

Considerations for quarantine of contacts of COVID-19 cases

Interim guidance

25 June 2021



Key messages

For all contacts of individuals with confirmed or probable SARS-CoV-2 infection, WHO continues to recommend quarantine in a designated facility or in a separate room in the household for a duration of 14 days from the last contact with the confirmed or probable case to minimize risk of onward transmission.

WHO continues to recommend that quarantine should be supported. This includes individuals in quarantine receiving adequate food, water, protection, hygiene, and communication provisions, including access to education for children and paid leave or remote work options from jobs; adequate ventilation and infection prevention and control (IPC) measures are implemented and maintained; and the requirements for monitoring the health of quarantined persons can be met during quarantine period.

This document is an update of interim guidance entitled *Considerations for quarantine of contacts of COVID-19 cases*, published on 19 August 2020. The scope of this fourth version is restricted to the use of quarantine for contacts of individuals with confirmed or probable SARS-CoV-2 infection. Considerations for the use of restricted movement of travellers (often termed “quarantine” for travellers) is covered in other WHO guidance.¹

This version provides updated guidance for the implementation of quarantine, including considerations for health authorities considering shortening the quarantine period, and updates on the care of children in quarantine. The update is informed by feedback from Member States on experience implementing quarantine of contacts for COVID-19 and is based on evidence on controlling the spread of SARS-CoV-2, the virus that causes COVID-19, and scientific knowledge of the virus.

Background

As the COVID-19 pandemic continues to evolve, Member States need to continue to implement a comprehensive set of public health and social measures that are adapted to the local context and epidemiology of the disease. The overarching goal is to control COVID-19 by preventing infections, reduce transmission of the virus and preventing associated illness and death.²

Several core public health and social measures that break the chains of transmission are central to this comprehensive strategy, including (1) identification, isolation, testing, and clinical care for all cases, (2) tracing and providing supported quarantine of contacts, and (3) encouraging physical distancing of at least 1 metre combined with frequent hand hygiene, appropriate mask wearing and respiratory etiquette, and improving ventilation of indoor spaces. These three components should be central to every national COVID-19 response.³

In the context of the COVID-19 pandemic, there are two scenarios in which quarantine may be implemented: (1) the restriction of movement of travellers upon arrival from areas with community transmission (covered in other WHO guidance¹) and (2) for contacts of individuals with confirmed or probable SARS-CoV-2 infection. This document is intended for national or sub-national health authorities responsible for the implementation of quarantine of contacts of individuals with confirmed or probable SARS-CoV-2 infection.

Policy considerations for the quarantine of contacts of COVID-19 cases

In the context of COVID-19, the quarantine of contacts is the restriction of activities and/or the separation of persons who are not ill, but who may have been exposed to a person with confirmed or probable SARS-CoV-2 infection. The objective is to control onwards transmission of the virus and monitor contacts for the development of any symptoms to ensure the early detection, and appropriate management of potential cases. Quarantine is different from isolation, which is the separation of persons with known infection to prevent the spread of the virus.

Before implementing quarantine, countries should communicate why this measure is needed, and provide appropriate support to enable individuals to quarantine safely.

- Authorities should provide people with clear, up-to-date, transparent and consistent guidance, and with reliable information about quarantine measures.
- Constructive engagement with communities is essential if quarantine measures are to be accepted.

- Persons who are quarantined need access to health care as well as to financial, social and psychosocial support; protection; as well as to support to meet their basic needs, including food, water, hygiene, communication and other essentials for themselves and for household members and children who they are supporting or caring for. The needs of vulnerable populations should be prioritized.
- Cultural, geographic and economic factors affect adherence to and acceptance of quarantine. Rapid assessment of the local context should evaluate both the drivers of success and the potential barriers to quarantine, and they should be used to inform/update plans for the most appropriate and culturally accepted measures.

Who should be quarantined

In the context of the current COVID-19 pandemic, WHO recommends the rapid identification of persons with SARS-CoV-2 infection, supported isolation and management either in a medical facility⁴ or an alternative setting, such as a repurposed hotel or a separate room in the household, depending on the severity of their disease, risk factors for developing severity disease and other factors related to their ability to adhere to the requirements of isolation.⁵

For all contacts of individuals with confirmed or probable SARS-CoV-2 infection, WHO continues to recommend quarantine in a designated facility or in a separate room in the household.

A contact is a person who has experienced any one of the following exposures during the 2 days before and the 14 days after the onset of symptoms of a probable or confirmed case:

- face-to-face contact with someone who has a confirmed or probable SARS-CoV-2 infection within 1 metre and for more than 15 minutes;
- direct physical contact with someone with a confirmed or probable SARS-CoV-2 infection
- direct care for an individual with a confirmed or probable SARS-CoV-2 infection without using appropriate personal protective equipment;⁶ or
- other situations and conditions, as indicated by local risk assessments.⁷

WHO recommends supported quarantine of contacts of persons with confirmed and probable SARS-CoV-2 infection for a duration of 14 days from the last contact with the confirmed or probable case to minimize risk of onward transmission. Multiple observations indicate that nearly all cases develop symptoms within 14 days of exposure, with a median incubation period of approximately 5-6 days.⁸ However, the day at which nearly all cases develop symptoms varies from study to study.⁸ In meta-analyses of the distribution of incubation periods, the greatest variation between studies is in right tail of the distribution. Authors estimated that 95% of all people infected would develop symptoms a median of 11.6 days after exposure; however, this value varied considerably between studies – from 9.5 to 14.2.⁸ These differences could be due to random variation or true epidemiological differences. Available data is still limited, and therefore it is best for countries to base risk-based decisions using their own data, capacities, and risk tolerance to set policies for quarantine.

It is possible for differences to be caused by viral mutations, but at the present time, there is no data to suggest that there is a change in the incubation period of the current SARS-CoV-2 variants of concern.

WHO advises that any adjustment in the quarantine period of contacts from 14 days balances the public health risks and benefits against its social and economic impact. Prolonged absence from social and economic activities is challenging for most people, and this is likely to affect individual adherence to quarantine recommendations. Shortening the quarantine period will result in a larger proportion of contacts becoming infectious after leaving quarantine, but conversely may lead to greater compliance and result in a reduction of transmission. Testing throughout and/or at the end of a shortened quarantine can improve confidence that a contact leaving quarantine is not infected, particularly when the quarantine period is less than 14 days; but this relies on the availability and accuracy of tests and rapid turnaround of the test result before the end of the quarantine.⁹

Health authorities may consider that contacts who have recent (within past 3-6 months) SARS-CoV-2 infection or who have received full COVID-19 vaccination may be at lower risk of further infection and therefore may be exempt from quarantine. While initial data appears to support these assumptions,¹⁰⁻¹² the lower risk of infection following full COVID-19 vaccination likely varies by COVID-19 vaccine. Given the paucity of data for all available COVID-19 vaccines, WHO recommends countries adopt a risk-based approach for any policy decision to exempt individuals from quarantine. This should also consider the local epidemiological context (SARS-CoV-2 incidence and prevalence of SARS-CoV-2 variants of concern), and the context of the exposure (risk assessment of exposure), as some settings like health-care facilities may pose a higher risk, leading to classification of health-care workers as high-risk contacts. This guidance will be updated as more evidence emerges.

Considerations for implementing supported quarantine

If a decision to implement quarantine is taken, the authorities should ensure that those in quarantine are adequately supported. This means:

- adequate food, water, protection, hygiene and communication provisions, including access to education for children and paid leave or remote works options from jobs, can be made for the quarantine period;
- infection prevention and control (IPC) measures can be implemented;
- the requirements for monitoring the health of quarantined persons can be met during quarantine.

These measures apply to both quarantine in a designated facility and for those undertaking quarantine at home.

Ensuring an appropriate setting and adequate provisions

The implementation of quarantine implies the use or creation of appropriate facilities in which a person or persons are physically separated from others for the duration of the quarantine period.

Possible settings for quarantine include hotels, dormitories, other facilities catering to groups, or the home. Regardless of the setting, an assessment must ensure that the appropriate conditions for safe and effective quarantine can be met. Facilities for those in quarantine should be disability inclusive and address the specific needs of women and children.

If quarantine is undertaken at home, the quarantined person should occupy a well-ventilated single room, or if a single room is not available, a designated area, and maintain a distance of at least 1 metre from other household members. The use of shared spaces, crockery and cutlery should be minimized, and shared spaces (such as the kitchen and bathroom) should be well ventilated.

- Strategies for ensuring adequate indoor ventilation are described in the WHO Roadmap to improve and ensure good indoor ventilation in the context of COVID-19.¹³ The rooms should ideally be a single room with ensuite hand hygiene and toilet facilities. If single rooms are not available, beds should be placed to ensure that individuals can maintain distance of at least 1 metre (see section on children).
- Physical distance of at least 1 metre must be maintained between all persons who are in quarantine.
- Suitable environmental infection controls must be used, including ensuring access to basic hygiene facilities (i.e. running water and toilets) and waste-management protocols and supplies.
- Accommodation should include:
 - provision of adequate food, water, and hygiene facilities;
 - secure storage places for baggage and other possessions;
 - medical treatment for existing conditions as necessary;
 - communication in a language that the quarantined individuals can understand, with an explanation of their rights, services that are available, how long they will need to stay and what will happen if they become sick; if necessary, contact information for their local embassy or consular support should be provided.
- Health care must be provided for those requiring medical assistance.
- Those who are in quarantine, must have some form of communication with family members who are outside the quarantine facility, for example, telephone.
- If possible, access to the internet, news, and entertainment should be provided.
- Psychosocial support should be available.
- Older persons and those with comorbid conditions require special attention because of their increased risk for severe COVID-19, including access to medical provisions and equipment (e.g. medical masks).

Protection and provision of care for children

When implementing quarantine, authorities should avoid family separation, weighing the welfare of the child against the potential risk of SARS-CoV-2 transmission within the family.

If a child is a contact:

- Children should be quarantined at home, in the care of a parent or other caregiver.
- When this is not possible, children should be quarantined in a household in the care of an adult family member or other caregiver who is at low risk of severe COVID-19. Known risk factors for severe disease include individuals aged >60 years and individuals with underlying medical conditions.⁴
- If quarantine at home is not possible, children should be quarantined and cared for in child-friendly facilities, taking into consideration the specific needs of children, their safety as well as physical and mental well-being. All efforts should be made to allow a caregiver or other adult family member to visit daily and/or stay with the child throughout the quarantine period.
- Policies and individual decisions should allow home-based quarantine of children and caregivers based on a holistic assessment in which the child's best interests are the primary consideration.
- Any setting that anticipates hosting children, particularly children without caregivers, must provide sufficiently trained care staff who can provide children with a safe, caring and stimulating environment that also meets their needs for psychosocial support and education (e.g. online access to learning). Each quarantine facility receiving children should assign one staff member as a focal point for child protection issues. The child protection focal point will need to be familiarized with risks of violence, exploitation, abuse or neglect. A strict child safeguarding policy must be in place. Staff who monitor the health of quarantined children should be trained to recognize the symptoms of COVID-19 in children, as well as signs that they need immediate medical assistance. Referral pathways should be established in advance.

Even if an adult is a contact, and a child is not, they should be kept together. This includes breastfeeding women, who should be supported to safely breastfeed and share a room with her infant. In the unlikely scenario that an adult needs to be quarantined apart from the child, the decision needs to be based on a comprehensive assessment of the child's best interests. If required, a non-contact healthy family member, or someone who is familiar to the child and the child's family, may provide care during the quarantine period in consultation with the caregiver, the child and the health worker.

Infection prevention and control measures

The following infection prevention and control (IPC) measures⁶ should be used to ensure a safe environment for quarantined persons. These measures apply to quarantine in a designated facility and to quarantine at home.

a) Early recognition and control

- Any contact in quarantine who develops symptoms suggestive of COVID-19 at any point during the quarantine period should be treated and managed as a suspected COVID-19 case and immediately isolated. Ensure the quarantine facility has a designated referral centre and clear process for isolating symptomatic person.
 - A designated room (or, if not feasible, designated area) is recommended for isolating any persons who develop symptoms, while waiting to transfer the individual to the referral centre.
 - For those undertaking quarantine at home, provide contact details of local health authority personnel to the individual in the event that they develop symptoms during the quarantine period.
- Standard precautions apply to all persons who are quarantined and to personnel managing quarantine in a designated facility or a designated individual in the household, if quarantine is being undertaken at home.
 - Physical distance of at least 1 metre should be maintained between all persons who are quarantined.
 - Perform hand hygiene frequently throughout the day. Hand hygiene includes either cleaning hands with soap and water or with an alcohol-based hand rub. Alcohol-based hand rubs are preferred if hands are not visibly dirty; hands should be washed with soap and water when they are visibly dirty.
 - Perform respiratory hygiene. Ensure that all persons in quarantine are aware of the importance of covering their nose and mouth with a bent elbow or paper tissue when coughing or sneezing, and then immediately disposing of the tissue in a wastebasket with a lid and then performing hand hygiene.
 - In areas of known or suspected community or cluster transmission of SARS-CoV-2, in indoor settings (e.g. quarantine facility), individuals should wear a non-medical mask (or medical if aged 60 or over or have risk factors for severe complications of COVID-19⁴) if ventilation is poor or physical distancing of at least 1 metre cannot be maintained. This does not apply to individuals who are by themselves in a single room with ensuite facilities. Where applicable, children aged up to five years should not wear masks. For children between six and 11 years of age, a risk-based approach should be applied to the decision to use of a mask. Children 12 years and above should follow guidance on mask use for adults.¹⁴

b) Engineering and environmental controls

Engineering and environmental controls are measures designed to remove or place barriers between the hazard and the worker or individual. These include but are not limited to:

- Establish sustainable IPC infrastructure, for example, by designing appropriate facilities with adequate space, allow for appropriate flow, adequate ventilation, and systems that allow for adequate hygiene and sanitation.
- Ensure all persons quarantined in facilities have single rooms with ensuite facilities. Where single rooms are not available, maintain a minimum of 1 metre separation between beds and apply cohorting strategies.
- Clean and disinfect frequently touched surfaces throughout the quarantine period – such as bedside tables, bed frames and other bedroom furniture – at least once daily. Clean and disinfect bathroom and toilet surfaces at least once daily. This is particularly important if quarantine is being undertaken at home and if rooms, including bathrooms, must be shared with other household members. Regular household soap or detergent should be used first for cleaning, and then after rinsing, regular household disinfectant, containing 0.1% sodium hypochlorite (bleach, equivalent to 1000ppm) should be applied by wiping surfaces.¹⁵ For surfaces that cannot be cleaned with bleach, 70% ethanol can be used.
- Wash clothes, bed linen, and bath and hand towels using regular laundry soap and water, or machine wash at 60–90 °C (140–194 °F) with common laundry detergent, and dry thoroughly.
- Waste generated during quarantine should be placed in strong bags and sealed before disposal.¹⁶
 - Countries should consider implementing measures to ensure that this type of waste is disposed of in a sanitary landfill and not in an unmonitored open area.

Those who are in quarantine should be placed in adequately ventilated rooms with large quantities of fresh and clean outdoor air to control contaminants and odours. There are three basic criteria for ventilation:

- ventilation rate: the amount and quality of outdoor air provided into the space;
- airflow direction: the direction of airflow should be from clean to less-clean zones; and
- air distribution or airflow pattern: the supply of air to each part of the space to improve dilution and removal of pollutants from the space.

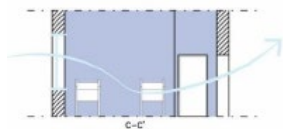
For quarantine facilities, ventilation of 60 liters/second per person (L/s/person) is adequate for naturally ventilated areas or 6 air changes per hour for mechanically ventilated areas (See Box 1. How to estimate airflow rate and air change per hour).

Box 1- How to estimate airflow and air change per hour (ACH)

Natural ventilation

As a rule of thumb, wind-driven natural ventilation rate can be calculated as follows:

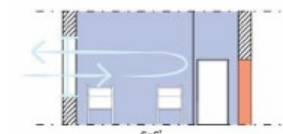
Cross ventilation



i.e. Open window + open door

$$\text{Ventilation rate (l/s)} = 0.65 \times \text{wind speed (m/s)} \times \text{smallest opening area (m}^2\text{)} \times 1000$$

Single-side ventilation



i.e. Open window + closed door

$$\text{Ventilation rate (l/s)} = 0.05 \times \text{wind speed (m/s)} \times \text{smallest opening area (m}^2\text{)} \times 1000$$

Mechanical ventilation

Knowing the airflow (ventilation rate) provided by the ventilation system and the volume of the room:

$$\text{ACH} = [\text{ventilation rate (l/s)} \times 3600 \text{ (s/hr)}] \times 0.001 \text{ (m}^3\text{/s)} / [\text{room volume (m}^3\text{)}]$$

Airflow direction can be assessed by measuring the pressure difference between the rooms with a differential pressure gauge. If measuring the pressure difference is not feasible, the airflow direction from a clean to a less clean area can be assessed using cold smoke (clearance of smoke should occur within a few seconds of release). Incense sticks can also be used if cold smoke test puffers are not available. Those performing this measurement should be mindful of fire hazards.

For quarantine at home, consider using natural ventilation, opening windows if feasible and safe to do so. For mechanical systems, increase the percentage of outdoor air, using economizer modes of heating, ventilation and air-conditioning (HVAC) systems operations and potentially as high as 100%. Before increasing outdoor air percentage, verify compatibility with HVAC system capabilities for both temperature and humidity control as well as compatibility with outdoor/indoor air quality considerations.

If HVAC systems are used, they should be regularly inspected, maintained and cleaned. Rigorous standards for installation and maintenance of ventilation systems are essential to ensure that they are effective and contribute to a safe environment within the health facility as a whole. Recirculation of air (e.g. split AC units, fan coils, or any system that runs with a recirculation mode) should be avoided where possible. The use of fans for air circulation should be avoided if possible unless it is in a single occupancy room when there are no other individuals present. If the use of fans is unavoidable, increase outdoor air exchange by opening windows and minimizing air blowing from one person directly at another in order to avoid spread of droplets or aerosols.

c) Administrative controls

Administrative controls such as policies and procedures, training and communication for IPC within quarantine facilities include but may not be limited to:

- Educating all persons who are quarantined about IPC measures on arrival and throughout the quarantine timeframe.
- All personnel working in the quarantine facility should be trained on the IPC measures described above before the quarantine measures are implemented.
- Both personnel and quarantined persons should understand the importance of promptly seeking medical care if they develop symptoms; developing policies to ensure the early recognition and referral of a suspected COVID-19 case.

d) Personal protective equipment (PPE)

PPE may be required in certain circumstances for workers in a designated quarantine facility

- cleaning personnel should wear adequate personal protective equipment (PPE)¹⁷ and be trained to use it safely. In non-health care settings where disinfectants such as bleach are being prepared and used, the minimum recommended PPE is rubber gloves, impermeable aprons and closed shoes.¹⁵ Eye protection and medical masks may be needed to protect personnel against chemicals used or if there is a risk of exposure to blood /body fluids, such as when handling soiled linen or cleaning toilets. Cleaning personnel should perform hand hygiene before putting on and after removing PPE.
- PPE (medical masks, eye protection (face shield or goggles, gowns and gloves) should be available for workers in quarantine facilities to use in the event a person in quarantine becomes symptomatic with symptoms suggestive of COVID-19. Workers must be trained on use of PPE, including methods for putting and removing PPE, and proper disposal.

Requirements for monitoring the health of quarantined persons

Persons who are quarantined in the facility or home should monitor their symptoms daily for the duration of the quarantine period, ideally including screening for body temperature increases and symptoms in accordance with WHO and/or national surveillance protocols and case definitions. When possible, active follow up from health authorities is encouraged, particularly for groups of persons at higher risk of severe disease (individuals aged >60 years and individuals with underlying medical conditions) if they do become infected who may require additional surveillance or specific medical treatments.

Consideration should be given to the resources needed, including personnel and, for example, rest periods for staff at quarantine facilities. Appropriate resource allocation is particularly important in the context of an ongoing outbreak, when limited public health resources may need to be prioritized for health-care facilities and case-detection activities.

Laboratory testing during quarantine

Any person in quarantine who develops symptoms suggestive of COVID-19 at any point during the quarantine period should be treated and managed as a suspected case of COVID-19 and tested, according to national testing strategies and guidelines. If feasible, a subset of asymptomatic contacts who are at a higher risk of developing severe disease and /or have had higher levels of exposure should also be tested for SARS-CoV-2.

As previously recommended, for contacts who do not develop symptoms, WHO does not consider laboratory testing a requirement for leaving quarantine after 14 days.

Methods

This interim guidance was developed and has been updated by WHO in collaboration with UNICEF. The WHO secretariat and members of WHO COVID-19 external technical groups (infection prevention and control, laboratory, epidemiology) continually review available evidence on SARS-CoV-2 transmission, viral shedding, incubation period, contact tracing, public health and social measures, and on infection prevention and control measures for SARS-CoV-2. This guidance is also informed by experiences from Member States on contact tracing and quarantine of contacts of COVID-19 cases. UNICEF provided input on the protection and provision of care for children in the context of quarantine of contacts of COVID-19 cases.

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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.

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