> • Provide sufficient and appropriate PPE for team members in both community and health care settings: <ul style="list-style-type: none"> ○ for those collecting and testing respiratory samples, a medical mask, eye protection, gown and gloves; ○ for interviewer and suspected, probable or confirmed COVID-19 cases, medical masks.¹¹ • Gather biological specimen collection material, transport containers, viral transport media, labels, bags, coolers, and cold packs. • Gather copies of case investigation protocols, questionnaires, contact tracing and monitoring; tools and the national case definition (see directly below).
Investigation case definition	<p>This should be established by adjusting national/WHO case definitions⁶ for the purpose of investigation (define time, person, place) for additional case finding and contact tracing.</p>
Contact tracing	<p>WHO has developed full guidance on contact tracing in the context of COVID-19¹ Systematically identify all contacts⁶ in the following settings, where applicable: household and community/social settings; closed settings; health-care settings; public or shared transport; and well-defined gatherings (places of worship, workplaces, schools, private social gatherings). The protocol should also include any persons who have had contact with a probable or confirmed case from 2 days before symptom onset and up to 14 days after symptom onset (or in the case of asymptomatic cases, 2 days before through 14 days after the sample that led to the confirmation of SARS-CoV-2 infection was taken).⁶ (See Figure 1.) Create a line list (a table that contains key information about each case), including contact information (telephone number, address), demographic information, type and date of contact with the confirmed or probable COVID-19 case and daily follow-up of signs and symptoms.</p>
Management of cases and contacts	<p>COVID-19 cases</p> <p>WHO recommends that all probable and laboratory-confirmed cases⁶ be isolated and cared for in a health facility or appropriate community care setting.</p> <ul style="list-style-type: none"> • In situations in which isolation in a health facility is not possible, WHO emphasizes the prioritization of admission to health facilities of individuals with the highest probability of poor outcomes: patients with severe and critical illness and those aged >60 years or with underlying medical conditions who have moderate or mild disease. Emergency treatment should be started based on disease severity.⁷ • Individuals presenting with moderate or mild illness may need to be isolated in non-traditional facilities such as re-purposed hotels, stadiums or gymnasiums, where they can remain until their symptoms resolve and laboratory tests for COVID-19 are negative. Alternatively, those with asymptomatic infection and patients with moderate or mild disease and with no risk factors for poor outcome can be isolated at home, with strict adherence to IPC measures and precautions regarding when to seek care.¹² • The decision to monitor a suspect case in a health facility, community facility or home should be made on a case-by-case basis. This decision will depend on the clinical presentation, requirement for supportive care, potential risk factors for severe disease and conditions at home, including the presence of vulnerable persons in the household.⁷ <p>The following are criteria for discharging COVID-19 cases from isolation (i.e., discontinuing transmission-based precautions) without requiring retesting:¹³</p> <ul style="list-style-type: none"> • For symptomatic patients: 10 days after symptom onset, plus at least 3 additional days without symptoms (including without fever^b and without respiratory symptoms^c). • For asymptomatic individuals:^d 10 days after a positive test for SARS-CoV-2.

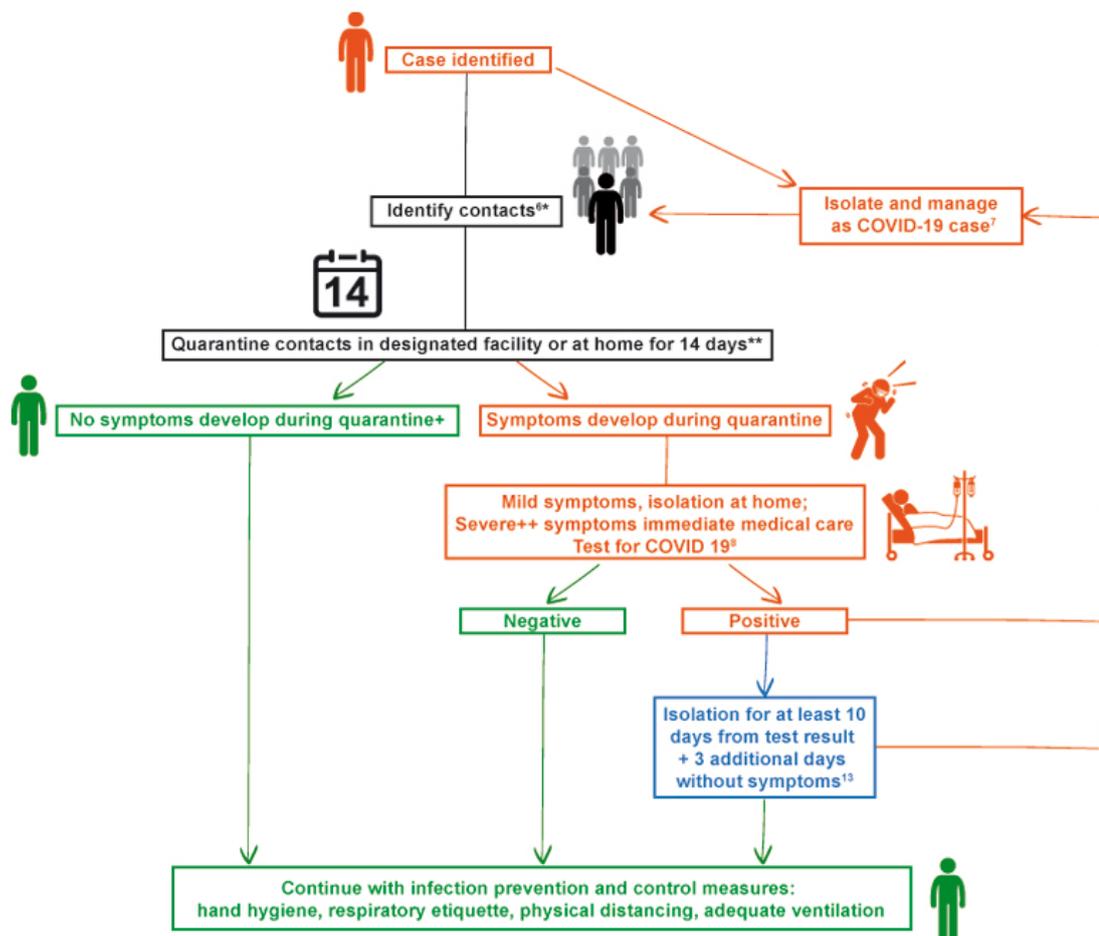
^b Without the use of any antipyretics.

^c Some patients may experience symptoms (such as post viral cough) beyond the period of infectivity. Further research is needed. For more information about clinical care of COVID-19 patients, see the interim guidance on *Clinical Management for COVID-19*⁷

^d An individual who has a laboratory confirmed positive test and who has no symptoms during the complete course of infection.

	<p>Contacts</p> <ul style="list-style-type: none"> • For contacts of a probable or laboratory-confirmed COVID-19 case, WHO recommends that such persons be quarantined for 14 days from the last time they were exposed to the case.¹⁴ • For contacts of a suspected COVID-19 case, at minimum, health authorities should encourage physical distancing of at least 1 metre or wearing a mask when physical distance cannot be maintained, combined with frequent hand hygiene and respiratory etiquette; and may encourage, depending on the epidemiological context and resources available, self-monitoring for symptoms, or quarantine.
<p>Collection and testing of specimens</p>	<p>A respiratory sample should be collected and tested for SARS-CoV-2 infection as soon as possible from all suspect COVID-19 cases and contacts who develop symptoms. During outbreak and cluster investigations, testing of contacts at highest risk of infection (that is, those with greater exposure, such as prolonged time in close proximity to a COVID-19 case) and/or those at high risk of developing severe disease if infected,⁷ regardless of the development of symptoms, may be considered.¹⁴ For contacts who do not develop symptoms, WHO no longer considers laboratory testing a requirement for leaving quarantine after 14 days.¹⁴</p> <p>Ensure that all those involved in collection and transportation of specimens be trained in safe handling practices and spill decontamination procedures, and have sufficient and appropriate PPE (see Tools in Composition, protection of and tools for the investigation team, above).⁸</p>
<p>Community engagement</p>	<p>Case and cluster investigations should begin by engaging with communities about the disease, how to protect individuals and their communities and how to prevent onward transmission. Contact tracing requires individuals to agree to daily monitoring, to be willing to report signs or symptoms of COVID-19 promptly and to be quarantined for at least 14 days or go into isolation if they become symptomatic.</p> <p>In addition, communities should be encouraged to adopt protective behaviours: frequent hand hygiene and respiratory etiquette and maintaining at least 1 metre distance or wearing a mask when physical distance cannot be maintained.</p> <p>Encourage identified cases and contacts to call a COVID-19 hotline (if available) or their health care providers if they have concerns/questions or develop symptoms.</p>
<p>Reporting</p>	<p>Case and cluster investigations undertaken by non-government entities should be done in close consultation with relevant local authorities, and results should be reported immediately.</p> <p>WHO requests that Member States report daily counts of cases and deaths and weekly aggregate counts of probable and confirmed cases and probable and confirmed deaths, as per WHO public health surveillance guidance.⁶</p>
<p>Further investigations</p>	<p>Some countries may wish to undertake investigation protocols—in addition to their public health investigation—to better understand transmission patterns, immunity, severity, clinical features and risk factors for infection. Standardized epidemiological protocols and clinical case report forms for this purpose have been developed for COVID-19 and are available on the WHO website.¹⁵ These protocols are designed to rapidly and systematically collect and share data in a format that facilitates comparison across different settings globally. They include:</p> <ul style="list-style-type: none"> • Population-based age-stratified seroepidemiological investigation protocol for COVID-19 which evaluates extent of infection in the population • First few cases and contacts transmission investigation protocol, which evaluates the extent of infection among cases and their contacts • Household transmission investigation protocol, which evaluates the extent of infection within the household setting • Assessment of risk factors for COVID-19 among health care workers staffing a health care setting in which a patient with confirmed COVID-19 is receiving care <p>Surface sampling of COVID-19 virus: A practical ‘how to’ protocol for health care and public health professionals to assess surface contamination and the role of environmental contamination in transmission</p> <p>Schools and other educational institutions transmission investigation protocol for COVID-19</p>

Figure 1: Examples of contact tracing and management



* If contacts include health care workers, consider testing, irrespective of symptoms.

** Quarantine should be conducted in a designated facility that provides adequate food, water, protection, hygiene and communication provisions, adequate infection prevention and control measures and appropriate monitoring of the health of the quarantined person.¹⁴ If quarantine is undertaken at home, the quarantined person should occupy a well-ventilated single room, or if a single room is not available, maintain a distance of at least 1 metre from other household members.¹⁴ Anyone in quarantine should not leave, unless seeking medical care, and should be in contact with public health authorities for the duration of the quarantine period.

+ In the investigation of clusters, consider testing, if feasible, of all contacts irrespective of the development of symptoms during the quarantine period. For any positive test result, isolate and manage as a COVID-19 case.

++ Emergency signs, seek medical care immediately: obstructed or absent breathing, severe respiratory distress, central cyanosis, shock, coma and/or convulsions.⁷

References

1. World Health Organization. Contact tracing in the context of COVID-19. Geneva: World Health Organization; 2020. (<https://apps.who.int/iris/handle/10665/332049> accessed 3 September 2020).
2. World Health Organization. Investigation of cases of human infection with MERS-CoV. Geneva: World Health Organization; 2020 (https://www.who.int/csr/disease/coronavirus_infections/mers-investigation-cases/en/ accessed 3 September 2020)
3. World Health Organization. Protocol to investigate non-seasonal influenza and other emerging acute respiratory diseases. Geneva: World Health Organization; 2020. (<https://apps.who.int/iris/handle/10665/275657> accessed 3 September 2020)
4. World Health Organization. Critical preparedness, readiness and response actions for COVID-19. Geneva: World Health Organization; 2020. (https://apps.who.int/iris/bitstream/handle/10665/332665/WHO-COVID-19-Community_Actions-2020.4-eng.pdf accessed 3 September 2020)
5. World Health Organization. Strategic preparedness and response plan. Geneva: World Health Organization; 2020. (<https://www.who.int/publications/i/item/strategic-preparedness-and-response-plan-for-the-new-coronavirus> accessed 3 September 2020)
6. World Health Organization. Public health surveillance for COVID-19. Geneva: World Health Organization; 2020. (<https://apps.who.int/iris/handle/10665/333752> accessed 3 September 2020).
7. World Health Organization. Clinical management of COVID-19. Geneva: World Health Organization; 2020. (<https://apps.who.int/iris/handle/10665/332196> accessed 3 September 2020).
8. World Health Organization. Diagnostic testing for SARS-CoV-2. Geneva: World Health Organization; 2020. (<https://apps.who.int/iris/handle/10665/334254> accessed 6 October 2020).
9. World Health Organization. Infection prevention and control during health care when coronavirus disease (COVID-19) is suspected. Geneva: World Health Organization 2020. (<https://apps.who.int/iris/handle/10665/332879> accessed 3 September 2020).
10. World Health Organization. Transmission of SARS-CoV-2: implications for infection prevention precautions. Geneva: World Health Organization; 2020. (<https://apps.who.int/iris/handle/10665/333114> accessed 3 September 2020).
11. World Health Organization. Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19). Geneva: World Health Organization; 2020. (<https://apps.who.int/iris/handle/10665/331498> accessed 3 September 2020)
12. World Health Organization. Home care for patients with suspected or confirmed COVID-19 and management of their contacts. Geneva: World Health Organization; 2020. (<https://apps.who.int/iris/handle/10665/333782> accessed 3 September 2020).
13. World Health Organization. Criteria for releasing COVID-19 patients from isolation. Geneva: World Health Organization; 2020. (<https://apps.who.int/iris/handle/10665/332451> accessed 3 September 2020).
14. World Health Organization. Considerations for quarantine of contacts of COVID-19 cases. Geneva: World Health Organization; 2020. (<https://apps.who.int/iris/handle/10665/333901> accessed 3 September 2020).
15. World Health Organization. Coronavirus disease (COVID-19) technical guidance: Early investigation protocols. (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/early-investigations> accessed 3 September 2020).

WHO continues to monitor the situation closely for any changes that may affect this interim guidance. Should any factors change, WHO will issue a further update. Otherwise, this interim guidance document will expire 2 years after the date of publication.

© World Health Organization 2020. Some rights reserved. This work is available under the [CC BY-NC-SA 3.0 IGO](https://creativecommons.org/licenses/by-nc-sa/3.0/) licence.

WHO reference number: [WHO/2019-nCoV/cases_clusters_investigation/2020.3](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/cases-clusters-investigation/2020.3)