

# Infection prevention and control during health care when coronavirus disease (COVID-19) is suspected or confirmed

Interim guidance

12 July 2021



## Key points

- In the context of SARS-CoV-2 variants of concern, based on the available evidence and expert consensus, WHO advises that the current recommended IPC measures be reinforced and continue to be stringently implemented.
- WHO continues to recommend that the highest priority population for vaccination include health workers, older adults and individuals with underlying medical conditions.
- At the present time, WHO recommends that vaccinated persons should continue to adhere to public health and social measures and IPC measures, including in health facilities.
- Health facilities<sup>a</sup> in some locations have been associated with the spread of SARS-CoV-2 between health workers, patients and others.
- Following critical health care IPC strategies and measures are required to prevent or limit SARS-CoV-2 transmission in health facilities, including having the following in place: an IPC programme or at least a dedicated and trained IPC focal point, engineering and environmental controls, administrative controls, standard and transmission based-precautions, screening and triage for early identification of cases and source control, robust surveillance and vaccination of health workers.
- Optimal compliance with appropriate use of personal protective equipment and hand hygiene by health workers is associated with decreased risk of SARS-CoV-2 transmission.
- Infection prevention and control (IPC) training of health workers is associated with decreased risk of occupational acquisition of COVID-19.
- Health facilities should adhere to key WHO-recommended IPC measures, in particular, adhering to respiratory etiquette and hand hygiene best practices, contact, droplet and airborne precautions, adequate environmental cleaning and disinfection; ensuring adequate ventilation; isolation facilities of COVID-19 patients; in addition, where possible, maintaining a physical distance among all individuals in health facilities of at least 1 metre (increasing it whenever feasible), especially in indoor settings.
- Universal masking by all patients, staff, caregivers and visitors within a health facility should be implemented in health facilities in areas where there is known or suspected community or cluster transmission of SARS-CoV-2. Targeted continuous masking should be implemented in clinical areas of health facilities in areas with known or suspected sporadic transmission.
- IPC precautions should be applied for COVID-19 vaccine administration. Mask use by vaccinators and recipients of the vaccine should be according to local or national guidance.

## Introduction

This third edition of the World Health Organization (WHO) interim guidance on infection prevention and control (IPC) during health care delivery in the context of COVID-19 provides updated guidance to support safe health care through the rigorous application of IPC procedures for the protection of patients, staff, caregivers and visitors<sup>b</sup> in health care settings. It aligns content and recommendations with other recently published WHO IPC guidance documents and includes the following new sections:

- Updated evidence on SARS-CoV-2 transmission, SARS-CoV-2 infections in health workers,<sup>c</sup> (1)

<sup>a</sup> Health facility (including primary, secondary, tertiary care levels, outpatient care and long-term care facilities)

<sup>b</sup> Individuals accessing the healthcare facilities not to directly seek healthcare service, but to physically be present with a patient. Visitors provide various levels of support to patients during the course of treatment (personal, social, psychological, emotional and physical).

<sup>c</sup> Health workers are all people engaged in work actions whose primary intent is to improve health. This includes health service providers, such as doctors, nurses, midwives, public health

professionals, technicians (laboratory, health, medical and non-medical), personal care workers, community health workers, healers and practitioners of traditional medicine. It also includes health management and support workers, such as cleaners, drivers, hospital administrators, district health managers and social workers, and other occupational groups in health-related activities. This group includes those who work in acute care facilities and in long-term care, public health, community-based care, social care and home care and other occupations in the health and social work sectors.

nosocomial transmission among patients, and the latest information on SARS-CoV-2 variants of concern (alpha, beta, gamma and delta);

- Guidance on universal and targeted continuous use of masks’;
- Prevention, identification and management of SARS-CoV-2 infections among health workers;
- Implications of variants of concern for IPC practices;
- IPC considerations for COVID-19 vaccination sessions.

This interim guidance is written for health facility managers at national or district/provincial levels, infection prevention and control focal points and health workers. The aim of this interim guidance is to minimize the introduction of SARS-CoV-2 infection into a facility in all resource settings and, if introduced, from spreading within and beyond the facility.

Transmission of infectious pathogens, including SARS-CoV-2, continues to highlight deficiencies in IPC in health facilities worldwide. The rigorous implementation of IPC measures protects health workers from infection from such pathogens and is required to be regularly reviewed and updated. The guidance set out in this document is required to prevent and/or limit transmission of SARS-CoV-2 in health facilities. Health workers or patients infected with SARS-CoV-2 who are not promptly identified, isolated and cared for can transmit it to others including to health workers, caregivers, other patients and visitors (2), causing health care-associated outbreaks and onward transmission to families and the community.(2-5)

The significant burden placed on health workers in health facilities and beyond during the COVID-19 pandemic has forced health workers to adapt to significantly higher patient volumes and longer shifts for extended periods of time; leading to exhaustion, burnout, physical and mental stress,(6) which places health workers at significant risk of potentially reduced compliance with recommended IPC measures.

## Evidence on SARS-CoV-2 transmission and physical distancing

How to effectively use IPC measures in health care settings relies on an understanding of the transmissibility of SARS-CoV-2, which depends on multiple factors. These include, but are not limited to, the amount of viable virus shed and expelled by an infected person, the type and duration of contact with an infected person, the setting where exposure takes place and the IPC measures that are in place in that setting. There are numerous studies underway to better understand surface and aerosol persistence; the studies are however challenging to interpret as identifying viral RNA in clinical or environmental specimens (PCR positive samples) is not the same as finding replication- and infection-

competent (viable) virus that could be transmissible and capable of sufficient inoculum to initiate invasive infection.(7)

Available evidence continues to suggest that SARS-CoV-2 can spread from an infected person’s mouth or nose in small liquid particles when the person coughs, sneezes, sings, breathes or talks, by inhalation or inoculation through the mouth, nose or eyes. These liquid particles are different sizes, ranging from larger ‘respiratory droplets’ to smaller ‘aerosols.’ Current evidence suggests that the virus spreads mainly between people who are in close contact with each other, typically within 1 metre (short-range).(8)

The virus can also spread to others through aerosols at longer (beyond the typical 1 metre distance) distances. The risk of long-distance aerosol transmission is higher in poorly ventilated and/or crowded indoor settings where people spend long periods of time (7, 9). In health care settings, aerosol transmission can also occur in specific situations in which procedures that generate aerosols are performed <sup>d</sup>.(7) A recent systematic review found that SARS-CoV-2 RNA can be detected in the air in the presence of COVID-19 patients in various health care settings and can also be detected in community settings, sometimes at low concentrations. Among these studies, only a limited number have isolated viable virus from air samples.(10)

There is currently limited evidence on transmission through fomites (objects or materials that may be contaminated with viable virus, such as utensils and furniture or in health care settings a stethoscope or thermometer) in the immediate environment around the infected person.(11-14) The majority of studies report identification of SARS-CoV-2 RNA on inanimate surfaces; a recent study in a healthcare setting where immunocompromised patients were cared for found extensive contamination with replication- and infection-competent SARS-CoV-2 in discarded nasal tissues, a cell phone, the patient’s hands, and cough specimens(15). However, the evidence demonstrating the recovery of viable virus in clinical and community settings is currently limited.(15, 16)

More details on SARS-CoV-2 modes of transmission can be found in the interim guidance document [Mask use in the context of COVID-19: interim guidance, 1 December 2020](#) (7) and in the WHO [Roadmap to improve and ensure good indoor ventilation in the context of COVID-19, 1 March,2021](#). (17)

Physical distancing of at least 1 metre remains a key IPC and public health and social measure to reduce transmission of SARS-CoV-2. Available evidence was again reviewed by the GDG, and several studies report fewer cases of SARS-CoV-2 infection associated with a physical distance of greater than 1 metre; however, these studies had small sample sizes, and there were methodological concerns.(18-20) A recent study

<sup>d</sup> The WHO list of AGP’s includes tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation

before intubation, bronchoscopy, sputum induction using nebulized hypertonic saline and dentistry and autopsy procedures

reporting on the relationship between infection and physical distancing policies in schools found no difference in SARS-CoV-2 case rates among children or staff in schools implementing a 1 metre distancing policy compared to a 2-metre policy.(21, 22)

## Evidence on health worker infection and health care-associated infections

Health workers are members of communities and as such can play a role in transmission between health-care settings and the community, and they may play a role in initiating or amplifying outbreaks in settings such as hospitals and long-term care facilities.(3) More information on health worker infections can also be found in the guidance [Prevention, identification and management of health worker infection in the context of COVID-19](#). (23)

### Box 1. Evidence on health worker infections and health care-acquired (nosocomial) transmission

At present, there is no systematic documentation or dedicated global reporting system of SARS-CoV-2 infection among health workers and many countries do not have national level surveillance specifically for health workers.

According to the WHO global surveillance system, which is based on Case Report Forms provided by Member States and aggregated data reported weekly by countries, 2.5% of reported COVID-19 cases have occurred in health workers as of 2 February 2021.(24) This is likely an underestimate of the true infections in health workers because of under reporting and under-recognition of cases.

A systematic review of 237 published studies that evaluated epidemiology and risk factors associated with SARS-CoV-2 infection in health workers found a wide variation of seroprevalence of SARS-CoV-2 (ranging from 0.3% to 39.6%) and infection incidence (ranging 0.4% to 49.6%).(25) This review found no differences between professional categories, sex or age, but higher rates were associated among Black, Hispanic and Asian race/ethnicity.(25) Higher infection rates in health workers were associated with unprotected exposures to COVID-19 patients as well as with exposures to certain high-risk procedures, such as intubations and other aerosol generating procedures without PPE,(26) direct patient contact or contact with bodily secretions. Regardless of exposures, availability and correct use of personal protective equipment, hand hygiene and training in IPC are associated with decreased risk of SARS-CoV-2 infection.(25, 26)

Some studies reported that up to 49% of health workers infected with SARS-CoV-2 were either asymptomatic or pauci-symptomatic (having very mild, almost

undetectable symptoms) and still worked while being infected, representing a risk for others.(3, 27) Another study (4) reported that health workers and patients were infected at a similar rate when lapses in the use of personal protective equipment occurred (e.g., health workers not wearing eye protection when interacting with patients who were not masked) or following close contact interactions in break rooms with colleagues.

Several studies have reported healthcare associated SARS-CoV-2 infection among patients ranging from 0-41%.(28-31) Long inpatient stay increase the risk of acquiring SARS-CoV-2 infection for patients, especially patients in geriatric wards, rehabilitation and long-term care facilities(3). Where hospitals restricted or suppressed visits from outsiders, researchers have shown that healthcare-associated SARS-CoV-2 infections were almost exclusively due to patient-to-patient or HCW-to-patient transmission.(3)

The risk of SARS-CoV-2 transmission in health facilities is complicated and increased by additional factors, such as increased demand for hospital beds for patients, a lack of adequate isolation facilities, inadequate ventilation,(17) unavailability of personal protective equipment,(32) and the need to conduct high-risk procedures such as aerosol generating procedures.

## SARS-CoV-2 variants of concern

WHO, in collaboration with national authorities, institutions and researchers, continues to monitor the public health events associated with SARS-CoV-2 variants and provides updates as new information becomes available. (33)

As of 8 July 2021, WHO has characterized four variants of concern (VOC): Alpha (B.1.1.7), Beta (B.1.351, B.1.351.2, B.351.3), Gamma (P.1, P.1.1, P.1.2) and Delta (B.1.617.2, AY.1, AY.2). The latest information on the monitoring, assessment and naming of variants of concern can be found [here](#). Available evidence for the four VOCs suggests that there is increased transmissibility for all, with the largest increase in transmissibility for the Delta variant.(33, 34) At the present time, there have not been reported changes in the modes of transmission. WHO is actively monitoring all available evidence generated by researchers, public health institutions, and professionals through existing networks and multidisciplinary discussions.

IPC and public health and social measures remain critically important in curbing the spread of SARS-CoV-2, including VOCs. (35) Evidence from multiple countries with extensive transmission of variants of concern has indicated that the implementation IPC measures along with vaccination and public health and social measures in health facilities remain effective in reducing COVID-19 incidence.(36)

Having examined all available evidence and in the context of the circulation of VOCs, WHO recommends vigilant adherence to the current guidance on IPC measures, including personal protective equipment to prevent the transmission and control the spread of SARS-CoV-2.

## Infection prevention and control strategies and measures associated with the care for suspected or confirmed cases of COVID-19 in health facilities

To mount an optimal response to the COVID-19 pandemic using the strategies and practices recommended in this document, a facility level IPC programme with a dedicated and trained team or at least an IPC focal point should be in place and supported by the national and facility senior management.<sup>(37)</sup> In countries where IPC programmes are limited or nonexistent, it is critical to ensure that at least basic IPC standards are in place at the national and health facility level to provide minimum protection to patients, health workers, caregivers and visitors and thereby protect the community. These minimum requirements <sup>(38)</sup> for IPC have been recommended by WHO since 2019 based on a broad consensus among international experts and institutions to facilitate the implementation of the WHO recommendations into the core components of IPC programmes. Achieving the IPC minimum requirements and more robust and comprehensive IPC programmes based on WHO core components <sup>(37)</sup> across whole health systems is essential to sustaining efforts to control the COVID-19 pandemic, other emerging infectious diseases, health care-associated infections and antimicrobial resistance. This is also key to achieving resilient health systems.

WHO has published guidance on health workforce policy in the context of COVID-19, which includes the IPC interventions needed to support health workers individually.<sup>(6)</sup> WHO has also developed guidance on the core competencies required of infection prevention and control professional staff, which can be used for assessing the training needs and developing institutional curricula.<sup>(39)</sup>

### 1. Screening <sup>e</sup> and triage <sup>f</sup> for early recognition of patients with suspected COVID-19 and rapid implementation of source control measures

WHO continues to recommend to screen all persons for COVID-19 at the first point of contact with the health facility to allow for early recognition, followed by immediate isolation of suspected and confirmed cases. Recommendations for screening strategies for health workers can be found in the

WHO interim guidance [Prevention, identification and management of health worker infection in the context of COVID-19.](#)

Based on available data (18-22) and 83% consensus among the ad hoc COVID-19 Infection Prevention and Control Guidance Development Group, WHO continues to advise that a physical distance of at least 1 metre should be maintained between and among patients, staff and all other persons in health care settings. This distance should be increased wherever feasible, especially in indoor settings.

#### Screening of patients, visitors and others entering the facility

The following measures will facilitate screening and triage:

- Train staff on the signs and symptoms of COVID-19 and the most recent case definitions,<sup>g</sup>
- Display information at the entrance of the facility directing patients with signs and symptoms of COVID-19 to report to the designated area for screening. Staff, patients, visitors or others entering the facility who do not have signs or symptoms of COVID-19, should have clear directions indicating the designated screening area, which should ideally be separate from areas for individuals presenting with symptoms. Where this is not feasible, individualized solutions need to be found to manage the flow of patients to maintain physical distancing of at least 1 metre.
- Implement a monitoring and feedback process to ensure screening is conducted accurately and appropriately. Encourage health workers to be alert to potential SARS-CoV-2 infection in all patients.
- Establish well-ventilated screening stations equipped with the following:
  - screening questionnaires with the most recent WHO<sup>h</sup> or national case definitions;
  - a screening algorithm to promptly identify and direct patients with suspected SARS-CoV-2 infection to an isolation room or dedicated SARS-CoV-2 waiting area;
  - access to adequate supplies of personal protective equipment (PPE); <sup>(40)</sup>
  - additional PPE available for staff use based on a risk assessment<sup>h</sup>; <sup>(41)</sup>
  - adequate access to supplies for hand hygiene (alcohol based hand rub or soap and water) for both health workers and patients; and

<sup>e</sup> Screening: refers to prompt identification of patients with signs and symptoms of COVID-19

<sup>f</sup> Triage: prioritization of care according to severity using validated tools (e.g., WHO/ICRC/MSF/IFRC Integrated Interagency Triage Tool)

<sup>g</sup> WHO global surveillance for COVID-19:

<https://www.who.int/publications/i/item/global-surveillance-for-covid-19-caused-by-human-infection-with-covid-19-virus-interim-guidance>

<sup>h</sup> A risk assessment is the health worker's assessment of risk for exposure to body substances or contaminated surfaces before any anticipated health care activity



- ideally, a separation created by a glass/plastic screen between screening personnel and patients. (40)
- Require screening personnel and patients to maintain a distance of at least 1 metre and increase this distance where possible, especially in indoor settings.
- Require screening personnel to wear a medical mask and use additional PPE according to a risk assessment. (41)
- In areas of known or suspected community or cluster transmission of SARS-CoV-2, implement universal masking for all individuals in the facility (see section 3 for details) including within the screening/triage area for all health workers, patients and visitors or individuals accompanying patients.
- When influenza virus is known or suspected to be circulating, ensure that this diagnosis is also considered as part of screening of patients with fever and influenza-like-illness, and that testing is undertaken as per local routine protocols. (42) Other infections such as malaria, tuberculosis and chronic diseases should also be considered within the COVID-19 care pathway.
- All patients suspected of having SARS-CoV-2 infection should wear masks for source control purposes and be positioned at least 1 metre apart from each other in a designated, well-ventilated, waiting area. (7)
- Ensure that a process is in place to reduce the amount of time patients suspected of having SARS-CoV-2 infection wait to be screened.

#### Triage

- Patients who are suspected of having COVID-19 and have symptoms of respiratory distress and severe underlying conditions should be prioritized for medical evaluation.
- After screening and isolation (if required), triage patients using standardized and validated triage tools (e.g. WHO/ICRC/MSF/IFRC Interagency Integrated Triage Tool) to identify individuals in need of immediate care and those who can safely wait. (43)

#### Isolation or designated waiting area

- Health facilities without enough single isolation rooms in their emergency departments should designate a separate, well-ventilated area where patients with suspected COVID-19 can wait to be assessed. This area should have benches, stalls or chairs placed at least 1 metre apart.
- The isolation or designated area should have masks, dedicated toilets, hand hygiene stations and trash bins with lids for disposal of paper tissues used for respiratory hygiene or after hand washing.

- Display graphic information for patients (printed or videos on screens, if available) to inform how to perform hand and respiratory hygiene and how to wear a mask appropriately.

#### Inpatient screening

To prevent transmission of SARS-CoV-2 within health facilities it is critical to promptly detect SARS-CoV-2 infection in inpatients whose illness was missed by screening and triage efforts or who became infected within the facility. Screening can be challenging, given there could be high numbers of acute respiratory infections and atypical clinical presentations of COVID-19 (42), and that infected individuals with and without symptoms can transmit the SARS-CoV-2.

To facilitate inpatient screening health facilities should:

- encourage health workers to perform regular patient assessments and monitoring to identify changes in patients suspected of having SARS-CoV-2 infection;
- encourage the use of validated rapid antigen or PCR testing in accordance with the national testing strategy; (44)
- report on patients who have been identified as having COVID-19 after admission;
- establish refresher clinical training and regular updates on the latest evidence on SARS-CoV-2, especially in areas with community transmission.

## **2. Applying standard precautions for all patients**

Standard precautions aim to reduce the risk of transmission of bloodborne and other pathogens from recognized and unrecognized sources and are the basic level of IPC precautions that should be used at all times in the care of all patients. Standard precautions include, but are not limited to, hand and respiratory hygiene, the use of appropriate personal protective equipment according to risk assessment (41), environmental cleaning, safe waste management, injection safety and decontamination of medical devices.

#### Hand hygiene

Hand hygiene is one the most effective measures to prevent the spread of infectious pathogens, including SARS-CoV-2. (45) Posters and graphic instructions on hand hygiene should be displayed in the health facility.

For optimal hand hygiene performance, health workers should apply the following principles (46, 47):

- Perform hand hygiene according to the WHO's [My 5 Moments for Hand Hygiene](#) approach: before touching a patient, before any clean or aseptic procedure is performed, after exposure to body fluid, after touching a patient and after touching a patient's surroundings. (48)
- Clean hands with an alcohol-based hand rub containing between 60-80% alcohol or with soap, water and disposable towels. Alcohol-based hand rub products are

preferred if hands are not visibly soiled. Wash hands with soap and water when they are visibly soiled.(46, 49)

- Use the appropriate technique and duration for performing hand washing or hand rubbing.
- Ensure hands are thoroughly dried before engaging in patient care.
- The need for moisturizing products will vary across health-care settings, geographical locations and respective climate conditions and individuals. Health facilities should promote and facilitate skin care for health workers' hands.

### Respiratory hygiene

Ensure that the following respiratory hygiene measures are applied by all individuals in the health facility:(50)

- sneezing or coughing into the elbow or using a tissue and disposing of it immediately in a bin with a lid;
- performing hand hygiene after contact with respiratory secretions or objects that may be potentially contaminated with respiratory secretions.

Staff should perform and promote respiratory hygiene and help individuals who need assistance, such as providing patients with tissues, plastic bags for used tissues and hand hygiene facilities as necessary. Posters and graphic information on respiratory hygiene should be displayed in the health facility.

### Use of personal protective equipment

The rational and correct use of personal protective equipment reduces exposure to and infection of SARS-CoV-2. The effectiveness of personal protective equipment depends on:

- staff training on putting on and removing PPE; (51)
- prompt access to sufficient supplies;(40)
- provision of adequate PPE according to technical specifications; (52)
- appropriate hand hygiene; (46, 47)
- health worker compliance;
- supervision and regular monitoring and feedback by IPC personnel.(37, 41, 46)

International standards that meet functional equivalency for each type of personal protective equipment item are included in WHO's Technical specifications of personal protective equipment for COVID-19. (52)

WHO does not advise disinfection of gloved hands. However, if strictly necessary, the disinfection of a gloved hand through validated methods supported by the glove manufacturer should only be performed during a moment for hand hygiene as part of the bundling of care tasks to be performed on a single patient.(46, 53)

Where shortages in personal protective equipment supply are forecasted to affect the safety and sustainability of health care

delivery, the use of PPE in health care settings where patients with COVID-19 are cared for must be optimized. As a temporary strategy during severe PPE shortages, personal protective equipment use can be extended (that is, using PPE items for longer than normal or for multiple patient encounters) or personal protective equipment can be reprocessed.(40)

The following practices are not recommended by WHO:

- reuse of PPE (donning of a used PPE item without decontamination/ reprocessing);
- the use of gloves in settings where they are not needed (e.g., administration of COVID-19 vaccine);
- the use of a medical mask in combination with a respirator to extend the use of a respirator or ensure source control when using a respirator with an unfiltered exhalation valve.(7, 40)

WHO continues to advise the use of a face shield as a rational alternative when it is deemed necessary in the local context to add a protective layer to a respirator during extended use.(40)

### Environmental cleaning and disinfection

It is important to ensure that cleaning and disinfection procedures are followed consistently and correctly. Ensure surfaces are easily cleaned and clutter minimized. All surfaces in health facilities, especially frequently touched surfaces and those visibly soiled or contaminated by body fluids, should be routinely cleaned and disinfected.(3, 54) In settings where patients with suspected or confirmed SARS-CoV-2 infections are admitted, frequency of cleaning depends on the type of patient areas and surfaces. Detailed guidance on environmental cleaning and disinfection in the context of COVID-19 is available from WHO.(54)

Disinfectant solutions should always be prepared in well-ventilated areas. Avoid combining disinfectants, both during preparation and usage, as such mixtures cause respiratory irritation and can release potentially fatal gases, in particular when combined with hypochlorite solutions.

Spraying individuals with disinfectants (such as in a tunnel, cabinet, or chamber) is not recommended under any circumstances.

To clean environmental, non-porous, surfaces effectively:

- Clean surfaces thoroughly with water and detergent.
- Apply a disinfectant solution. WHO advises that a concentration of either 0.1% sodium hypochlorite (1000 parts per million), hydrogen peroxide  $\geq 0.5\%$ , or 70-90% ethanol may be used in health settings, while remaining effective against other clinically relevant pathogens after a minimum contact time of 1 minute.(54)

- However, if there are large spills of blood or body fluids (i.e., more than about 10mL), a concentration of 0.5% (5000 parts per million) sodium hypochlorite should be used after removal of organic material.(54)
- Other disinfectants can be considered, provided the manufacturers recommend them for SARS-CoV-2 and other locally relevant microorganisms. Manufacturer advised contact times should be applied and may vary.(54)
- After appropriate contact time, disinfectant residue may be rinsed off with clean water if required. (54)

Medical devices and equipment, laundry, food service utensils and medical waste should be managed in accordance with safe routine procedures.(54-57)

#### Waste management

Currently, direct, unprotected human contact during the handling of health-care waste has not been reported to be associated with transmission of SARS-CoV-2. Most of the waste generated in health facilities is general, non-infectious waste (e.g., packing, food waste, disposable hand drying towels). General waste should be segregated from infectious waste in clearly marked bins, bagged and tied and disposed of as general municipal waste. Infectious waste produced during patient care, including waste from those with confirmed SARS-CoV-2 infection (e.g., sharps, bandages, pathological waste), should be collected safely in clearly marked lined containers and sharps boxes.(54, 58)

To safely manage health-care waste, facilities should:

- assign responsibility, adequate human and material resources for the collection, segregation and disposal of waste;
- treat waste preferably on-site, and then safely dispose of it;
- understand where and how waste moved off-site will be treated and disposed of;
- ensure staff use appropriate PPE (boots, long-sleeved gown, heavy-duty gloves, mask, and goggles or a face shield) while managing infectious waste and perform hand hygiene after taking off the PPE;(40, 46, 51)
- prepare for increases in the volume of infectious waste during the COVID 19 outbreak, especially through the use of PPE and in the context of COVID-19 vaccination delivery;(58)
- consider environmentally friendly treatment methodologies and solutions to minimize both general and medical waste at point of use, segregation, disposal and collection.(58)

### **3. Transmission-based precautions**

#### **3.1 Universal and targeted continuous masking**

WHO has issued guidance on mask use in health facilities in the context of the COVID-19 pandemic that includes advice and scientific evidence on universal masking<sup>i</sup> and targeted continuous medical mask use<sup>j</sup>.(7)

##### Universal masking

WHO regularly reviews literature on universal masking policies. Four studies, all from the United States of America, found that the implementation of universal masking policies in health workers was associated with a decreased risk of SARS CoV-2 infections in health workers.(59-62) However, all studies used a before-after design and had other limitations, including lack of or limited control for confounders, such as use of other personal protective equipment and exposures. Nonetheless, in areas of known or suspected community or cluster SARS-CoV-2 transmission, universal masking is advised in all health facilities:

- All health workers, including community health workers and caregivers, should wear a medical mask at all times, for any activity (care of COVID-19 or non-COVID-19 patients) and in any common area (e.g., cafeteria, staff rooms).
- Other staff, visitors, outpatients and service providers should also wear a mask (medical or non-medical) at all times when in the health facility.
- Inpatients are not required to wear a mask (medical or non-medical) unless physical distancing of at least 1 metre cannot be maintained (e.g., during examinations or bedside visits) or when outside of their care area (e.g., when being transported), provided the patient is able to tolerate the mask and there are no contraindications.

##### Targeted continuous masking

In contexts where SARS-CoV-2 transmission is known or suspected to be only sporadic, WHO continues to advise **targeted continuous medical mask use**. This approach requires health workers, including community health workers and caregivers who work in clinical areas, to continuously wear a medical mask during routine activities throughout the entire shift, apart from when eating and drinking and changing their medical masks after caring for a patient who requires droplet/contact or airborne precautions for reasons other than COVID-19. In these transmission settings, staff working in non-patient areas (e.g. administrative staff) are not required to wear a medical mask during routine activities if they have no patient contact.(7)

<sup>i</sup> Universal masking in health facilities is defined as the requirement for all persons (staff, patients, visitors, service providers and others) to wear a mask at all times except for when eating or drinking.

<sup>j</sup> Targeted continuous medical mask use is defined as the practice of wearing a medical mask by all health workers and caregivers working in clinical areas during all routine activities throughout the entire shift.

Whether adopting universal masking or targeted continuous medical mask use within health facilities, the following procedures and practices should be ensured:(7)

- Medical masks use should be combined with other measures including frequent hand hygiene and physical distancing of at least 1 metre among health workers in(63) shared and crowded places such as cafeterias, break rooms and dressing rooms.
- Medical masks must be changed when wet, soiled, or damaged or if the health worker or caregiver removes the mask for any reason (e.g., for eating or drinking or caring for a patient who requires droplet/contact precautions for reasons other than COVID-19).
- Used medical masks should be properly disposed of.
- The medical mask should not be touched to adjust it or if displaced from the face for any reason. If this happens, the mask should be safely removed and replaced, and hand hygiene performed.
- The medical mask (as well as other PPE) should be discarded and changed after caring for any patient who requires contact/droplet precautions for other pathogens, followed by hand hygiene.
- A particulate respirator at least as protective as a National Institute for Occupational Safety and Health-certified N95, N99, US Food and Drug Administration surgical N95, European Union standard FFP2 or FFP3, or equivalent, should be worn instead of a medical mask in settings for COVID-19 patients where aerosol generating procedures are performed (see WHO recommendations below). In these settings, this includes continuous use of respirators by health workers throughout the entire shift.
- Under no circumstances should medical masks or respirators be shared between health workers.
- Masks can become displaced from optimal facial coverage of the mouth and nose (fit) during extended use, which creates gaps for respiratory particles to bypass the filtration layers on inhalation and exhalation.(64) Facial differences can also affect the fit of medical masks and respirators.(65) The use of

### 3.2. Isolation and cohorting of patients with suspected or confirmed COVID-19

Isolate patients with suspected or confirmed COVID-19 in single rooms or, if unavailable, cohort them in the same room, using the following principles:

- Designate a dedicated team of health workers, where possible, for care of patients with suspected or confirmed COVID-19.
- Restrict the number of health workers in contact with each COVID-19 patient.
- Patients should be placed in well-ventilated (see ventilation requirements in a later section of this document) single rooms, if feasible.(41, 69)
- When single rooms are not available or the bed occupancy rate is anticipated to be 100% or more, suspected, probable or confirmed COVID-19 cases should be grouped together (cohorted) in adequately ventilated areas with beds placed at least 1 metre apart (e.g. suspected cases should be grouped with other suspected cases).
- Avoid moving and transporting patients out of their room or area unless medically necessary. Use designated portable medical imaging equipment and/or other designated diagnostic equipment (70), and ensure these are reprocessed after patient use according to the manufacturer's instructions.
- If transport is required, use predetermined transport routes to minimize exposure for staff, other patients and visitors, and give the patient a medical mask to wear if tolerated.
- Ensure that health workers who are transporting patients perform hand hygiene and wear appropriate PPE as described in the WHO's rational use of PPE guidance.(40)
- Equipment should be either single-use and disposable or dedicated for use with one patient (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared between patients, clean and disinfect it each time it is used by another patient (e.g. by using

预览已结束，完整报告链接和二维码如下：

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