Considerations for quarantine of contacts of COVID-19 cases

Interim guidance

19 August 2020

World Health Organization

This document is an update of interim guidance entitled Considerations for quarantine of individuals in the context of containment for coronavirus disease (COVID-19), published on 19 March 2020. This version is restricted to the use of quarantine for contacts of confirmed or probable cases of COVID-19. It provides updated guidance for the implementation of quarantine, as well as additional guidance on ventilation and on the care of children in quarantine. The update 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 implement a comprehensive set of public health measures that are adapted to the local context and epidemiology of the disease. The overarching goal is to control COVID-19 by slowing down transmission of the virus and preventing associated illness and death.[1]

Several core public health 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 quarantine of contacts, and (3) encouraging physical distancing of at least 1 metre combined with frequent hand hygiene and respiratory etiquette. These three components should be central to every national COVID-19 response.[2]

Quarantine means "the restriction of activities and/or separation from others of suspect persons (…) who are not ill in such a manner as to prevent the possible spread of infection or contamination."[3] The use of quarantine to control infectious diseases has a long history that goes back centuries. Today, many countries have the legal authority to impose quarantine which, in accordance with Article 3 of the International Health Regulations (2005), must be fully respectful of the dignity, human rights and fundamental freedoms of persons.[4]

There are two scenarios in which quarantine may be implemented: (1) for travellers from areas with community transmission and (2) for contacts of known cases. This document offers interim guidance to Member States on implementing quarantine, in the latter scenario, for the contacts of people with probable or confirmed COVID-19. Thus, this guidance is intended for national authorities responsible for their local or national policy on the quarantine of contacts of confirmed or probable COVID-19 cases[5] and for ensuring adherence to infection prevention and control (IPC) measures.

As mentioned, quarantine may also be used in the context of travel and is included within the legal framework of the International Health Regulations (2005),[3] specifically:

- Article 30 − Travellers under public health observation;
- Article 31 − Health measures relating to entry of travellers;
- Article 32 − Treatment of travellers.[3]

Member States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to legislate and to implement legislation, in pursuit of their health policies, even when such legislation that restricts the movement of individuals.

The use of quarantine in the context of travel measures may delay the introduction or re-introduction of SARS-CoV-2 to a country or area, or may delay the peak of transmission, or both.[6,7] However, if not properly implemented, quarantine of travellers may create additional sources of contamination and dissemination of the disease. Recent research shows that, when implemented in conjunction with other public health interventions, quarantine can be effective in preventing new COVID-19 cases or deaths.[7] If Member States choose to implement quarantine measures for travellers on arrival at their destination, they should do so based on a risk assessment and consideration of local circumstances.[6]

The scope of this interim guidance document, therefore, is restricted to the use of quarantine for contacts of confirmed or probable cases of COVID-19.

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 an infected person.[3] The objective is to monitor their symptoms and ensure the early detection of cases. Quarantine is different from isolation, which is the separation of infected persons from others 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 the effectiveness 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 plans for the most appropriate and culturally accepted measures.

Who should be quarantined

In the context of the current COVID-19 outbreak, WHO recommends the rapid identification of COVID-19 cases and their isolation and management either in a medical facility[8] or an alternative setting, such as the home.[9]

WHO recommends that all contacts of individuals with a confirmed or probable COVID-19 be quarantined in a designated facility or at home for 14 days from their last exposure.

A contact is a person in any of the following situations from 2 days before and up to 14 days after the onset of symptoms in the confirmed or probable case of COVID-19:

- face-to-face contact with a probable or confirmed case of COVID-19 within 1 meter and for more than 15 minutes;
- direct physical contact with a probable or confirmed case of COVID-19
- direct care for an individual with probable or confirmed COVID-19 without using proper personal protective equipment;[10] or
- other situations, as indicated by local risk assessments.[5]

Recommendations for implementing quarantine

If a decision to implement quarantine is taken, the authorities should ensure that:

1. adequate food, water, protection, hygiene and communication provisions can be made for the quarantine period;
2. the infection prevention and control (IPC) measures can be implemented;
3. 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 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 the community while being cared for.

Possible settings for quarantine include hotels, dormitories, other facilities catering to groups, or the contact's home. Regardless of the setting, an assessment must ensure that the appropriate conditions for safe and effective quarantine are being 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, chosen, 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. The use of shared spaces, crockery and cutlery should be minimized, and shared spaces (such as the kitchen and bathroom) should be well ventilated.

Quarantine arrangements in designated facilities should include the following measures:

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:

1. ventilation rate: the amount and quality of outdoor air provided into the space;
2. airflow direction: the direction of airflow should be from clean to less-clean zones; and
3. 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).

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.

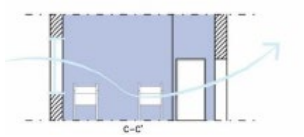
For quarantine at home, consider using natural ventilation, opening windows if feasible and safe to do so. For mechanical systems, increase the percentage of outdoor air, using economizer modes of heating, ventilation and air-conditioning (HVAC) systems operations and potentially as high as 100%. Before 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

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:

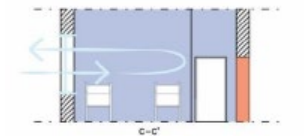
Cross ventilation



i.e. Open window + open door

Ventilation rate (l/s) = 0.65 x wind speed (m/s) x smallest opening area (m2) x 1000

Single-side ventilation



i.e. Open window + closed door)

Ventilation rate (l/s) = 0.05 x wind speed (m/s) x smallest opening area (m2) x 1000

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

ACH= *[ventilation rate (l/s) ×3600 (s/hr)] ×0.001 (m3/s)]/[room volume (m3)]*

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.

- Strategies for ensuring adequate ventilation in public buildings are described in the WHO Q&A on ventilation and air conditioning in the context of COVID-19.[11] 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 at least 1 metre apart (see section on children).
- Physical distance of at least 1 metre must be maintained between all persons who are quarantined.
- Suitable environmental infection controls must be used, including ensuring access to basic hygiene facilities (i.e. running water and toilets) and waste-management protocols.
- 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, including children, 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 COVID-19 transmission within the family. Any decision to separate a child from his or her caregiver when implementing quarantine should include careful and thorough consideration of the possible consequences of family separation.

If a child is a contact:

- Children should ideally 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.[8]
- If quarantine at home is not possible, children should be quarantined and cared for in a child-friendly space, 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 the children with a safe, caring and stimulating environment. Each quarantine facility receiving children should assign one staff member as a focal point for child protection issues. 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.

If an adult is a contact, and a child is not, the adult may need to be quarantined apart from the child. In this case, the child should be placed in the care of another non-contact adult family member or caregiver.

Infection prevention and control measures

The following IPC measures[10] 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 person in quarantine who develops febrile illness or respiratory symptoms 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 any symptomatic person. A designated room (or, if not feasible, designated area) is recommended for isolating any persons who develop symptoms, if the facility uses shared rooms, while waiting to transfer the individual to the referral centre.
- Standard precautions apply to all persons who are quarantined and to quarantine personnel.
  - Perform hand hygiene frequently, particularly after contact with respiratory secretions, before eating, and after using the toilet. 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.
  - Ensure that all persons in quarantine are practising respiratory hygiene and 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.
  - Refrain from touching the eyes, nose and mouth.
  - Physical distance of at least 1 metre should be maintained between all persons who are quarantined.
  - To prevent COVID-19 transmission effectively in areas of community transmission, governments should encourage the general public to wear masks in specific situations and settings, such as on public transport, in shops or in other confined or crowded environments, as part of a comprehensive approach to suppress SARS-CoV-2 transmission.[12]

b. Administrative controls

Administrative controls and policies for IPC within quarantine facilities include but may not be limited to:

- Educating persons who are quarantined and quarantine personnel about IPC measures. All personnel working in the quarantine facility need to have training on standard precautions (hand hygiene, respiratory etiquette, PPE, cleaning and disinfection, waste and linen management) before the quarantine measures are implemented. The same advice on standard precautions should be given to all quarantined persons on arrival.
- 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.

c. Environmental controls

Environmental cleaning and disinfection procedures[13] must be followed consistently and correctly. Those responsible for cleaning need to be educated about and protected from COVID-19 and ensure that environmental surfaces are regularly and thoroughly cleaned throughout the quarantine period, as well as ensuring safe and appropriate storage, handling and use of all cleaning materials and disinfectants. The following actions are important:

- Establish sustainable IPC infrastructure (for example, by designing appropriate facilities).
- 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 − 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. 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.[13] 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.
- In a designated quarantine facility, cleaning personnel should wear adequate personal protective equipment (PPE)[14] 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.[13] 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.
- Waste generated during quarantine should be placed in strong bags and sealed before disposal.[15]

- 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.

Requirements for monitoring the health of quarantined persons

Daily follow up of persons who are quarantined should be conducted within the facility or home for the duration of the quarantine period and should include screening for body temperature and symptoms in accordance with WHO and/or national surveillance protocols and case definitions. Groups of persons at higher risk of severe disease (individuals aged >60 years and individuals with underlying medical conditions) 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 consistent with COVID-19 at any point during the quarantine period should be treated and managed as a suspected case of COVID-19 and tested.

For contacts who do not develop symptoms, WHO no longer considers laboratory testing a requirement for leaving quarantine after 14 days.

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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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