

Infection prevention during transfer and transport of patients with suspected COVID-19 requiring hospital care



Interim guidance, 27 March 2020

1. Introduction

1.1 Background

Patients with suspected coronavirus disease 2019 (COVID-19) can infect others at any time, including during transfer and transport. As COVID-19 is a new infectious disease requires contact and droplet precautions, lapses in infection prevention and control (IPC) can easily happen at vulnerable moments such as during transfer. Clear delineation of roles and responsibilities as well as minimum standards should be maintained.

This guide aims to identify key steps in preparing the community and health system response to ensure IPC is maintained during transfer and transport. This includes from a person's house to, between and within health facilities.

1.2 Target audience

This guide is intended for personnel involved in coordinating and performing transfer and transport of patients with suspected COVID-19 requiring hospital care.

2. Operational guidance

2.1 Roles and responsibilities of key stakeholders

2.1.1. Coordinating body¹

1. Conduct mapping and real-time oversight of available resources (e.g. ambulances and repurposed vehicles, human resources, personal protective equipment (PPE), capacity of front-line health facilities,² referral hospitals and designated makeshift areas, test kits).
2. Ensure that all staff of designated medical facilities and patient referral services are adequately trained in appropriate IPC measures and proper use of PPE and that they are familiar with this guidance document.
3. Develop or modify the existing standard operating procedure (SOP) and communication plan for safe referral and transfer in its jurisdiction, including which patients should seek care, and proper means of transport.
4. Coordinate safe referral and transfer between and within health facilities and ambulatory service providers.
5. Coordinate with community and primary health care facilities for patients needing referral.

1. This can be within local health authorities, designated referral units or other functioning teams such as civil defence. The entities for receiving case reports and making referrals may be separate or combined as long as both functions exist, are established and work in sync.

2. Such as clinical capability of performing triage, physical space allocation for holding areas, number of isolation rooms or at least beds more than 1 metre apart

6. Keep a log of patient details for upstream reporting to higher authorities for contact tracing.

2.1.2. Service providers for transfer and transport

1. Respond to the coordinating body for arranging safe transfer of patients with suspected or confirmed COVID-19.
2. Allocate equipment and staff (e.g. drivers, health-care workers) to be designated for the transport of COVID-19 patients.
3. Use a designated route as much as possible and feasible.
4. Monitor the patient's condition and provide necessary care.
5. Provide coordinated handover of the patient to the triage area, with distanced segregation for patients with suspected or confirmed COVID-19, including a referral slip or log.
6. Maintain a transfer log and a copy of each patient's medical records or charts; perform daily reporting to local health authorities.
7. Clean and disinfect the vehicle and equipment after each transfer, replenish supplies, and dispose of waste, abiding by IPC disciplines.
8. Do not use spray bottles for cleaning/disinfecting agents; use a squeeze bottle to apply agents to disposable cloths or paper towels. For agents to be applied by hand, use mechanical action for cleaning.
9. Optimize ventilation in vehicles during transport. For instance, open windows if possible to reduce risk of transmission of infectious droplets.
10. Monitor and document the health of all staff involved in transfer and transport, including activities performed during contact with patients.
11. For staff who have a fever or respiratory and/or other symptoms, report to the staff reporting officer and do not go to work.

2.1.3 Designated health facilities³

1. Receive referred patients, coordinating closely with **service providers for transfer and transport** and the **coordinating body**. Patients

using self-transportation from home are recommended to call front-line health facilities or a designated hotline for counselling to determine if urgent transfer is necessary.

2. Apply strict IPC measures throughout the clinical pathway, such as safe transport between departments inside a hospital, including and not limited to the triage area, wards, diagnostic departments and other amenities within the hospital premises. Where possible, patient movement within the facility should be kept to an absolute minimum, for example by using mobile medical imaging. In principle, high-risk patients should be always accompanied by a health-care worker or auxiliary staff capable of overseeing IPC measures during in-hospital transfer. Patients who are capable of self-transfer between the departments should be given a medical mask and taught how to observe personal hygiene and IPC during the entire hospital stay. Social distancing of at least 1 metre between patients is required.
3. Make essential resources (e.g. alcohol-based handrub) available for disinfection of ambulance staff and vehicles transferring patients with possible infection before leaving the health facility.

2.2 Technical guidance for safe transfer

When front-line health facilities detect patients with (suspected or confirmed) COVID-19, they should report to local health authorities and initiate emergency transfer and referral according to local guidance and SOP. All stakeholders involved in referral and transfer should have the same SOP manual with clearly defined roles and responsibilities and a communication plan.

IPC measures for front-line health facilities

- Designate a well-ventilated waiting area and allow for more than 1-metre distance between patients within the waiting area.
- Provide medical masks to patients with respiratory symptoms.
- Apply standard, contact and droplet precautions during counselling, sampling for upper respiratory tract specimens and treatment procedures.

3. Hospitals, including makeshift hospitals, with capacity to manage COVID-19 and other severe acute respiratory illnesses.

- Take airborne precautions (including fit-tested and fit-checked N95 particulate respirators for staff) when aerosol-generating procedures are performed, such as sampling for lower respiratory tract specimens, delivery of nebulized medications, intubation, open suctioning of respiratory tract, manual ventilation and cardiopulmonary resuscitation.

Preparation for transfer

- Stabilize the patient's condition.
- Communicate with the emergency transfer centre and receiving hospital regarding the patient's condition and estimated time of arrival.
- Secure informed consent from the patient or a family member.
- Designate trained staff to accompany the patient.
- Set up basic and additional equipment and medication.
- Prepare a referral letter.

2.2.1 Guidance for transport from home to health facility

For patients with severe and critical conditions requiring transfer from home to designated health facilities, the following is advised:

1. Contact the health facility by telephone or other recommended methods for clear guidance.
2. If no ambulance is available, transport the patient in a private vehicle with all windows open and give the patient a medical mask prior to leaving the home.
3. Wear a medical mask and perform proper hand hygiene during transport; observe the proper etiquette for sneezing and coughing⁴; avoid unnecessary contact with the vehicle.
4. Comply with local referral and transfer protocol.

2.2.2. Guidance for safe transfer by ambulance or repurposed vehicle

1. Ambulance/vehicle requirements
 - a. Sealed separation between the driver's cabin and the patient compartment in the back; if the vehicle design does not allow

such, make sure all windows are open for ventilation.

- b. Furnished with a stretcher, PPE, essential equipment,⁵ cleaning agent and disinfectant, alcohol-based handrub and specialized area for contaminated goods including a bin with a secure lid. An ambulance should have only the essential equipment and materials required for immediate use to avoid contamination, which increases the workload for cleaning/disinfection procedures.
 - c. Communication equipment, such as mobile phone, SMS system, satellite phone or two-way radio.
 - d. The patient compartment part of a vehicle must be cleaned and disinfected after each ride.
2. Ambulance staff attire
 - a. Health-care workers (HCWs): work uniform, closed work shoes, gown, disposable gloves, medical mask, eye protection (face shield/goggles)
 - b. Driver: work uniform and
 - i. if involved only in driving and the driver's cabin is separated from the patient with suspected COVID-19, maintain spatial distance of at least 1 metre and no PPE required;
 - ii. if assisting with loading or unloading the patient, medical mask, gown, gloves and eye protection; or
 - iii. if no direct contact with the patient but no separation between driver's cabin and patient compartment, medical mask.
 3. HCWs and drivers need to change their entire attire, except their work uniforms, after each patient transfer. They also need to disinfect thoroughly any area of their body if there is suspicion of contact with the patient or contaminated surfaces. Eye protection can be reused after proper disinfection/cleaning. HCWs and drivers need to practise frequent hand hygiene.

4. Ensure that all patients cover their nose and mouth with a tissue or elbow when coughing or sneezing; perform hand hygiene after contact with respiratory secretions.

5. Oxygen supply, masks, Ambu bag, intubation kit, epinephrine, automated external defibrillator (AED), syringe, normal saline, gloves, etc.

4. All windows should be open and the ambulance well ventilated in the enclosed space containing the patient and HCWs. Air conditioning or electric ventilation with enclosed vents and built-in filters should be turned off to prevent possible aerosolized particles from circulating in the air vents that may remain there when air becomes static after being turned off.
5. Spaces within the ambulance should allow for adequate physical distance. Usual placement of equipment inside the ambulance should be adjusted, if required.
6. Disposal of contaminated goods and cleaning/disinfection measures should abide by the national guidelines on hospital IPC and cleaning/disinfection standards.
7. Medical staff accompanying transfers need to be trained to manage severe respiratory disease, basic life support and IPC for COVID-19.
8. Patient charts and referral forms or slips should be complete and handed over to receiving health facilities. Avoid contamination of such documents and stationery.
9. Patient areas and medical equipment of the ambulance should be cleaned and disinfected according to local IPC guidelines after each transfer and before picking up the next patient. All used equipment and cleaning items must be considered clinical waste and disposed of before the next transfer.
10. Disinfection should be performed as soon as possible at the drop-off destination after the patient is handed over.

2.2.3. Safe transfer workflow for staff (HCWs, driver)

1. Staff practise hand hygiene and wear PPE (see 2.2.2 for driver-specific PPE), including:
 - a. clean work uniform,
 - b. gown,
 - c. medical mask and eye protection, and
 - d. gloves.
2. Dispatch the ambulance or repurposed vehicle to pick up the patient from their current location.
3. Upon meeting the patient, immediately provide a medical mask, if not already worn, immediately perform proper hand hygiene and provide a medical mask, if not already worn.; secure informed consent from the patient or a family member. To minimize risk, the ambulance should not take additional family members alongside the patient. Family members are advised to perform home quarantine and monitoring of symptoms and seek primary or first-level health-care counselling if they exhibit COVID-19-related symptoms.
4. Guide the patient with clear instructions to avoid touching the ambulance unnecessarily. Assist the patient to enter the ambulance while minimizing their contact with the vehicle (e.g. staff should open and close the doors for the patient); secure the patient with a safety belt (if seated) or straps (if put on a stretcher). As a rule, assist the patient to avoid any contact unless necessary. For instance, fill out patient forms for them to avoid contamination of HCWs' stationery. Be vigilant for disinfection later where the patient comes into contact unintentionally with the ambulance.
5. Transport and hand over the patient to the destination health facility. Abide by the referral protocol including notifying the receiving facility of estimated time of arrival, patient conditions (vital signs; communicate with the receiving care team in advance of arrival on high-risk cases in terms severity of illness, measures taken and changes in their condition) and potential infectious risks.
6. After handing over the patient, clean and disinfect the ambulance where the patient had contact with the vehicle (e.g. seat, door handles). Disinfect tools and equipment with patient contact. For example, a non-exhaustive list would include patient transfer equipment (stretcher, wheelchair), handheld radio, pen used for taking notes and anything that HCWs touch after assisting the patient.
7. Staff take off PPE:
 - a. Remove gloves and perform hand hygiene.
 - b. Remove gown and perform hand hygiene.
 - c. Remove eye protection and perform hand hygiene.
 - d. Remove mask and perform hand hygiene.
8. At the end of each shift, all staff are recommended to strictly perform IPC measures before leaving the workplace:
 - a. handwashing;
 - b. shower, if available; and
 - c. change into clean clothes before leaving for home or designated accommodation.

3. Guidance development

3.1 Acknowledgements

- This document was developed and reviewed by a guideline development group composed of staff and consultants from the WHO Regional Office for the Western Pacific (WHO Health Emergencies Programme and Division of Health Systems and Services) and WHO headquarters, with expertise in safe referral and transportation, infection prevention and control, emergency medicine, public health and preventive medicine.

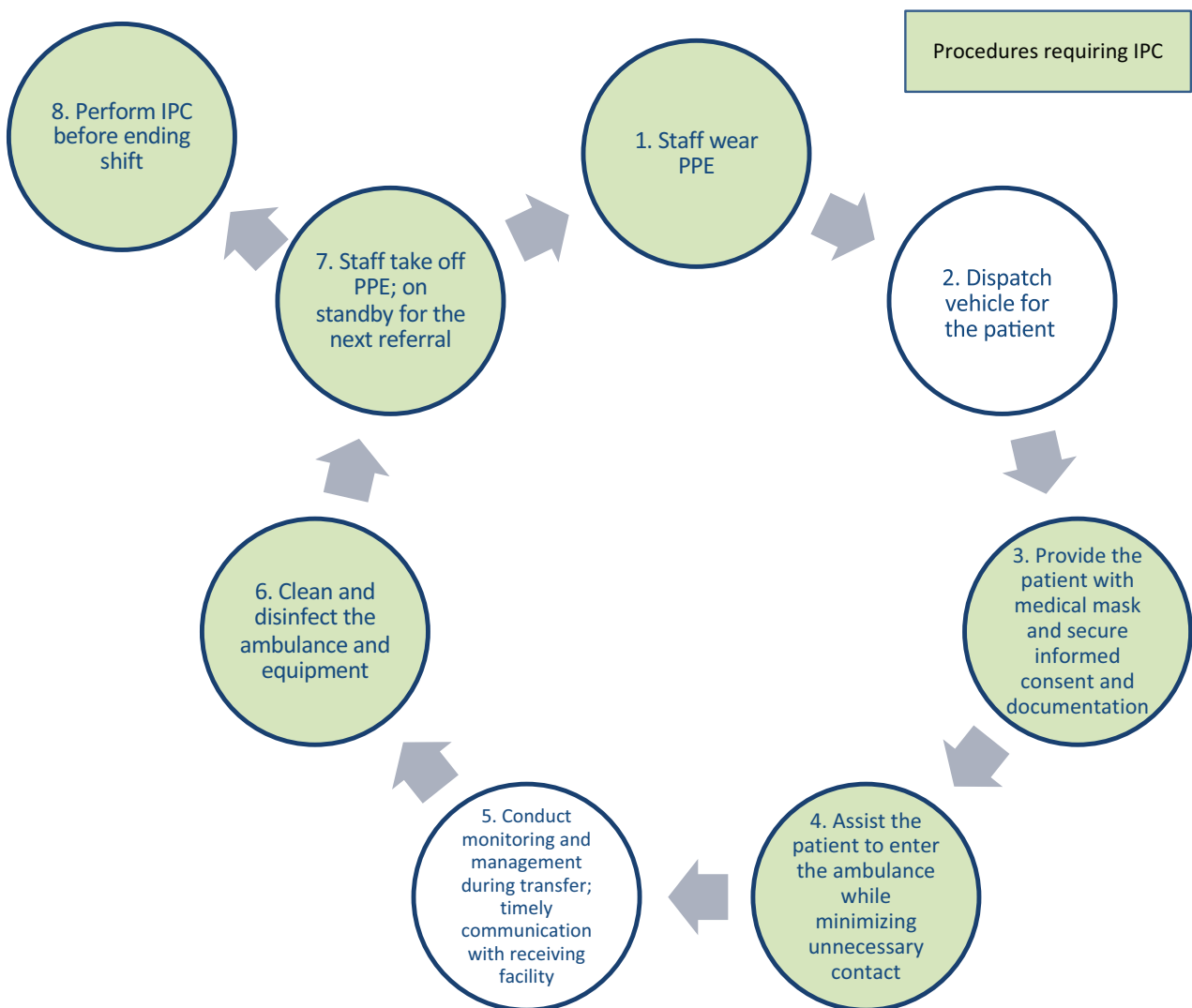
3.2 Guidance development methods

- This document was developed based on a review of WHO and national guidelines and was validated by expert opinions based on global, regional, country and field experiences. The guideline development group reached consensus on the recommendations through group discussion.

3.3 Declaration of interests

- Interests have been declared in line with WHO policy, and no conflicts of interest were identified from any of the contributors.

Fig. 1. Safe transfer workflow for staff (HCWs, driver)



Resources

Algorithm for COVID-19 triage and referral	Algorithm for COVID-19 triage and referral – Patient triage and referral for resource-limited settings during community transmission (interim guidance, 22 March 2020) https://iris.wpro.who.int/handle/10665.1/14502
WHO COVID-19 technical guidance	Advice on the use of masks in the community, during home care, and in health care settings in the context of COVID-19 (interim guidance, 19 March 2020) https://apps.who.int/iris/handle/10665/331493
WHO COVID-19 technical guidance	Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19) (interim guidance, 19 March 2020) https://apps.who.int/iris/handle/10665/331498
WHO COVID-19 technical guidance	Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected (interim guidance, 19 March 2020) https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125
China's national COVID-19 transfer guideline	Guideline for COVID-19 patient transfer and transport (interim guidance, 27 January 2020) [in Chinese] http://www.gov.cn/zhengce/zhengceku/2020-01/29/content_5472894.htm

