



# nCoVirus Clinical Care & Prevention GoP Guidelines

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nCoVirus Clinical Care & Prevention GoP Guidelines, 1<sup>st</sup> Feb 2020



## Background

An outbreak of a novel corona virus (2019-nCoV) was first reported from Wuhan, China, on 31 December 2019. With the rapidly evolving epidemiological situation, the WHO has now declared the outbreak to be a public health emergency of international concern (PHEIC). Early on, most patients most likely had animal-to-person spread, but now indications are that person-to-person spread is occurring. Most often, spread from person-to-person happens among close contacts (about 6 feet), mainly via respiratory droplets produced when an infected person coughs or sneezes. It's currently unclear if a person can get 2019-nCoV by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes. Typically, with most respiratory viruses, people are thought to be most contagious when they are most symptomatic (the sickest). With 2019-nCoV, however, there have been reports of spread from an infected asymptomatic patient.

Interim guidelines have been published by several public health stakeholders to guide the public and health care sectors on surveillance and management of this infection. As further information becomes available, these guidelines will be updated.

## Scope of this Document

This document aims to provide guidance for Healthcare facilities in Pakistan on the management of persons having infection with 2019-nCoV and their contacts.



## Case Definitions

### Suspected case:

Fever with Cough OR Shortness of Breath

AND either of the following

1. History of travel to or residence in the city of Wuhan, Hubei Province, China in the 14 days prior to symptom onset
2. Has had contact within close contact with a confirmed or suspected patient with 2019-nCoV within 14 days of symptom onset

### Probable case

A suspect case (as defined above) for whom testing for 2019-nCoV is inconclusive or tests have not been sent

### Confirmed case

A person with laboratory confirmation of 2019-nCoV infection, irrespective of clinical signs and symptoms.

## Outpatient Management

### Outpatient Infection Prevention Considerations

1. Facilities must identify points of entry where patients are likely to arrive.
  - 1.1. These typically include the emergency room, clinics (such as medicine, pulmonology, pediatrics)
2. Standard precautions should always be routinely applied in all areas of health care facilities.
3. Necessary PPE should be available at all times in the Outpatient department
  - 3.1. Standard precautions include hand hygiene; use of PPE to avoid direct contact with patients' blood, body fluids, secretions (including respiratory secretions) and non-intact skin.
  - 3.2. Standard precautions also include prevention of needle-stick or sharps injury; safe waste management; cleaning and disinfection of equipment; and cleaning of the environment
4. Early identification needs to be ensured when a patient with suspected infection arrives
  - 4.1. Sites of early identification include
    - 4.1.1. Triage area
    - 4.1.2. Unit receptionists



- 4.1.3. Physicians performing the first assessment
- 4.2. Health care workers at these sites must be instructed in the case definitions
  - 4.2.1. Limit number of persons working in the triage area
  - 4.2.2. A recording mechanism should be set up if possible. This may simply be a register with names, numbers and addresses of suspected patients
- 4.3. If a large number of patients are expected then a separate area should be set up away from other patients
5. Institute Droplet precautions as soon as a case is suspected
  - 5.1. Give the patient a surgical mask (worn with the blue side outwards) and direct patient to a separate area
  - 5.2. If a separate area is not possible, keep at least a one meter distance between suspected patients and other patients
  - 5.3. Instruct all patients to cover nose and mouth, during coughing or sneezing, with tissue or flexed elbow for others
  - 5.4. Perform hand hygiene after contact with respiratory secretions
  - 5.5. Healthcare workers should always also wear a surgical mask
6. Contact precautions for all patient contact
  - 6.1. Gowns must be worn during patient contact
7. If the patient is being held for observation, move to a separate room.
  - 7.1. If suctioning is not required, no special air handling in the room is needed (i.e there is no need for a negative pressure room)
  - 7.2. If suctioning will be required, place patient in negative pressure room (see section “Inpatient Infection Prevention Considerations”)

### Outpatient Management

1. Patients NOT meeting the case definition should be managed according to normal treatment protocols
2. Patients with suspected nCoV should have a viral nasopharyngeal swab sent
  - 2.1. If your institution does not have the facility for this test then send the sample to a designated laboratory
  - 2.2. See appendix one for details on how to take the samples
3. Initial investigations include
  - 3.1. CBC
  - 3.2. Blood cultures
  - 3.3. Chest X-ray, if symptomatic



- 3.4. Other investigations as indicated
4. If the patient is clinically stable, provide symptomatic care only
  - 4.1. Antibiotics are NOT indicated
  - 4.2. Suggest steam, antihistamines, plenty of fluids. Acetaminophen may be used to reduce fever
  - 4.3. Patients can go home with simple home instructions (appendix 2)
  - 4.4. Ask patient to return if they have shortness of breath or worsening symptoms
5. If the patient is unstable (e.g. has hypoxia, has shortness of breath, hypotensive) they should be admitted in the designated isolation rooms
  - 5.1. If isolation facility is not available, patients should be promptly shifted to a designated hospital
6. Decision to admit or discharge should be done as quickly as possible, once basic test results are back

## Inpatient Management

### Inpatient Infection Prevention Considerations

1. Areas should be designated where patients will be housed
2. For all areas
  - 2.1. Ensure either single-use and disposable or dedicated equipment (e.g., stethoscopes, blood pressure cuffs and thermometers) is present in each room
  - 2.2. If equipment needs to be shared, clean and disinfect it between use for each individual patient (e.g., by using ethyl alcohol 70%)
  - 2.3. Ensure adequate environmental cleaning consistently and correctly (HOW)
  - 2.4. Manage laundry, food service utensils and medical waste in accordance with safe routine procedures
  - 2.5. Avoid moving and transporting patients out of their room or area unless medically necessary
    - 2.5.1. Use designated portable X-ray equipment and/or other designated diagnostic equipment, whenever possible.
    - 2.5.2. If transport is required, use predetermined transport routes to minimize exposure for staff, other patients and visitors. Patient should use a medical mask during transport



- 2.5.3. Ensure that HCWs who are transporting patients perform hand hygiene and wear appropriate PPE
- 2.5.4. Notify the area receiving the patient of any necessary precautions as early as possible before the patient's arrival
3. Admitted patients WHO DO NOT REQUIRE SUCTIONING, should be placed under both Droplet and Contact precautions
  - 3.1. Single room is preferred
    - 3.1.1. If not available, patients can be housed together in a dedicated ward
    - 3.1.2. Maintain at least 1 meter distance between patients
  - 3.2. All health care workers must take the following precautions when entering the room/ward
    - 3.2.1. Wear surgical mask at all times
    - 3.2.2. Observe STRICT hand hygiene
    - 3.2.3. Avoid touching eyes or the mask
    - 3.2.4. Wear clean, long sleeve non-sterile gowns
    - 3.2.5. Remove PPE before leaving the room/ward and immediately perform hand hygiene
4. Admitted patients WHO REQUIRE SUCTIONING, should be placed under Airborne isolation with Contact precautions
  - 4.1. Single room isolation with negative pressure isolation
    - 4.1.1. If negative pressure isolation is not available then place in a room with ample ventilation. A fan facing away from the door, towards the outside of the building is encouraged if possible
      - 4.1.1.1. Do not place patient in a room in which air is recirculated (e.g. centrally air-conditioned area without special air handling)
  - 4.2. All health care workers must take the following precautions when entering the room
    - 4.2.1. Wear N-95 mask at all times
    - 4.2.2. Observe STRICT hand hygiene
    - 4.2.3. Avoid touching eyes or the mask
    - 4.2.4. Wear clean, long sleeve non-sterile gowns
    - 4.2.5. Remove PPE before leaving the room/ward and immediately perform hand hygiene
5. Patients can be moved out of isolation only when symptoms improve AND a repeat nasopharyngeal swab is negative





## Inpatient Management

1. Give supplemental oxygen therapy immediately to patients with SARI and respiratory distress, hypoxaemia, or shock.
2. Use conservative fluid management in patients with SARI when there is no evidence of shock.
3. Give empiric antimicrobials to treat likely pathogens causing SARI. Give antimicrobials within one hour of initial patient assessment for patients with sepsis.
4. Do **not** routinely give systemic corticosteroids for treatment of viral pneumonia or ARDS outside of clinical trials, unless they are indicated for another reason
5. Closely monitor patients with SARI for signs of clinical deterioration, such as rapidly progressive respiratory failure and sepsis
  - 5.1. Apply supportive care interventions immediately
6. Understand the patient's co-morbid condition(s) to tailor the management of critical illness and appreciate the prognosis.
7. Manage hypoxemic respiratory failure and ARDS
  - 7.1. Recognize severe hypoxemic respiratory failure when a patient with respiratory distress is failing standard oxygen therapy.
    - 7.1.1. High-flow nasal oxygen (HFNO) or non-invasive ventilation (NIV) should only be used in selected patients with hypoxemic respiratory failure.
    - 7.1.2. The risk of treatment failure is high and patients treated with either HFNO or NIV should be closely monitored for clinical deterioration.
  - 7.2. Endotracheal intubation should be performed by a trained and experienced provider using airborne precautions.
    - 7.2.1. Implement mechanical ventilation using lower tidal volumes (4–8 ml/kg predicted body weight, PBW) and lower inspiratory pressures (plateau pressure <30 cmH<sub>2</sub>O).
    - 7.2.2. In patients with severe ARDS, prone ventilation for >12 hours per day is recommended
    - 7.2.3. Use a conservative fluid management strategy for ARDS patients without tissue hypoperfusion
    - 7.2.4. In patients with moderate or severe ARDS, higher PEEP instead of lower PEEP is suggested



7.2.5. In patients with moderate-severe ARDS ( $\text{PaO}_2/\text{FiO}_2 < 150$ ), neuromuscular blockade by continuous infusion should not be routinely used.

## 8. Management of septic shock

### 8.1. Recognize septic shock in adults

8.1.1. Infection is suspected or confirmed AND vasopressors are needed to maintain mean arterial pressure (MAP)  $\geq 65$  mmHg AND lactate is  $\geq 2$  mmol/L, in absence of hypovolemia.

### 8.2. Recognize septic shock in children

8.2.1. Hypotension (systolic blood pressure [SBP]  $< 5$ th centile or  $> 2$  SD below normal for age) or 2-3 of the following: altered mental state; tachycardia or bradycardia (HR  $< 90$  bpm or  $> 160$  bpm in infants and HR  $< 70$  bpm or  $> 150$  bpm in children); prolonged capillary refill ( $> 2$  sec) or warm vasodilation with bounding pulses; tachypnea; mottled skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia.

### 8.3. In resuscitation from septic shock in adults

8.3.1. Give at least 30 ml/kg of isotonic crystalloid in adults in the first 3 hours.

### 8.4. In resuscitation from septic shock in children

8.4.1. Give 20 ml/kg as a rapid bolus and up to 40-60 ml/kg in the first 1 hr.

8.5. Do not use hypotonic crystalloids, starches, or gelatins for resuscitation

8.6. Administer vasopressors when shock persists during or after fluid resuscitation.

8.6.1. The initial blood pressure target is MAP  $\geq 65$  mmHg in adults and age-appropriate targets in children.

8.6.2. If central venous catheters are not available, vasopressors can be given through a peripheral IV, but use a large vein and closely monitor for signs of extravasation and local tissue necrosis. If extravasation occurs, stop infusion.

8.6.3. Vasopressors can also be administered through intraosseous needles.

8.6.4. If signs of poor perfusion and cardiac dysfunction persist despite achieving MAP target with fluids and vasopressors, consider an inotrope such as dobutamine.



9. Pregnant women with suspected or confirmed 2019-nCoV infection should be treated with supportive therapies as described above, taking into account the physiologic adaptations of pregnancy.
  - 9.1. Emergency delivery and pregnancy termination decisions are challenging and based on many factors: gestational age, maternal condition, and fetal stability.
  - 9.2. Consultations with obstetric, neonatal, and intensive care specialists (depending on the condition of the mother) are essential.

## Management of Contacts

### Case definition

#### Close contacts (high-risk exposure)

A close contact of a probable or confirmed 2019-nCoV case is defined as any of the following:

1. A person living in the same household as a 2019-nCoV case
2. A person having had face-to-face contact or having been in a closed environment with a 2019-nCoV case
3. A healthcare worker or other person providing direct care for a 2019-nCoV case, or laboratory workers handling 2019-nCoV specimens; if contact was without appropriate PPE
4. A contact in an aircraft sitting within two seats (in any direction) of the 2019-nCoV case, travel companions or persons providing care, and crew members serving in the section of the aircraft where the index case was seated

#### Casual contacts (low-risk exposure)

A casual contact of a probable or confirmed 2019-nCoV case is defined as any of the following:

1. An identifiable person having had casual contact with an ambulant 2019-nCoV case
2. A person having stayed in an area presumed to have ongoing, community transmission.

### Managements of Contacts

#### Close contacts (high-risk exposure)

1. Inform the local health focal person to initiate active monitoring



- 1.1. Daily monitoring for 2019-nCoV symptoms, including fever of any grade, cough or difficulty breathing; will be done by the health authorities for 14 days from last contact
2. Instruct the contact to:
  - 2.1. Avoid social contact
  - 2.2. Avoid travel
  - 2.3. Remain reachable for active monitoring

#### Casual contacts (low risk exposure)

1. Inform the local health focal person
2. Instruct the person:
  - 2.1. To self-monitor for 2019-nCoV symptoms, including fever of any grade, cough or difficulty breathing, for 14 days from last exposure
  - 2.2. Immediately self-isolate and contact health services in the event of any symptom appearing within 14 days.
  - 2.3. If no symptoms appear within 14 days of last exposure the contact person is no longer considered to be at risk of developing 2019-nCoV disease.

#### Facility Infection Prevention Readiness

1. Each facility to identify a dedicated and trained team or at least an IPC focal point supported by the national and facility senior management.
2. Each facility to ensure at minimum requirements for IPC as soon as possible
  - 2.1. If not done, facilities are encouraged to use the WHO IPC framework to assess their facility. This can be found at <https://www.who.int/infection-prevention/tools/core-components/IPCAF-facility.PDF>
  - 2.2. Hand hygiene should be performed using an alcohol-based disinfectant or with soap and water. If soap and water is used handwashing must be done for 20 seconds
3. The team in charge of the preparedness must ensure
  - 3.1. Education is provided to patients' caregivers
  - 3.2. Policies are developed for the early recognition of acute respiratory infection potentially caused by 2019-nCoV
  - 3.3. Access to prompt laboratory testing for identification of the etiologic agent
  - 3.4. Dedicated waiting areas for symptomatic patients are established
  - 3.5. Hospitalized patients are adequately isolated

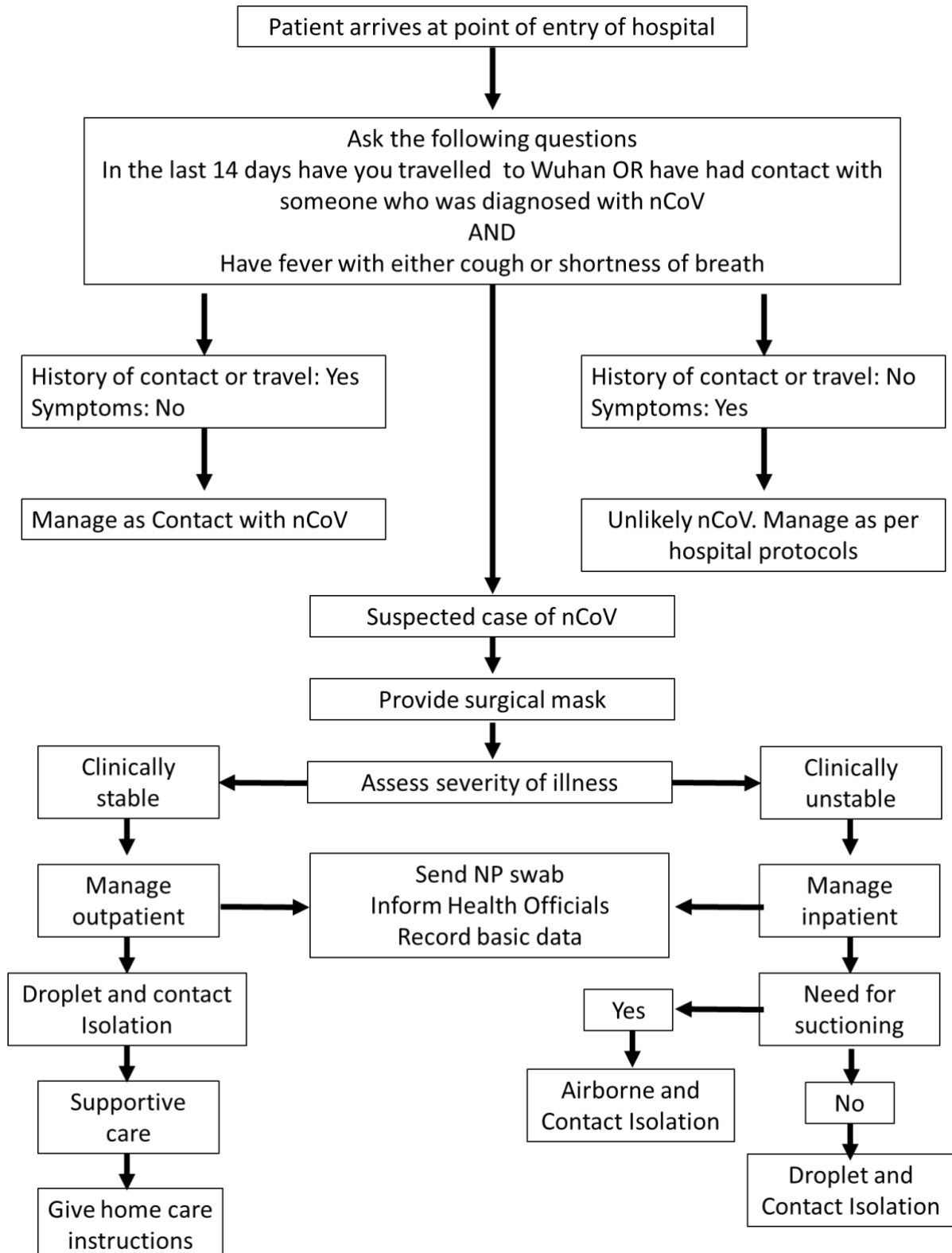


- 3.6. Adequate supplies of PPE
- 3.7. Adherence of IPC policies and procedures
- 3.8. Provision of adequate training for HCWs
- 3.9. Adequate patient-to-staff ratio
- 3.10. HCWs and the public understand the importance of promptly seeking medical care
- 3.11. Compliance of HCW with standard precautions and providing mechanisms for improvement as needed



## Appendices

### Appendix 1: Algorithm for case management of patient arriving with suspected nCoV





## Appendix 2: Standard Operating Procedure (SOP) for Collection, Storage & Transportation of Specimens for Novel Coronavirus Diagnosis

### 1. Materials Needed

1.1 Dacron or polyester flocked swabs

1.2 Tongue depressor (for Oropharyngeal swab)

1.3 Vial with Viral Transport Medium (VTM)

1.4 Pen/marker

1.1 Dacron or polyester flocked swabs

1.2 Tongue depressor (for Oropharyngeal swab)

1.3 Vial with Viral Transport Medium (VTM)

1.4 Pen/marker

1.5 Scissor

1.6 Disposable gloves

1.7 Lab coat

1.8 N95 mask

1.9 Goggles or face shield

1.10 Specimen transport container with ice packs

1.11 Specimen label and form

1.12 Biohazard bags

1.13 Tissues

1.14 Soap and water

### 2. Roles/Responsibilities

2.1 A trained staff is responsible for collecting specimens and ensuring all vials are labeled appropriately.



### 3. Procedure

#### 3.1 Safety requirements and PPE

3.1.1 Wear disposable gloves and change gloves after each patient.

3.1.2 Wash or sanitize hands before putting on and after removing gloves.

3.1.3 Wear an N95 mask to minimize exposure to infection during specimen collection.

3.1.4 Follow standard precautions and any additional precautions specific to the setting or patient.

3.1.5 Dispose of all contaminated waste (gloves, paper, swab handles, etc.) into biohazard waste bags for disposal.

#### 3.2 Timing

3.2.1 Nasopharyngeal (NP) and Oropharyngeal (OP) swabs should be collected as soon as possible after enrollment.

3.2.2 The NP swab for VTM should be collected first, followed by the OP swab. Both swabs will be placed in the same vial of VTM. **Note:** Placing the NP & OP swabs in the same tube increases the viral load.

#### 3.3 Nasopharyngeal swab

3.3.1 Explain the procedure to the patient. Emphasize the importance of remaining still during specimen collection to minimize discomfort.

3.3.2 Position the patient in a comfortable position.

3.3.3 Tilt the patient's head back at a 70 degree angle (see figure below).





3.3.4 Remove the flocked swab from its protective package

3.3.5 Insert the swab into one nostril horizontally (not upwards) and continue along the floor of the nasal passage for several centimeters until reaching the nasopharynx (resistance will be met). The distance from the nose to the ear gives an estimate of the distance the swab should be inserted.

3.3.6 Do not force the swab. If obstruction is encountered before reaching the nasopharynx, remove the swab and try the other side.

3.3.7 Rotate the swab gently through 180 degrees to make sure adequate specimen is obtained. Leave the swab in place for 2-3 seconds to ensure absorbance of secretions.

3.3.8 Remove swab and immediately place into vial with VTM by inserting the swab at least ½ inch below the surface of the media. Cut the excess swab handle to fit the transport medium vial and reattach the cap securely.

### 3.4 Oropharyngeal swab

3.4.1 Ask the patient to open his/her mouth.

3.4.2 Press the outer two-thirds of the tongue down with a tongue depressor, making the tonsils and the posterior wall of the throat visible.

3.4.3 Insert swab, avoiding touching the teeth, tongue, or the depressor.

3.4.4 Rub the swab over both tonsillar pillars and posterior oropharynx. This will cause the patient to gag briefly.



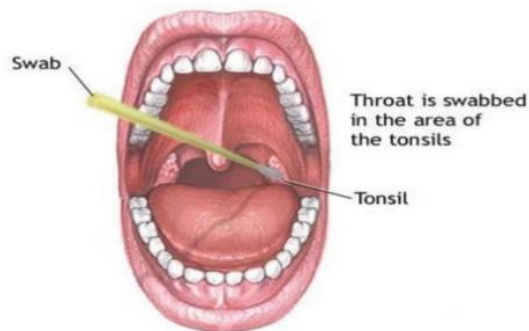
3.4.5 Place the swab into the vial containing VTM (same vial as the first NP swab).

3.4.6 Cut the excess swab handle to fit the transport medium vial and reattach the cap securely.

3.4.7 Carefully label specimen with patient ID number, and date and time of specimen collection.

3.4.8 Complete specimen tracking log with patient ID number, date and time of specimen collection.

3.4.9 Place specimen in cool box on ice. Sample transport and storage condition are given in Table 1.



3.5 Sample transportation of suspected 2019 NCoV samples

3.5.1 Important: Transfer specimen with tracking log to the laboratory as soon as possible. Ensure that personnel who transport specimens are trained in safe handling practices and spill decontamination procedures.

3.5.2 Follow the requirements in the national or international regulations for the transport of dangerous goods (infectious substances) as applicable.

3.5.3 Deliver all specimens by hand whenever possible. Do not use pneumatic-tube systems to transport specimens.

3.5.4 Notify the National Reference laboratory (Department of Virology, PHLD, NIH Islamabad) as soon as possible that the specimen is being transported.



Table1. Specimen transport and storage

Specimen	Transport to laboratory	Storage till testing	Comments
Nasopharyngeal and Oropharyngeal swab	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	The nasopharyngeal and oropharyngeal swabs should be placed in the same tube to increase the viral load.
Bronchoalveolar lavage	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	
Sputum	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	Ensure the material is from the lower respiratory tract
(Endo)tracheal aspirate, nasopharyngeal aspirate or nasal wash	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	

References: Laboratory testing for 2019 novel corona virus (2019-nCoV) in suspected human cases. WHO/2019-nCoV/laboratory/2020.3

**Note:** In hospitalized patients with confirmed 2019-nCoV infection, repeat upper and lower respiratory tract samples should be collected to demonstrate viral clearance. The frequency of specimen collection will depend on local circumstances but should be at least every 2 to 4 days until there are two consecutive negative results (both URT and LRT samples if both are collected) in a clinically recovered patient, at least 24 hours apart. If local infection control practice requires two negative results before removal of droplet precautions, specimens may be collected as often as daily.



## Appendix 3: Home Care Recommendation for Patients with Suspected or Confirmed 2019 novel Coronavirus (2019-nCoV)

- What is Corona Virus?

2019 Novel Coronavirus (2019-nCoV) is a virus identified as the cause of an outbreak of respiratory illness

Given your recent travel or contact with someone who has travelled, there is chance you may have caught this virus

- What precautions do I need to take at home?

Stay in a well-ventilated single room

Limit the movement within the house

Avoid shared spaces

Use surgical mask at all times. If the mask gets wet or dirty with secretions, it must be changed immediately

Cover your mouth with a tissue when coughing or sneezing and immediately throw the tissue

Keep your hands clean by using soap and water or an alcohol disinfectant

- What precautions do people taking care of me take?

Only healthy people with no other health issues should take care of you

The caregiver should wear a surgical mask when in the same room with you

The masks should not be touched or handled during use

Throw the mask away after use.

Clean their hands using soap and water or an alcohol disinfectant after taking the mask off

- What precautions do the people I live with need to take?

Avoid visitors while you have symptoms

Household members should stay in a different room or if that is not possible, maintain a distance of at least 1 meter

Hand must be cleaned before and after preparing food, before eating, after using the toilet, and whenever hands look dirty.

- What should I do if any person I have met develops symptoms?

Have the persons contact your local doctor to be checked

- Do I need to make any special arrangements at home?

Dust bins should be lined with plastic bags and the bags tied before throwing

Use a diluted solution (1-part household bleach to 99 parts water) to clean bedside bathroom, toilet surfaces tables, bedframes, and other bedroom furniture once a day

Place used linen in a laundry bag. Do not shake soiled laundry and avoid direct contact of the skin and clothes with the contaminated material.



Wash clothes, bedclothes, bath and hand towels, etc. using regular laundry soap and water or machine wash at 60–90 °C with common household detergent, and dry thoroughly.