

Interim Infection Prevention and Control Recommendations for Suspected/ Confirmed Patients with 2019 Novel Coronavirus (2019-nCoV) in Healthcare Settings

(Modified from WHO and CDC guideline)

Background

Infection control procedures including

- Administrative rules and engineering controls,
- Environmental hygiene, correct work practices, and
- Appropriate use of Personal Protective Equipment (PPE)

All are necessary to prevent infections from spreading during healthcare delivery. Prompt detection and effective triage and isolation of potentially infectious patients are essential to prevent unnecessary exposures among patients, healthcare personnel, and visitors at the facility.

This guidance is not intended for non-healthcare settings (e.g., schools) OR to persons outside of healthcare settings.

Healthcare Personnel (HCP) – For the purposes of this guidance, HCP refers to all persons, paid and unpaid, working in healthcare settings engaged in patient care activities, including:

- Patient assessment for **triage**,
- Entering examination rooms or patient rooms to provide care or
- Clean and disinfect the environment,
- Obtaining clinical specimens,
- Handling soiled medical supplies or equipment, and
- Coming in contact with potentially contaminated environmental surfaces.

Recommendations

1. Minimize Chance for Exposures

To minimize exposures to respiratory pathogens including 2019-nCoV, following measures should be implemented

- Before patient arrival,
 - Upon arrival, and **During the Visit**
 - Throughout the duration of the affected patient's presence in the healthcare setting.
- **Before Arrival**
 - Instruct patients and accompanying persons to call ahead or inform HCP upon arrival if they have symptoms of any respiratory infection (e.g., cough, runny nose, fever) and

- To take appropriate preventive actions (e.g., wear a facemask, maintain cough etiquette).
- If a patient is arriving via transport, the driver should contact the healthcare facility (before the patient leave the transport) and
- Follow SOPs for transportation.
- **Upon Arrival and During the Visit**
 - **Take steps to ensure**
 - All persons with symptoms of suspected 2019-nCoV or other respiratory infection (e.g., fever, cough) adhere to respiratory hygiene and cough etiquette (i.e., place a facemask over the patient's nose and mouth if not done), hand hygiene, and triage procedures throughout the duration of the visit.
 - Consider posting visual alerts (e.g., signs, posters) at the entrance and in strategic places (e.g., waiting areas, elevators, cafeterias) to provide patients and HCP with instructions about using face mask, hand hygiene, respiratory hygiene, and cough etiquette.
 - **Ensure that patients-**
 - With symptoms of suspected 2019-nCoV or other respiratory infection (e.g., fever, cough) are not allowed to wait among other patients seeking care.
 - Identify a separate, well-ventilated space that allows waiting patients to be separated by 3-6 feet, with easy access to respiratory hygiene supplies.
 - Medically-stable patients might opt to wait in a personal vehicle where they can be contacted by mobile phone
 - **Ensure rapid triage and isolation**
 - Identify patients at risk
 - Implement triage procedures (at time of patient check-in, e.g., at the out-patient department (OPD) till it closes and then at emergency for rest of the hours) using screening questions-
 - Presence of symptoms (fever with cough/ sore throat/ headache/ difficulty in breathing)
 - Travel to China in last 14 days
 - Come in contact with any sick person with above symptoms
 - Implement respiratory hygiene and cough etiquette and isolate in an Airborne Infection Isolation Room (AIIR), if available.
 - Inform people as appropriate about the presence of a suspected patient.

- **Provide supplies** for respiratory hygiene and cough etiquette, including alcohol-based hand sanitizer (ABHS), tissues, no touch receptacles for disposal, and facemasks at
 - Healthcare facility entrances,
 - Waiting rooms,
 - Patient check-ins, etc.

2. Adherence to Standard, Contact, and Airborne Precautions, Including the Use of Eye Protection

Attention should be paid to training on correct use, proper donning (putting on) and doffing (taking off), and disposal of any PPE. All HCP who enter the room of a patient with known or suspected 2019-nCoV should adhere to Standard, Contact, and Airborne Precautions, including the following:

- **Known or suspected 2019-nCoV Patient Placement**
 - Place a patient with known or suspected 2019-nCoV in an AIIR (*if available*) (see below).
 - Patients should be isolated and barrier nursing with standard precaution should be practiced with use of PPE. Patient's facemask use should continue.
 - Pending transfer or discharge, place a facemask on the patient and isolate him/her in an examination room with the door closed.
 - If the patient does not require hospitalization they can be discharged to home (in consultation with local public health authorities as per SOPs) if deemed medically and socially appropriate and ask to follow home care management.
 - AIIR is preferred for hospitalized suspected cases.
 - Airborne Infection Isolation Rooms (AIIRs) (*if available*) are single patient rooms at negative pressure relative to the surrounding areas, and with a minimum of 6 air changes per hour (12 air changes per hour are recommended for new construction or renovation). Air from these rooms should be exhausted directly to the outside or be filtered through a high-efficiency particulate air (HEPA) filter before recirculation. Room doors should be kept closed except when entering or leaving the room, and entry and exit should be minimized. Facilities should monitor and document the proper negative-pressure function of these rooms.
 - If an AIIR is not available, patients requiring hospitalization should be transferred as soon as is feasible to a facility where an AIIR is available. Till that,
 - patients should be placed in adequately ventilated single rooms. For general ward rooms with natural ventilation, adequate ventilation is considered to be 60 L/s per patient;

- when single rooms are not available, patients suspected of being infected with nCoV should be grouped together;
- all patients' beds should be placed at least 1 m apart regardless of whether they are suspected to have nCov infection;

- Limit transport and movement of the patient outside of the AIIR. When not in an AIIR (e.g., during transport or if an AIIR is not available), patients must wear a facemask to contain secretions.
- Personnel entering the room should use PPE, including respiratory protection.
- Only essential personnel should enter the room. Implement staffing policies to minimize the number of HCP who enter the room.
 - Consider dedicated HCP to minimize risk of transmission and exposure to other patients and other HCP.
- Facilities should keep a log of all persons who care for or enter the rooms or care area of these patients.
- Use dedicated or disposable noncritical patient-care equipment (e.g., blood pressure cuffs). If equipment will be used for more than one patient, clean and disinfect such equipment before use on another patient according to instructions.
- HCP entering the room soon after a patient vacates the room should use respiratory protection. (See personal protective equipment section below)
- In addition, the room should undergo appropriate cleaning and surface disinfection before it is returned to routine use.

- **Hand Hygiene**

- HCP should perform hand hygiene before and after all patient contact, contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves.
- Hand hygiene can be performed by ABHS, or washing with soap and water for at least 20 seconds. If hands are visibly soiled, use soap and water.
- Healthcare facilities should ensure that hand hygiene supplies are readily available in every care location.

- **Personal Protective Equipment**

Employers should select appropriate PPE and provide it to HCP in accordance with standard. HCP must receive training on and demonstrate an understanding of

- when to use PPE;
- what PPE is necessary;

- how to properly don, use, and doff PPE in a manner to prevent self-contamination;
- how to properly dispose of or disinfect and maintain PPE and
- limitations of PPE.

Any reusable PPE must be properly cleaned, decontaminated, and maintained after and between uses. Facilities should have policies and procedures describing a recommended sequence for safely donning and doffing PPE.

- **Gloves**

- Perform hand hygiene, then put on clean, non-sterile gloves upon entry into the patient room or care area.
- Change gloves if they become torn or heavily contaminated.
- Remove and discard gloves when leaving the patient room or care area, and immediately perform hand hygiene.

- **Gowns**

- Put on a clean isolation gown upon entry into the patient room or area.
- Change the gown if it becomes soiled.
- Remove and discard the gown in a dedicated container for waste or linen before leaving the patient room or care area.
- Disposable gowns should be discarded after use.
- Cloth gowns should be laundered after each use.

- **Respiratory Protection**

- Use respiratory protection (surgical/medical mask or preferably N95 mask) before entry into the patient room or care area.
- Disposable respirators should be removed and discarded after exiting the patient's room or care area and closing the door. Perform hand hygiene after discarding the respirator.
- Staff should be trained in the proper use of respirators, safe removal and disposal, and medical contraindications to respirator use.

- **Eye Protection**

- Put on eye protection (e.g., goggles, a disposable face shield that covers the front and sides of the face) upon entry to the patient room or care area.
- Remove eye protection before leaving the patient room or care area.
- Reusable eye protection (e.g., goggles) must be cleaned and disinfected according to manufacturer's reprocessing instructions prior to re-use.
- Disposable eye protection should be discarded after use.

○ **Others**

- HCPs should refrain from touching eyes, nose or mouth with potentially contaminated gloved or bare hands;
- Avoid moving and transporting patients out of their room or area unless medically necessary. Use designated portable X-ray equipment and/or other designated diagnostic equipment.
- If transport is required, use predetermined transport routes to minimize exposure for staff, other patients and visitors, and have the patient using a medical mask;
- Ensure that HCPs who are transporting patients perform hand hygiene and wear appropriate PPE;
- Notify the area receiving the patient of any necessary precautions before the patient's arrival;
- Routinely clean and disinfect surfaces which the patient is in contact with;

Table: Recommendation type of personal protective equipment (PPE) to be used in context of COVID-19, according to the setting, personnel and type of activity. (According to WHO)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Healthcare facilities			
Inpatient facilities			
Patient room	Healthcare workers	Providing direct care to COVID-19 patients.	Medical mask Gown Gloves Eye protection (goggles or face shield).
		Aerosol-generating procedures performed on COVID-19 patients.	Respirator N95 or FFP2 standard, or equivalent. Gown Gloves Eye protection Apron
	Cleaners	Entering the room of COVID-19 patients.	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes
	Visitors ^b	Entering the room of a COVID-19 patient	Medical mask Gown Gloves
Other areas of patient transit (e.g., wards, corridors).	All staff, including healthcare workers.	Any activity that does not involve contact with COVID-19 patients.	No PPE required
Triage	Healthcare workers	Preliminary screening not involving direct contact ^c	Maintain spatial distance of at least 1 m. No PPE required
	Patients with respiratory symptoms.	Any	Maintain spatial distance of at least 1 m. Provide medical mask if tolerated by patient.
	Patients without respiratory symptoms.	Any	No PPE required
Laboratory	Lab technician	Manipulation of respiratory samples.	Medical mask Gown Gloves Eye protection (if risk of splash)
Administrative areas	All staff, including healthcare workers.	Administrative tasks that do not involve contact with COVID-19 patients.	No PPE required

Outpatient facilities			
Consultation room	Healthcare workers	Physical examination of patient with respiratory symptoms.	Medical mask Gown Gloves Eye protection
	Healthcare workers	Physical examination of patients without respiratory symptoms.	PPE according to standard precautions and risk assessment.
	Patients with respiratory symptoms.	Any	Provide medical mask if tolerated.
	Patients without respiratory symptoms.	Any	No PPE required
	Cleaners	After and between consultations with patients with respiratory symptoms.	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes
Waiting room	Patients with respiratory symptoms.	Any	Provide medical mask if tolerated. Immediately move the patient to an isolation room or separate area away from others; if this is not feasible, ensure spatial distance of at least 1 m from other patients.
	Patients without respiratory symptoms.	Any	No PPE required
Administrative areas	All staff, including healthcare workers.	Administrative tasks	No PPE required
Triage	Healthcare workers	Preliminary screening not involving direct contact ^c	Maintain spatial distance of at least 1 m. No PPE required
	Patients with respiratory symptoms.	Any	Maintain spatial distance of at least 1 m. Provide medical mask if tolerated.
	Patients without respiratory symptoms.	Any	No PPE required
Community			
Home	Patients with respiratory symptoms.	Any	Maintain spatial distance of at least 1 m. Provide medical mask if tolerated, except when sleeping.
	Caregiver	Entering the patient's room, but not providing direct care or assistance.	Medical mask
	Caregiver	Providing direct care or when handling stool, urine or waste from COVID-19 patient being cared for at home.	Gloves Medical mask Apron (if risk of splash)
	Healthcare workers	Providing direct care or assistance to a COVID-19 patient at home	Medical mask Gown Gloves Eye protection
Public areas (e.g., schools, shopping malls, train stations).	Individuals without respiratory symptoms	Any	No PPE required

Points of entry			
Administrative areas	All staff	Any	No PPE required
Screening area	Staff	First screening (temperature measurement) not involving direct contact ^a .	Maintain spatial distance of at least 1 m. No PPE required
	Staff	Second screening (i.e., interviewing passengers with fever for clinical symptoms suggestive of COVID-19 disease and travel history).	Medical mask Gloves
	Cleaners	Cleaning the area where passengers with fever are being screened.	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes
Temporary isolation area	Staff	Entering the isolation area, but not providing direct assistance.	Maintain spatial distance of at least 1 m. Medical mask Gloves
	Staff, healthcare workers	Assisting passenger being transported to a healthcare facility.	Medical mask Gown Gloves Eye protection
	Cleaners	Cleaning isolation area	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes
Ambulance or transfer vehicle	Healthcare workers	Transporting suspected COVID-19 patients to the referral healthcare facility.	Medical mask Gowns Gloves Eye protection
	Driver	Involved only in driving the patient with suspected COVID-19 disease and the driver's compartment is separated from the COVID-19 patient.	Maintain spatial distance of at least 1 m. No PPE required
		Assisting with loading or unloading patient with suspected COVID-19 disease.	Medical mask Gowns Gloves Eye protection
		No direct contact with patient with suspected COVID-19, but no separation between driver's and patient's compartments.	Medical mask
	Patient with suspected COVID-19 disease.	Transport to the referral healthcare facility.	Medical mask if tolerated
	Cleaners	Cleaning after and between transport of patients with suspected COVID-19 disease to the referral healthcare facility.	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes

Special considerations for rapid response teams assisting with public health investigations ^d			
Community			
Anywhere	Rapid response team investigators.	Interview suspected or confirmed COVID-19 patients or their contacts.	No PPE if done remotely (e.g., by telephone or video conference). Remote interview is the preferred method.
		In-person interview of suspected or confirmed COVID-19 patients without direct contact.	Medical mask Maintain spatial distance of at least 1 m. The interview should be conducted outside the house or outdoors, and confirmed or suspected COVID-19 patients should wear a medical mask if tolerated.
		In-person interview with asymptomatic contacts of COVID-19 patients.	Maintain spatial distance of at least 1 m. No PPE required The interview should be performed outside the house or outdoors. If it is necessary to enter the household environment, use a thermal imaging camera to confirm that the individual does not have a fever, maintain spatial distance of at least 1 m and do not touch anything in the household environment.

^aIn addition to using the appropriate PPE, frequent hand hygiene and respiratory hygiene should always be performed. PPE should be discarded in an appropriate waste container after use, and hand hygiene should be performed before putting on and after taking off PPE.

^bThe number of visitors should be restricted. If visitors must enter a COVID-19 patient's room, they should be provided with clear instructions about how to put on and remove PPE and about performing hand hygiene before putting on and after removing PPE; this should be supervised by a healthcare worker.

^cThis category includes the use of no-touch thermometers, thermal imaging cameras, and limited observation and questioning, all while maintaining a spatial distance of at least 1 m.

^dAll rapid response team members must be trained in performing hand hygiene and how to put on and remove PPE to avoid self-contamination.

- **Use Caution When Performing Aerosol-Generating Procedures**

- Some procedures performed on 2019-nCoV patients could generate infectious aerosols. In particular, procedures that are likely to induce coughing (e.g., sputum induction, open suctioning of airways) should be performed cautiously and avoided if possible.
- If performed, these procedures should take place in an AIIR (preferred) or in an adequately ventilated room and personnel should use respiratory protection as described above (N95 mask). In addition:
 - Limit the number of HCP present during the procedure.
 - Clean and disinfect procedure room surfaces promptly as described below.
- **Diagnostic Respiratory Specimen Collection**
 - Collecting diagnostic respiratory specimens (e.g., nasopharyngeal swab) are likely to induce coughing or sneezing.
 - These procedures should take place in an AIIR or in an examination room with the door closed.
 - Individuals in the room during the procedure should, ideally, be limited to the patient and the healthcare provider obtaining the specimen.
 - HCP collecting specimens for testing for 2019-nCoV from patients with known or suspected 2019-nCoV should adhere to Standard, Contact, and Airborne Precautions, including the use of eye protection.
- **Handling laboratory specimens from patients with suspected 2019-nCoV infection**
 - All specimens collected for laboratory investigations should be regarded as potentially infectious.
 - Place specimens for transport in leak-proof specimen bags (i.e., secondary containers) that have a separate sealable pocket for the specimen (i.e., a plastic biohazard specimen bag), with the patient's label on the specimen container (i.e., the primary container), and a clearly written laboratory request form;
 - Deliver all specimens by hand whenever possible. DO NOT use pneumatic-tube systems to transport specimens;
 - Document clearly each patient's full name, date of birth and suspected nCoV of potential concern on the laboratory request form.
 - Notify the laboratory as soon as possible that the specimen is being transported.
- **Duration of Isolation Precautions for suspected/confirmed 2019-nCoV patients**

- Until information is available regarding viral shedding after clinical improvement, discontinuation of isolation precautions should be determined on a case-by-case basis, in conjunction with local, state, and federal health authorities.
- Factors that should be considered include: presence of symptoms related to 2019-nCoV, date symptoms resolved, other conditions that would require specific precautions (e.g., tuberculosis, *Clostridioides difficile*), other laboratory information reflecting clinical status, alternatives to inpatient isolation, such as the possibility of safe recovery at home.

3. Manage Visitor Access and Movement Within the Facility

- **Restrict visitors** from entering the room of known or suspected 2019-nCoV patients
- Visitors to patients with known or suspected 2019-nCoV should be scheduled and controlled to allow for (if allowed) limited time:
 - Facilities should provide instruction, before visitors enter patients' rooms, on hand hygiene, limiting surfaces touched, and use of PPE while in the patient's room.
 - Facilities should maintain a record (e.g., log book) of all visitors who enter patient rooms.
 - Visitors should not be present during aerosol-generating procedures.
 - Visitors should be instructed to limit their movement within the facility.
 - Exposed visitors (e.g., contact with 2019-nCoV patient prior to admission) should be advised to report any signs and symptoms of acute illness to their health care provider for a period of at least 14 days after the last known exposure to the sick patient.
- All visitors should follow respiratory hygiene and cough etiquette precautions.

4. Implement Engineering Controls

- Consider designing and installing engineering controls to reduce or eliminate exposures by shielding HCP and other patients from infected individuals.
 - Examples of engineering controls include
 - Physical barriers or partitions to guide patients through triage areas,
 - Curtains between patients in shared areas,
 - Spatial separation of at least 1 meter should be maintained between all patients.
 - Adequate ventilation

- Closed suctioning systems for airway suctioning for intubated patients, as well as appropriate air-handling systems (with appropriate directionality, filtration, exchange rate, etc.) that are installed and properly maintained.

5. Monitor and Manage Ill and Exposed Healthcare Personnel

- Movement and monitoring decisions for HCP with exposure to 2019-nCoV should be made in consultation with public health authorities (as per SOPs).

6. Train and Educate Healthcare Personnel

- Provide HCP with training on preventing transmission of infectious agents, including refresher training.
- HCP must be medically cleared, trained, and fit tested for respiratory protection device use (e.g., N95).
- Ensure that HCP are educated, trained, and have practiced the appropriate use of PPE prior to caring for a patient, including attention to correct use of PPE and prevention of contamination of clothing, skin, and environment during the process of removing such equipment.

7. Implement Environmental Infection Control

- Dedicated medical equipment should be used for patient care.
- All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected according to manufacturer's instructions and facility policies.
- Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly.
- Routine cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying an hospital-grade disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product's label) are appropriate for 2019-nCoV in healthcare settings, including those patient-care areas in which aerosol-generating procedures are performed.
- Management of laundry, food service utensils, and medical waste should also be performed in accordance with routine procedures.

8. Establish Reporting within Healthcare Facilities and to Public Health Authorities

- Promptly alert key facility staff
- Promptly notify IEDCR of patients with suspected or known 2019-nCoV.
- Facilities should designate specific persons within the healthcare facility who are responsible for communication with public health officials and dissemination of information to HCP.