GOVERNMENT OF KHYBER PAKHTUNKHWA
HEALTH DEPARTMENT

No. E&A/Health/2-65/2020
Dated Peshawar, the 15th April, 2020

To

1. The Director General, Health Services, Khyber Pakhtunkhwa.
2. All District Health Officers in Khyber Pakhtunkhwa.
3. All Medical Superintendents in Khyber Pakhtunkhwa.
4. All Hospital Directors in all MTIs in Khyber Pakhtunkhwa.

Subject: **COVID-19 POLICY, PROCEDURES & MANAGEMENT GUIDELINES.**

I am directed to refer to subject noted above and to enclose herewith a copy of COVID-19 Policy, Procedures & Management Guidelines prepared by the Clinical Care Committee of the Health Department Govt of Khyber Pakhtunkhwa for information and compliance.

Encl: As above:

Yours faithfully,

15/4/2020

(Farhan Khan)
Section Officer (General)

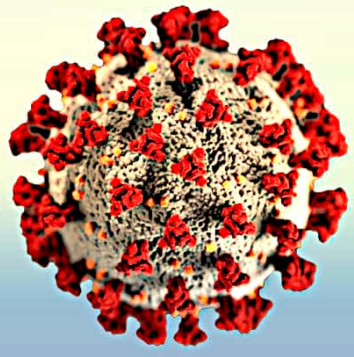
Endst: No. & date even:

Copy is forwarded to the:

1. COVID-19 Clinical Care Committee, Health Department
2. Chief Executive Officer, Health Care Commission with the request to circulate the same to all Head of Private Hospital in Khyber Pakhtunkhwa.
3. PS to Secretary Health Khyber Pakhtunkhwa.
4. PS to Special Secretary, Health Department.
5. PA to Addl: Secretary (E), Health Department.
6. PA to DS (A), Health Department.

15/4/2020

Section Officer (General)



COVID-19

POLICY, PROCEDURES & MANAGEMENT GUIDELINES

PROVINCIAL COVID-19 CLINICAL CARE COMMITTEE
HEALTH DEPARTMENT, KHYBER PAKHTUNKHWA

PROVINCIAL COVID-19 CLINICAL CARE COMMITTEE

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1. INTRODUCTION AND BACKGROUND

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease was first identified in December 2019 in Wuhan, the capital of China's Hubei province, and has since then spread globally. The WHO declared the 2019–20 coronavirus outbreak a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 and a pandemic on 11 March 2020. Local transmission of the disease has been recorded in many countries across all six WHO regions.

Common symptoms include fever, cough, fatigue, muscle pain initially, followed by shortness of breath at later stages. Other uncommon symptoms may include, sore throat, Runny Nose/Congestion, Anorexia, Loss of smell and taste sensation, Vomiting and Diarrhea. While the majority of cases result in mild symptoms, some may progress to viral pneumonia and multi-organ failure. As of 7 April 2020, more than 1.34 million cases have been reported in more than 200 countries and territories, resulting in more than 74,800 deaths. More than 277,000 people have recovered.

The virus mainly spread during close contact and by small droplets produced when those infected cough, sneeze or talk. People may also become infected by touching a contaminated surface and then their face. The virus can survive on surfaces for some time.

It is most contagious during the first three days after onset of symptoms, although spread may be possible before symptoms appear and in later stages of the disease. The time from exposure to onset of symptoms is typically around five days, but may range from two to 14 days. The standard method of diagnosis is by real-time reverse transcription polymerase chain reaction (RT-PCR) from a nasopharyngeal swab. The infection can also be diagnosed from a combination of symptoms, risk factors and a chest CT scan showing features of pneumonia.

2. PURPOSE

i. To provide guidance regarding management of suspected and confirmed cases of COVID-19 in timely and effective manner

ii. To describe the necessary measures/steps before arrival, upon arrival and throughout the duration of the affected patients stay in the health care facilities

iii. To elaborate the infection prevention and control precautions as per approved standards and according to our local setup.

3. SURVEILLANCE CASE DEFINITION

3.1 Suspected Case

- A patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath), AND a history of travel to or residence in a location reporting community transmission of COVID-19 disease during the 14 days prior to symptom onset.

OR

- A patient with any acute respiratory illness AND having been in contact with a confirmed or probable COVID-19 case (see definition of contact) in the last 14 days prior to symptom onset.

OR

- A patient with severe acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g. cough, shortness of breath; AND requiring hospitalization) AND in the absence of an alternative diagnosis that fully explains the clinical presentation.

3.2 Probable Case

- A suspect case for whom testing for the COVID-19 virus is inconclusive, "inconclusive" being the result of the test reported by the laboratory.

OR

- A suspect case for whom testing could not be performed for any reason.

3.3 Confirmed Case

A person with laboratory confirmation (PCR) of COVID-19 infection, irrespective of clinical signs and symptoms.

4. DEFINITION OF CONTACT

A contact is a person who experienced any one of the following exposures during the 2 days before and the 14 days after the onset of symptoms of a probable or confirmed case:

Face-to-face contact with a probable or confirmed case within 1 meter and for more than 15 minutes;

Direct physical contact with a probable or confirmed case;

Direct care for a patient with probable or confirmed COVID-19 disease without using proper personal protective equipment

OR

Other situations as indicated by local risk assessments.

Note: For confirmed asymptomatic cases, the period of contact is measured as the 2 days before through the 14 days after the date on which the sample was taken which led to confirmation.

4.1 Low Risk Exposure

- Health Care workers is unprotected (No PPE or inappropriate us of PPE) and Distance from source patient is more than 1.5 meter and time duration of exposure is less than 15 minutes.

OR

- A HCP having Face to Face contact within 1 meter for less than 15 min

OR

- A HCP who was in a closed environment (e.g. patient room, hospital waiting room, etc.) with a COVID-19 case for more than 30 minutes.

Note: The 15-minute limit is arbitrarily selected for practical purposes. Based on individual risk assessments, public health authorities may consider expanding contact tracing and management to persons who had a shorter duration of contact with a case.

4.2 High Risk Exposure

Health care worker is unprotected (having no PPE)

i. **Indirect contact:**

- Face to Face contact within 1 meter for more than 15 min

OR

- Was in a closed environment (e.g. patient room, hospital waiting room, etc.) with a COVID-19 case for 30 minutes or more and at a distance of less than 1.5 metres

ii. **Direct Contact:**

- Having had direct physical contact with a COVID-19 case (e.g. shaking hands)

OR

- Having unprotected direct contact with infectious secretions of a COVID-19 case (e.g. being coughed on, touching used paper tissues with a bare hand

OR

- Laboratory workers handling specimens from a COVID-19 case without recommended PPE or with a possible breach of PPE [3]

5. DEFINITION OF HEALTHCARE PERSONNEL (HCP)

For the purposes of this guidance, HCP refers to all persons, paid and unpaid, working in health-care setting engaged in patient care activities, including patient assessment for triage, entering examination rooms or patients 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.

6. TESTING FOR COVID 19

i. Testing should be performed using PCR of a nasopharyngeal swab.

ii. Serology (IgM/IgG tests) are NOT recommended as primary means for diagnosis. A negative IgM/IgG must be confirmed with a PCR.

iii. Priority for testing is given to persons with high risk exposure. These definitions will change as the outbreak progresses and testing capabilities are expanded.

iv. Any person who shows signs and symptoms suggestive of COVID-19 irrespective of exposure type

Note: Test only if there is strong suspicion (at physician discretion)

7. Policy

i. Measures should be implemented before patient's arrival, upon arrival, and throughout the duration of the affected patient's presence in the healthcare settings.

ii. Ensure facility policies and practices related to IPC, Waste management and Patient Safety are in place to minimize exposures to respiratory pathogens including COVID-19.

iii. The managers of health care facilities are to ensure that the contingency plans related to mass emergencies are updated as per WHO guidelines. Link to the site is : https://www.who.int/publications-detail/hospital-emergency-response-checklist

iv. The managers to ensure that all the employees are well trained and educated for the implementation of the contingency plan and are having updated certification regarding Infection prevention and control orientation.

v. The IPC nurse or any other assigned staff for this purpose has to identify and trace all COVID 19 exposed employees and ensure that all the IPC recommendations are followed appropriately.

vi. Each and every person visiting hospital (Staff, Patient, attendant, supplier, construction site employee etc.) must be screened through station 1 (visual triage appendix 1) at the entry point of hospital.

vii. Attendants of the admitted patients must be screened through station 4 (orange station) each

time they make entry to the hospital after their initial triage at station 1.

viii. Each and every healthcare facility/fever clinic has to strictly follow COVID-19 SOPs.

ix. Managers of the health care facilities are to ensure that relevant PPEs for health care workers including ambulance staff is readily available in sufficient quantity.

x. The managers of the healthcare facilities to ensure that there is no delay in procurement process for the purchase of required PPE and other items required for infection prevention and control. The Supply chain management system to be followed strictly to ensure availability of required items.

xi. Each and every health care facility must maintain a stock pile according to the items stored separately for mass emergencies. All items must be reviewed on regular basis as per storage standards, expiry logs.

xii. The managers are to ensure availability of all mass emergency items, before reaching to the threshold of buffer supply.

xiii. The infection prevention and control team if any or any other assigned staff for the same purpose of the health care facilities or fever clinic is to ensure that all principles for infection prevention control are appropriately followed.

xiv. The concerned doctor dealing with suspected or confirmed case, to immediately fill the contact list at the end of case reporting form so that the field Surveillance teams are alerted and active surveillance for symptoms is done as per the national recommendations

8. PROCEDURE

8.1 Infection Prevention And Control (IPC)

The principles of infection prevention and control strategies associated with health care in suspected or confirmed COVID-19 are:

i. Early recognition and source control.

ii. Application of Standard Precautions for all patients.

iii. Implementation of empiric additional precautions (droplet and contact and whenever applicable airborne precautions) for suspected cases.

iv. Administrative controls.

v. Environmental and engineering controls.

8.2 Early recognition and source control

i. Encourage HCPs to have a high level of clinical suspicion.

ii. Activation of respiratory triage (see Appendix 1)

iii. Place awareness posters/signage reminding symptomatic patients to alert HCPs.

iv. Promotion of respiratory hygiene is an important preventative measure.

v. Suspected COVID-19 patients should be placed in an area separate from other patients, and additional IPC (droplet and contact) precautions promptly implemented.

8.3 Application of Standard Precautions for all patients

i. Correct and consistent use of available PPE and appropriate hand hygiene.

ii. Perform hand hygiene after contact with a patient or respiratory secretions.

iii. Performance/effectiveness depends on adequate and regular supplies

iv. Adequate staff training and specifically appropriate human behaviour.

v. Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly. Thorough cleaning of environmental surfaces with water and detergent and applying commonly used hospital level disinfectants (such as sodium hypo chlorite) is an effective and sufficient procedure.

vi. Manage laundry, food service utensils and medical waste in accordance with same standard procedures.

vii. Prevention of needle sticks or sharps injury.

viii. Ensure the following respiratory hygiene measures:

- Offer a medical mask for suspected COVID-19 infection for those who can tolerate it.
- Cover nose and mouth during coughing or sneezing with tissue or flexed elbow for others.
- Provide supplies for respiratory hygiene and cough etiquette, including 60%-95% alcohol-based hand sanitizer (ABHS), tissues, no touch receptacles for disposal, and facemasks at healthcare facility entrances, waiting rooms, patient's check-ins, etc.
- Inform Infection Prevention and Control department if any or assigned staff for the same purpose and other healthcare facility staff as appropriate about the presence of a person under investigation for COVID-19.

8.4 Implementation of Empiric Additional Precautions

Contact and Droplet Precautions for Suspected COVID-19 Infection:

In addition to standard precautions, all individuals, including family members, visitors and HCPs should apply the following (Contact and Droplet) precautions.

i. Place patients in adequately ventilated single rooms.

ii. When single rooms are not available, cohort patients suspected of COVID-19 infection together (place patient beds at least 1.2 meter apart, when possible, cohort HCPs to exclusively care for cases to reduce the risk of spreading transmission due to inadvertent infection control breaches).

iii. Use a medical face mask

iv. Use an eye/facial protection (i.e. goggles or a face shield) based on risk assessment for any specific procedure.

v. Use gloves and clean non sterile long sleeved isolation gown.

vi. Use either single use disposal equipment's or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect between each patient use (e.g. ethyl alcohol 70%).

vii. Refrain from touching eyes, nose or mouth with potentially contaminated hands.

viii. Avoid the movement and transport of patients out of the room or area unless medically necessary.

ix. Use designated portable X-ray equipment and/or other important diagnostic equipment.

x. If transport is required; use pre-determined transport routes to minimize exposures to staff, other patients and visitors and apply medical mask to patient.

xi. Ensure that HCPs who are transporting patients wear appropriate PPE as described in this section and perform hand hygiene.

xii. Notify the receiving area of necessary precautions as soon as possible before the patient's arrival.

xiii. Routinely clean and disinfect patient-contact surfaces.

xiv. Limit the number of HCPs family members and visitors in contact with a patient with suspected COVID-19 infection.

xv. Maintain a record of all persons entering the room of patients including all staff and visitors.

Airborne precautions for aerosol-generating procedures for suspected COVID-19 infection:

Some aerosol generating procedures have been associated with increased risk of transmission of corona viruses (SARS-CoV and MERS-CoV) such as tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation and bronchoscopy. HCPs performing aerosol generating procedures should note the following:

i. Use a fit tested particulate respirator (certified N95).

ii. Always perform the seal-check when putting on a disposable particulate respirator (certified N95).

iii. HCP after performing seal-check if found that all available types of (N95) are not fit to him/her, must be excluded from aerosol-generating procedures or use PAPR.

iv. Facial hair (beard) prevents proper respiratory fit; either avoid aerosol-generating procedures or use PAPR if available otherwise alternate arrangement to be made by covering the head and face up to upper chest by using specially designed hood having a face shield.

v. Use eye protection (i.e. goggles or a face shield).

vi. Clean, non-sterile, long-sleeved gown and gloves, if gowns are not fluid resistant, use a waterproof apron for procedures with expected high fluid volumes that might penetrate the gown.

vii. Perform procedures in negative pressure rooms with at least 12 air changes per hour (ACH) and controlled direction of air flow when using mechanical ventilation, or in case of having no facility of negative pressure room facility, the procedure should be performed in a well-ventilated room with fans facing windows to blow the air outwards in addition to exhaust fans.

viii. Limit the number of persons present in the room to the absolute minimum required for the patient's care and support.

8.5 Administrative Controls

i. HCPs training on patient's caregiver's education.

ii. Policies on early recognition of acute respiratory infection potentially due to COVID-19.

iii. Access to prompt laboratory testing for identification of the etiologic agent.

iv. Prevention of overcrowding especially in Emergency department, COVID-19 related clinical areas and at the point of entries

v. Provision of dedicated waiting areas with clear signage of "Respiratory Waiting Area for symptomatic patient and appropriate placement of hospitalized patients promoting adequate patient to staff ratio.

vi. Provision and use of regular supplies.

vii. IPC policies and procedures for all facets of healthcare provisions with emphasis on surveillance of acute respiratory infection potentially due to COVID-19 among HCPs and the importance of seeking medical care.

8.6 Implementation of Engineering Controls

i. Consider designing and installing engineering controls to reduce or eliminate exposures by shielding HCP and other patients form infected individuals. Examples of engineering controls include physical barriers or partitions to guide patients through triage areas, partition between patients in shared areas,

ii. 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.

iii. Separate flow for infected and clean supplies

iv. Hand wash facilities at appropriate places

v. Solid and liquid waste disposal mechanisms

vi. Negative pressure rooms

vii. HEPA filters at all intake and outlet ducts

9. COVID-19 SUSPECTED CASES PATHWAY

9.1 Health Care Facility Entry Point - Visual Triage Area (Station 1)

Well signed and readily identified triage area for segregation of suspected cases will be established at the entry point of the hospital. It will comprise of Triage staff

a) One staff member for scoring

b) One assistant staff

c) Triage staff must be following infection and prevention control precautions (PPE , hand sanitizers and keeping appropriate distance from patients)

Note: Visual Triage area's to be increased, according to flow of patients.

Triage staff will evaluate every patient / attendant / visitor / staff visiting health care facility by asking questions specified in visual triage check list (appendix-I) and segregate them according to triage score .

a) Triage score <3: Refer them to main hospital

b) Triage score >3:

- Assurance
- Educating regarding precautionary measures.
- Providing precautionary Kit
- Escorting / referring them to station 2 at isolation area.

9.2 Isolation waiting Area (Station 2)

i. One way route

ii. Well signed (directions and awareness posters)

iii. Well ventilated with fans facing windows if no Hepa- filters/ negative pressure facility.

iv. Seating arrangement

a) At distance of 1.5 meter apart

b) Facing opposite to each other

v. Segregated Toilet if possible with regular disinfection protocols.

vi. Hand sanitizers

vii. No permission of attendants, visitors and non- assigned staff

viii. Well manned at appropriate distance for controlling non-assigned staff.

9.3 Isolation Assessment/Screening Room (Station 3)

i. Patients waiting at station 2 will be called as per their turn and assessed by doctor for secondary triage.

ii. The doctor will clinically assess the patient and evaluate him/ her for

a) Initial immediate treatment if required

b) Existing medical illness / co-morbidity

c) Need of Nasopharyngeal swab based on national policy

d) Admission or discharge for home isolation

iii. The doctor will also fill case reporting form for onward submission in case of suspected COVID 19

iv. The station 3 must be fulfilling the following requirements

a) one way route

b) Well signed

c) Well ventilated with fans facing windows if no negative pressure facility.

d) Designated Oxygen supply, suction machine, hand sanitizers, appropriate PPE as per indications, Infrared thermometer, stethoscope, BP apparatus tongue depressors, Swabs & blood sampling kits, Tissue Box, Sharps and waste disposal bins, hand sanitizers.

e) Designated examination stretcher for patients.

f) Designated shifting trolley, wheel chairs

g) All items must be regularly cleaned.

h) Designated exit route for contaminated Items.

9.4 Isolation Admission Rooms/wards (Station 4)

i. Well signed

ii. Well ventilated with fans facing windows if no negative pressure facility.

iii. Designated Oxygen supply, suction machine, appropriate PPE as per indication, Face Shields, Gloves, Infrared thermometer, BP apparatus, pulse oximeter, stethoscope, tongue depressors, Swabs & blood sampling kits, Tissue Box, portable X-ray machine, Sharps and waste disposal bins.

iv. In ward beds to be kept at 2 meter apart.

v. Infection prevention and control precautions to be followed strictly.

9.5 Isolation ICU (Station 5)

i. Well signed

ii. Beds kept at 2 meter distance.

iii. Well ventilated with fans facing windows if no negative pressure facility

iv. Designated Oxygen supply, suction machine, PPE, N-95, Face Shields, Gloves, Infrared thermometer, BP apparatus, stethoscope, Pulse oximeter, ABG Machine, tongue depressors, Swabs & blood sampling kits, Tissue Box, portable X-ray machine, Sharps and waste disposal bins.

v. Infection prevention and control precautions to be followed strictly.

10. CLINICAL CLASSIFICATION OF SUSPECTED OR CONFIRMED COVID-19 PATIENTS

Patients can be classified into asymptomatic, mild, moderate & severe based on their presentation.

10.1 Asymptomatic

Nasopharyngeal RT- PCR positive for SARS CoV2 but having no symptoms

10.2 Mild

Presence of symptoms consistent with COVID such as fever, fatigue, cough (with or without sputum production), anorexia, malaise, muscle pain, sore throat, dyspnoea, nasal congestion, or headache without any hemodynamic compromise, No Hypoxia or chest x-ray findings.

10.3 Moderate

Hypoxia (oxygen saturation ≤ 94% on room air) or few infiltrate on chest x-ray. Persistent high-grade fever for over 3 days.

10.4 Severe

Shortness of breath with hypoxia with moderate to severe pneumonia without meeting the criteria for critical disease.

10.5 Critical

Presence of any of the following with COVID 19 in adults:

i. Respiratory rate > 30 breaths/min
ii. Severe respiratory distress (can't speak in sentences)
iii. Central cyanosis
iv. Confusion, agitation, restlessness
v. CURB 3 or 4 score
vi. qSOFA score of 2 or more (1 point each for GCS <15, Systolic BP < 100, Respiratory rate more than or equal to 22).
vii. Widespread infiltrates on CXR
viii. Oxygen requirement > 6 L/min for maintaining SpO2 ≥93%
ix. PaO2/FiO2 ratio less than 300, or PaO2 less than 65 or Rising PaCo2
x. Evidence of heart failure (Raised JVP, Gallop rhythm)
xi. Signs of shock: Delayed capillary refill; Cold, clammy peripheries; Mottled skin; Systolic BP less than 90 or less than 40mm Hg of baseline in hypertensive; Urine output < 0.5 ml/kg/hr

10.6 Guidelines for Outpatient Department

Before attendance at outpatients (Triage outpatient appointments)

Once patients are redirected from Visual Triage to out patients Clinics, the Medical officers of the filter clinic at the entry point of OPD will take following steps:-

i. Triage the patients for nature of illness and urgent need for specialist review.
   i.i Those suffering from minor illness will be treated at filter clinic and discharged home.

i.ii Those patients visiting for elective procedures and having no new symptoms or complications will be evaluated and discharged home for new appointment.

i.iii Patients visiting for review clinic of specialist will be evaluated in light of his previous prescription and current clinic features.

a) Those feeling better with previous prescription and showing no new symptoms will be advised to continue the same medicines.

b) Those showing new symptoms or not feeling better with the previous management/ prescription will be evaluated for:-

- Management by specialist via phone or email (tele medicine) consultation.
- Referred to specialist clinic in OPD.

Entrance to OPD

i. Provide separate entrances for all OPD patients totally segregated from the pathway of COVID 19 patients by establishing physical barriers (if feasible), to minimize contact with the COVID-19 clinical areas.

ii. Following are Important considerations for the general OPDs required for functionalization of out patients clinics:-

a) Proper awareness posters/ instructions

b) Crowd control management

c) Well ventilated clinical areas

d) Safe distancing

e) Frequent surfaces disinfection

f) Hand Hygiene facilities

g) Proper PPE for the staff

h) Waste management plan

i) Only essential investigations and avoid crowding at laboratory /radiology (avoid common radiology with COVID-19 or do proper decontamination after every patient)

j) Where possible DEVELOP a proper telemedicine system to avoid hospital visits

10.7 Criteria for admission of suspected or confirmed Covid-19 patients

Asymptomatic and mild cases

Asymptomatic/mild cases can be managed at home as such will be discharge on home isolation with discharge instruction card /leaf let subject to fulfilling the home isolation criteria.

Criteria for home isolation include (must fulfil all of the below)

i. Those with a separate room to stay in complete isolation.

ii. Those consenting for isolation

iii. Patients with mild or asymptomatic disease who do not have adequate home arrangements or do not consent to stay at home should be shifted to a dedicated isolation facility (as opposed to a hospital) However, the following should be considered for hospital admission for observation if resources allow.

iv. Immunosuppressed (e.g. HIV, on long term steroids or other immunosuppression)

v. Age greater than or equal to 65 years

vi. Co-morbid conditions: Heart Failure, Decompensated Liver Disease, Structural Lung diseases,

Uncontrolled Diabetes, Chronic Kidney Disease, malignant disease

vii. If the patients cannot be admitted then clear instructions must be given to call if symptoms are worsening.

Moderate, severe and critical disease admitted to a hospital facility

In case of symptomatic patients, the concerned physicians will evaluate the patient for admission according to triage score, physical assessment keeping in view curb-65 criteria score mentioned below.

CURB-65	CLINICAL FACTORS	POINTS
C	Confusion	1
U	Urea (BUN > 19 mg/dl)	1
R	Respiratory Rate ≥30	1
B	SBP <90 mmHg OR DBP <60 mmHg	1
65	Age ≥65	1

CURB-65 SCORE	RISK GROUP	30-DAYS MORTALITY	MANAGEMENT
0-1	1	1.5%	Low Risk, Consider Home treatment
2	2	9.2%	Probably admission vs. close out patient management
3-5	3	2.2%	Admission, manage as severe case

In case of severe disease prefer a centre with a high dependency unit/ICU. For patients who are critical (and if possible severe disease) preferably place in a negative pressure room (if available) especially if aerosol generating procedure(s) are anticipated.

Note: Clinicians should be alert to the possibility of atypical presentations in patients who are immune compromised.

11. MANAGEMENT

11.1 Management of Asymptomatic and Mild Disease

Mild cases should be treated with supportive care only. This includes acetaminophen (Paracetamol) for fever, oral hydration in case of diarrhoea and anti-histamines for rhinorrhoea.

There is a theoretical risk with the use of NSAIDS or ACE-inhibitors in COVID-19. However, clinical data regarding this is lacking and at this point, a strong recommendation to avoid these medications cannot be made.

No specific treatment (including chloroquine or hydroxychloroquine) is recommended for asymptomatic or mild disease. There is no role of prophylactic chloroquine or hydroxychloroquine at this time.

11.2 Management of Moderate Disease

The management of the patient having moderate disease depends upon triage level, clinical features and examination findings along with diagnostic findings. Following investigations are recommended:

Investigations

The following investigations should be done in all patients

- CBC
- Electrolytes
- Urea, creatinine

- Chest X-ray

Additional investigations may include the following (depending on clinical condition & availability)

- CRP (repeated if any evidence of clinical worsening)
- LDH Lactate
- Ferritin
- D-Dimers, Trop I
- ECG (if age >40 or other comorbidities or if clinically indicated)
- Other cardiac enzymes if indicated
- Liver function tests,
- Renal profile
- Procalcitonin
- Blood cultures and any other relevant cultures

Treatment

Supportive therapy with oxygen via nasal cannula, Paracetamol for fever control and intravenous fluids if needed should continue.

In case of lobar infiltrates, antibiotics may be considered especially if associated with high white count or elevated Procalcitonin.

There is no current evidence from studies to recommend any specific anti-COVID-19 treatment for patients with suspected or confirmed COVID-19 infection. Based on the best available evidence, treatment with either of the following can be started:

a) **Chloroquine** 500 mg BD for 10 days

b) **Hydroxychloroquine sulphate** 200 mg, three times per day for 10 days

On therapy, QT-interval must be monitored; especially if other medications are being administered which prolong the QT-interval. These drugs are contraindicated in patients with Epilepsy and G6PD Deficiency.

11.3 Management of Severe and Critical Disease

The management of the severe and critical patients depends upon triage level, clinical features and examination findings along with diagnostic reports.

Investigations

Initial investigations and supportive care should proceed as in moderate disease. Additional investigations may be required according to the respiratory status of the patient, including arterial blood gases and lactate levels.

Treatment

i. Empiric antibiotics may be considered if a secondary bacterial pneumonia is suspected (e.g. if raised white blood cell counts or elevated Procalcitonin).

ii. Manage co-morbidities as per established standard protocols. In patients with ARDS who are intubated, use conservative fluid management.

iii. Oxygen therapy to target peripheral oxygen saturations (SpO2) of ≥90 percent. (See sections on Oxygen therapy, NIV & HFNC below).

iv. Appropriate use of Non-invasive ventilation & High flow nasal cannula as indicated.

v. Consider proning the awake non-intubated patient if oxygenation targets are not met.

vi. Prophylactic anticoagulation with LMWH if there are no contraindications.

vii. Selected patients may be considered for therapeutic anticoagulation especially if high tropinins & rising D-dimer levels.

viii. Evaluate for cardiac dysfunction as myocarditis is a frequently observed finding in COVID 19 patients.

ix. Do not give high-dose systemic corticosteroids or other adjunctive therapies.

x. Implement mechanical ventilation using lower tidal volumes (4–8 mL/kg predicted body weight, PBW) and lower inspiratory pressures (plateau pressure < 30 cmH2O).

xi. Finally, if expertise is available, in adults with severe ARDS, prone ventilation for 12–16 hours per day is recommended.

Oxygen therapy

The following oxygen delivery systems can be utilised to achieve targets:

i. Simple nasal cannula: Up to 6 Litres per minute.

ii. Higher flows of oxygen may be administered using a simple face mask, venturi face mask, or nonrebreather mask (eg, up to 10 to 20 L/minute).

iii. Nonrebreather masks can provide FiO2 of up to 70-80%.

iv. High flow oxygen delivery devices place a strain on oxygen supplies with the risk that site supply failure may occur. This can be difficult to predict, even if the pressure and total flow are known.

v. Eliminate waste by ensuring oxygen flow meters and high-flow devices are switched off when not attached to patients.

Non-invasive ventilation (NIV) (BiPAP/ CPAP)

For some patients, CPAP or NIV will form the appropriate ceiling of treatment. Identify these patients early to prevent inappropriate escalation to invasive support.

NIV may be used in selected patients & under very close observation. A low threshold should be kept for intubation if a patient is not responding to NIV as delaying intubation could worsen outcomes.

Additionally, NIV should ideally be applied in negative pressure rooms with staff wearing full PPEs as it can generate aerosols. Where resources are limited, special & separate bays may be designated for NIV use where confirmed or suspected patients can be kept. The staff should again be wearing full PPEs.

High flow nasal cannula (HFNC)

Selected patients with hypoxemia unresponsive to oxygen therapy alone can be considered for HFNC subject to availability.

Caution: High flows can generate aerosols & would need the same precautions as NIV

Indications for ICU admission and intubation/ Ventilation

i. Decision of intubation based on hospital policy, patient fitness and directives of the patient and family.

ii. Increasing oxygen requirement more than 40% FiO2 or 10 litre via nonrebreather mask to maintain oxygen saturations above 92% or PaO2 more than 60 mmHg.

iii. Respiratory rate more than 25 breaths/min or visible respiratory distress.

iv. Type II respiratory failure.

v. Low GCS < 9/15 - inability to maintain airway.

vi. Shock and multi organ failure requiring vasopressors or renal support.

Ventilation strategy

i. Time limited trial of early NIV/CPAP for patients requiring more than 40% FiO2.

ii. Start with basic mode of ventilation.

iii. Lung protective ventilation.

iv. Early prone positioning if FiO2 equal or more than 60% plus PEEP 10 and unable to maintain PaO2 more than 60 mmHg or SpO2 90%.

Specific Treatment

There is no current evidence from studies to recommend any specific anti-COVID-19 treatment for patients with suspected or confirmed COVID-19 infection. Based on the best available evidence, treatment with either of the following can be started:

a) **Chloroquine** 500mg BD for 10 days; OR

b) **Hydroxychloroquine sulphate** 200 mg, three times per day for 10 days

In addition other treatment options, which may be considered, include:

a) Intravenous **Remdesivir**

b) Loading dose on the first day of 200 mg followed by a maintenance dose of 100 mg once daily for 5 to 10 days

c) Intravenous **Tocilizumab**

d) 4-8 mg/kg loading Single maximum dose 800 mg.

e) Repeat once after 12 hours (same dosage) if the response to the first dose was poor, maximum two cumulative doses

f) Tab **Lopinavir/Ritonavir** 400/100mg BID 14 days

However these medications have considerable adverse effects, have limited availability and unclear efficacy. Consultation with an Infectious Diseases Specialist is mandatory prior to prescribing.

11.4 Discontinuation of isolation

Isolation precautions can be discontinued once all the following conditions have been met:

i. Resolution of fever for 3 days without the use of antipyretics

ii. Improvement in respiratory symptoms (e.g., cough, shortness of breath)

iii. Two consecutive negative PCR tests collected one day apart

Repeat PCR testing should be done 5 days after resolution of the symptoms. If the patient is still positive, a repeat sample should be obtained 5 days later.

Patients, who are asymptomatic, should have repeat testing 7 days from the first sample sent.

12. MENTAL HEALTH & PSYCHOSOCIAL CONSIDERATIONS

The most important point, as per the guidelines of World Health Organization, is to integrate mental health and psychosocial aspects into all response activities. In this context:

i. All frontline workers, especially the healthcare personnel, should be trained (online, if face to

face is not possible) on psychological first aid and how to make referrals when needed. A referral pathway for persons with mental health conditions should be established.

ii. There should be a strategy addressing fear, stigma and negative coping mechanisms. The strategy should be considerate of COVID-19 cases, their family members, frontline workers including healthcare personnel and the broader community, addressing the needs of vulnerable groups, e.g. children, older adults etc.

12.1 For General Population

i. They should stay safe and support others and find opportunities to amplify positive and hopeful stories.

ii. They should honour the carers and healthcare personnel who are working with people affected with COVID-19.

iii. Since constant stream of news about an outbreak can cause anyone to feel worried, they should minimize watching, reading or listening to news about COVID-19. Information must be sought only from trusted sources and updated only once or twice a day. Follow official recommendations and avoid rumours and misinformation.

12.2 For Healthcare Personnel

i. This pandemic calls a need for practicing doctors. Physicians and doctors should cooperate to attend their duties in these times when their help and contribution is needed the most.

ii. Sufficient rest and respite during work or between shifts, healthy food, exercise, and contact with family and friends must be ensured, maintaining physical distancing. Feelings of stress should not be considered an indication of weakness or inability to do the job. Managing mental health during this time is as important as managing physical health.

iii. During stress, using strategies that have worked in the past to manage times of stress can be benefited from even now.

iv. They should ensure provision of support to people with existing mental health issues, and who are now affected by COVID-19, since the stigma associated with mental health problems may cause reluctance to seek support for both COVID-19 and mental health conditions.

13. ENVIRONMENTAL CLEANING AND DISINFECTION

i. Assign designated task specific staff, with training as per task for cleaning and disinfection of clinical areas

ii. Use checklist for the assigned task to promote accountability for cleaning responsibilities

iii. The assigned staff must wear appropriate PPE and follow IPC precautions.

iv. Give special attention to frequently touched surfaces e.g. Bed railings, bed side and over bed tables, door knobs, commodes, ventilator and monitor surfaces in addition to floor and horizontal surfaces

v. Wipe external surfaces of portable equipment for performing X-ray and other procedures in clinical areas

vi. Use dedicated and colour coded mops, brushes and wipers for separate areas.

vii. DO NOT use Broom

viii. In case of aerosol generating procedure example intubation clean and disinfect horizontal surfaces around the patient soon after the procedure.

13.1 How to clean the floor

i. Two-bucket SYSTEM (Routine Cleaning): One bucket contains a detergent or cleaning solution and the other contains rinse water

ii. Three-bucket system (for disinfection) : one bucket contains the detergent or cleaning solution one contains rinse water and one the disinfectant or disinfectant solution.

iii. Heavily contaminated surfaces and items require more frequent and thorough environmental cleaning than moderately contaminated surfaces.

iv. High touch surfaces also require frequent cleaning

- Conduct visual preliminary site assessment to see if supplies are adequate, any issues need to be addressed or if something needs to be replaced.
- Proceed from clean to dirty: clean low touch surface before cleaning high touch surface to ensure appropriate disinfection
- Proceed from high to low: clean environmental surfaces before cleaning floors
- Proceed in a methodical / systemic manner

13.2 Decontamination Of Surfaces and Equipment:

i. Clean and disinfect daily surfaces that are frequently touched where the patient is being cared.

ii. Regular household soap or detergent should be used first for cleaning , and then, after rinsing , regular household disinfectant containing 0.5% sodium hypochlorite (i.e. equivalent to 5000 pm or 1 part bleach to 9 parts water) should be applied.

iii. Assign expert cleaners for cleaning and disinfection.

iv. Provide training in advance regarding the decontamination procedure and monitor the procedure

v. PPE must be worn prior to cleaning in appropriate manner.

vi. Clean surfaces that are to be disinfected with detergent and water

vii. Use squeeze bottles to pour disinfectant on surfaces that are to be disinfected

viii. Allow appropriate contact time

ix. Meticulously wipe impermeable surfaces with disposable towels or cloths soaked with

x. Clean the patient's clothes, bed linen, and bath and hand towels using regular laundry soap and water or machine wash at 60-90 C with common household detergent, and dry thoroughly. Place contaminated linen into a laundry bag. Do not shake soiled laundry and avoid contaminated materials coming into contact with skin and clothes.

xi. Discard permeable surfaces such as textured material and replace or immerse in 0.05% (500 ppm) sodium hypochlorite solution for 30 min.

xii. Allow area to get ventilated and wipe all surfaces again with towels soaked in water

xiii. After use, utility gloves should be cleaned with soap and water and decontaminated with 0.5% sodium hypochlorite solution. Single-use gloves (e.g., nitrile or latex) should be discarded after each use. Perform hand hygiene before and after removing gloves.

13.3 Spill clean-up procedure

In the event of a spill of infectious material, use following spill clean-up procedure.

i. Leave area and demarcate it

ii. Wear gloves and protective clothing, including overall, shoe covers, face and eye protection.

iii. Cover the spill with cloth or gauze or paper towels if spill kit is not available to contain the spill and avoid spreading of it.

iv. Clean using neutral detergent and water

v. Pour an appropriate disinfectant over the paper towels/gauze and the immediately surrounding area generally, 5% bleach solutions are appropriate.

vi. Apply disinfectant concentrically beginning at the outer margin of the spill area, working toward the center.

vii. After the appropriate amount of time (e.g. 30 min), clear away the materials.

viii. If there is broken glass or sharp involved, use a dustpan or a piece of stiff cardboard to collect the material and deposit it into a puncture-resistant container and send for incineration.

ix. Clean and disinfectant the area of the spillage(can repeat the above mentioned procedur

x. After cleaning up, document it with complete history as an incident and inform the Infection prevention and control department or any assigned staff/authorities regarding the decontamination of the area.

13.4 Handling of Contaminated laundry

i. Employees treating laundry should wear appropriate PPE 86

ii. Contaminated linen should be put into a laundry bag directly in the isolation room or area with minimal manipulation, to avoid contamination of air, surfaces and people.

iii. Conduct regular monitoring of laundering procedures

iv. Contaminated textiles and fabrics are placed into bags or other appropriate containment in this location; these bags are then securely tied or otherwise closed to prevent leakage.

v. Use covered cart for transportation of contaminated laundry

vi. Maintain the receiving area for contaminated textiles at negative pressure compared to the clean areas of the laundry

vii. Bags containing contaminated laundry must be clearly identified with labels, color-coding, or other methods so that health-care workers handle these items safely, regardless of whether the laundry is transported within the facility or destined for transport to an off-site laundry service.

viii. Washing and drying linen and laundry should be performed according to routine standards and procedures of the health-care facility. High-temperature laundering should be performed at 70C for at least 25 min using detergent or disinfectant. Low-temperature laundering (<70C) should be performed using chemical agents at proper concentrations. If the process of proper collection, transportation, classification, and storage is not possible, laundry items should be discarded in compliance with medical waste treatment procedures.

14. GUIDELINES FOR MANAGEMENT OF HEALTH-CARE PERSONNEL EXPOSED TO COVID – 19

14.1 Management Of Exposure To Covid-19 In Healthcare Facilities

Healthcare Personnel exposed to a COVID-19 case:

The decision to permit a Healthcare Personnel to resume his/her duties after an exposure to COVID-19 should be individualized; infection Control team if any or assigned staff for the same purpose will be ultimately responsible for taking that decision.

The following are general guidelines but management will depend on the infection control risk assessment team or any other staff assigned for the purpose:

Asymptomatic Healthcare Personnel with protected exposure (e.g. with a tear in PPE OR inappropriate doffing) OR unprotected low-risk exposure (more than 1.5 meters of the patient):

i. Testing Healthcare Personnel for COVID-19 is not recommended.

ii. Healthcare Personnel can continue their duties.

iii. Healthcare Personnel shall be assessed daily for 14 days post exposure for the development of symptoms.

iv. Healthcare Personnel should delay travel until cleared by infection control team or any assigned staff.

v. Health Care worker if develop relevant symptoms will be managed as mentioned below.

Asymptomatic Healthcare Personnel with protected exposure OR unprotected low risk exposure are considered **CLEAR** if they:

a) Remain asymptomatic;

AND

b) The observation period is over (14 days post exposure)

Healthcare Personnel who had unprotected high-risk exposure (within 1.5 meters of the patients) or have suggestive symptoms regardless of exposure type:

i. Healthcare Personnel shall stop performing their duties immediately.

ii. Testing (Nasopharyngeal swabs) for COVID-19 is required. (as per current national testing guidelines policy mentioned above).

iii. Healthcare Personnel shall not resume their duties and remain isolated for 14 days

iv. Delay travelling until cleared by infection control team or any team assigned for the same purpose in light of de-isolation policy.

14.2 De-isolation Guidelines

Healthcare Personnel who is Symptomatic and Positive for COVID-19

i. Will remain in isolation till his symptoms resolve

ii. If the symptoms resolves, will stay for five days more in isolation and repeat PCR test on the fifth day of symptoms resolution and continue his isolation for observation.)

iii. If PCR is negative then the patient will be declared clear by the infection prevention and control team or any other staff assigned for the same purpose..

iv. If PCR remains positive it will be repeated after 5 days again and If PCR is negative then the patient will be declared clear by the infection prevention and control team or any other staff assigned for the same purpose.

Healthcare Personnel who is Asymptomatic and Positive for COVID-19

i. Will remain in isolation for observation for the period of 14 days.

ii. If he remains asymptomatic, repeat PCR test on day 7 of the first confirmed test.

iii. If the test is negative, HCP will be declared cleared by the infection prevention and control team or any assigned staff for the same purpose and can be released from isolation.

iv. Once declared cleared HCP can resume duty if the health care facility is in need of staff, otherwise health care worker will resume the duty after completing initial 14 days of isolation

v. However If the HCP develops symptoms before the 2nd test to be repeated at day 7, HCP will continue isolation till the symptoms are resolved.

vi. Once the symptoms resolves, HCP will stay for five days more in isolation.

vii. Repeat PCR test on the fifth day of symptoms resolution and continue his isolation for observation.

viii. If PCR is negative then the patient will be declared clear by the infection prevention and control team or any other staff assigned for the same purpose.

Non COVID-19 Patients exposed to a COVID-19 case

Patients can be exposed to COVID-19 patients prior to diagnosis or due to the failure of implementing recommended isolation precautions.

The following are general guidelines for the patients sharing the same room (any setting e.g. Ward with shared beds, open ICU, open emergency unit, etc.) with a confirmed case of COVID-19 for at least 30 minutes, but management will depend on the infection control risk assessment team or any other assigned staff for the same purpose.

i. Testing (Nasopharyngeal swabs or deep respiratory sample if incubated) for COVID-19 is required (preferably 48 hours after the exposure) and should be reported on case report form as a suspect.

ii. Patients should be observed daily for symptoms for 14 days after exposure.

iii. If negative on initial testing, exposed patients should be retested with RT-PCR if they develop symptoms suggestive of COVID-19 with the follow up period.

iv. Patients discharged during the follow up period must be reported to Public Health Department to continue monitoring for symptoms.

14.3 Community Or Travel-Associated Exposures For Hcp

Health care worker with potential exposures to confirmed case of COVID-19 in community settings should have their exposure risk assessed.

They shall be managed according to the risk category mentioned above they fall in.

14.4 Return To Work Practices And Work Restrictions

After returning to work, HCP should follow de-isolation policy:

i. Wear a facemask at all times while in the healthcare facility until all symptoms are completely resolved or until 14 days after illness onset, whichever is longer.

ii. Be restricted from contact with severely immunocompromised patients until 14 days after illness onset.

iii. Adhere to hand hygiene, respiratory hygiene, and cough etiquette (e.g., cover nose and mouth when coughing or sneezing, dispose of tissues in waste bins).

iv. Self-monitor for symptoms, and seek re-evaluation if respiratory symptoms recur or worsen.

14.5 Monitor And Manage Off Days Of Exposed Healthcare Personnel

Facilities and organizations providing healthcare should implement sick leave policies for HCP that

are non-punitive, flexible, and consistent with public health guidance.

Guidelines for Patient Contact MANAGEMENT

i. People in contact with affected patient are at high risk of being affected; as such following step will be taken by the concerned doctor:-

a) Fill the contact list at the end of case reporting form so that the field Surveillance teams are alerted and active surveillance for symptoms is done as per the national recommendations

14.6 Train And Educate Healthcare Personnel

i. Provide HCP with job- or task-specific education and training on preventing transmission of infectious agents, including refresher training.

ii. HCP must be medically cleared, trained, and tested for respiratory protection device use (e.g. N95 filtering face piece respirators), or medically cleared and trained in the use of an alternative respiratory protection device (e.g. Powered Air-Purifying Respirator, PAPR) whenever respirators are required or should be provided with a hood having a face shield.

iii. 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.

14.7 Establish Reporting Within Healthcare Facilities And To Public Health Authorities

i. Implement mechanism and policies that promptly alert key facility staff including infection control or other assigned staff, healthcare epidemiology, facility leadership, clinical laboratory, and other concerned staff about known or suspected 2019-COVID-19 patients.

ii. Communicate and collaborate with public health authorities.

iii. Promptly notify local public health authorities of patients with known or suspected COVID-19 by filling the contact list at the end of case reporting form so that the field Surveillance teams are alerted and active surveillance for symptoms is done as per the national recommendations.

14.8 Collection And Handling Of Laboratory Specimens From Patients With Suspected Covid-19

i. All specimens collected for laboratory investigations should be regarded as potentially infectious.

ii. HCPs who collect or transport clinical specimens should adhere rigorously to Standard Precautions to minimize the possibility of exposure to pathogens.

iii. Ensure that HCPs who collect specimens use appropriate PPE (eye protection, medical mask, long-sleeved gown, gloves).

iv. The respiratory specimen should be collected under aerosol generating procedure, personnel should wear a particulate certified N95 respirator.

v. Ensure that all personnel who transport specimens are trained in safe handling practices and spill decontamination procedures.

vi. Place specimens for transport in leak proof specimen bags (secondary container) that have a separate scalable pocket for the specimen (i.e. a plastic biohazard specimen bags) with the patient's name label on the specimen container (primary container), and a clearly written laboratory request form.

vii. Ensure that healthcare facility laboratories adhere to appropriate biosafety practices and transport requirements according to the type of organism being handled.

viii. Deliver all specimens by hand whenever possible instead of using pneumatic-tube system if existing to transport specimens.

ix. Documents patients' full name, date of birth of suspected COVID-19 of potential concern clearly on the accompanying laboratory request form.

x. Notify the laboratory as soon as possible that the specimen is being transported.

xi. HCP collecting specimens for testing for COVID-19 from patients with known or suspected COVID-19 should adhere to standard contact and airborne precautions, including the use of eye protection.

xii. These procedure should take place in an AIIR or in an examination room with the door closed. Ideally, the patient should not be placed in any room where room exhaust is re-circulated within the building without HEPA filtration. OR in a proper ventilated space outside of main building.

14.9 Diagnostic Testing

a) At the current time, samples for COVID-19 should be sent to the relevant assigned laboratory.

b) Any patient meeting the criteria requires collecting of nasopharyngeal sample at the same time.

c) Hospitals should develop internal processes to ensure that each sample set is collected and delivered to the intended Laboratories.

14.10 Standard Operating Procedure (SOP) for Collection, Storage & Transportation of Specimens for Novel Coronavirus Diagnosis

1. **Materials Needed**

i. Dacron or polyester flocked swabs

ii. Tongue depressor (for Oropharyngeal swab)

iii. Vial with Viral Transport Medium (VTM)

iv. Pen/marker

v. Disposable gloves

vi. Disposable gown

vii. N95 mask

viii. Goggles or face shield

ix. Specimen transport container with ice packs

x. Specimen label and form

xi. Biohazard bags

xii. Tissues

xiii. Soap and water

xiv. Hand sanitizer

xv. Disinfectant

2. **Roles/Responsibilities**

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

3. **Procedure**

i. **Safety requirements and PPE**

- Wear disposable gloves and change gloves after each patient.
- Wash or sanitize hands before putting on and after removing gloves.
- Wear a N95 mask to minimize exposure to infection during specimen collection.
- Follow standard precautions and any additional precautions specific to the setting or patient.
- Dispose of all contaminated waste (gloves, paper, swab handles, etc.) into biohazard waste bags for disposal.

ii. Timing

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

iii. Nasopharyngeal swab

- Explain the procedure to the patient. Emphasize the importance of remaining still during specimen collection to minimize discomfort.
- Position the patient in a comfortable position.
- Tilt the patient's head back at a 70-degree angle (see figure below).
- Remove the flocked swab from its protective package.
- Insert the swab into one nostril horizontally (not upwards) and continue along the floor of the nasal passage for several centimetres 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.
- Do not force the swab. If obstruction is encountered before reaching the nasopharynx, remove the swab and try the other side.
- 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.
- 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.

iv. Oropharyangeal swab

- Ask the patient to open his/her mouth.
- Press the outer two-thirds of the tongue down with a tongue depressor, making the tonsils and the posterior wall of the throat visible.
- Insert swab, avoiding touching the teeth, tongue, or the depressor.
- Rub the swab over both tonsillar pillars and posterior oropharynx. This will cause the patient to gag briefly.
- Place the swab into the vial containing VTM (same vial as the first NP swab).
- Cut the excess swab handle to fit the transport medium vial and reattach the cap securely.
- Carefully label specimen with patient ID number, and date and time of specimen collection.
- Complete specimen tracking log with patient ID number, date and time of specimen collection.
- Place specimen in cool box on ice. Sample transport and storage conditions are given in the table below.

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	

v. Sample transportation of suspected 2019 NCoV samples

- **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.
- Follow the requirements in the national or international regulations for the transport of dangerous goods (infectious substances) as applicable.
- Deliver all specimens by hand whenever possible. Do not use pneumatic-tube systems to transport specimens.
- Notify the National Reference laboratory (Department of Virology, PHLD, NIH Islamabad) as soon as possible that the specimen is being transported.

14.11 Manage Visitor Access And Movement Within The Facility

i. Restrict visitors from entering the room of known or suspected COVID-19 patients (i.e. PUI) by strictly following the Isolation policy. However in following conditions one visitor/attendant is permitted for access:

a) Paediatrics age group; one attendant at a time is permitted to stay with the patient during his stay in hospital provided he/she is using appropriate PPE and following other Infection Prevention and Control precautions

b) Patient in labour: one visitor having blood relation with patient is permitted provided he/she is using appropriate PPE and following other Infection Prevention and Control precautions

c) Dying Patient: one visitor at a time having blood relation with patient is permitted provided he/she is using appropriate PPE and following other Infection Prevention and Control precautions

d) Special need patients: One visitor at a time having blood relation with patient is permitted provided he/she is using appropriate PPE and following other Infection Prevention and Control precautions

ii. In addition to above the Unit In-charge Nurse to consider the following and take necessary steps for patients admitted as COVID19 or non COVID-19 Patients.

a) Permit only those visitors who are screened by visual triage team for COVID-19 before en-

tering the health care facility and are evaluated for having no risk factors due to underlying illness putting them at higher risk for COVID-19 and ability to comply with IPC precautions.

b) Provide instructions before visitor enter patients rooms on hand hygiene limiting surface touched and use of PPE according to current facility policy while in the patient room.

c) Should maintain a record (e.g. log book) of all visitors who enter patient rooms.

d) Not to permit Visitor during aerosol generating procedures.

e) Attendant during his stay with patient should be instructed to limit their movement within the facility.

f) All visitors are shown and explained the displayed respiratory hygiene and cough etiquette precautions while in the common areas of the facility.

14.12 Decision On End Of Life Care

These decisions shall be individualized on case to case basis, keeping in view the advice of hospital ethical committee on recommendations of multidisciplinary team taking care of these patients.

14.13 Discharge Criteria

The patient may be discharged if he/she meets the following criteria:

i. At least 3 days (72 hours) have passed since recovery defined as resolution of fever without the use of fever-reducing medications; AND

ii. Improvement in respiratory symptoms (e.g., cough, shortness of breath); AND

iii. At least 7 days have passed since symptoms first appeared.

14.14 Follow Up / Review Of Infected Individual

i. Each discharged patient should be followed by the concerned team as per discharge instruction

ii. The first follow-up telephone call should be made within 48 hours after discharge.

iii. The outpatient follow-up will be carried out 1 week, 2 weeks, and if required 1 month after discharge.

14.15 Infection prevention and control recommendations for dead body management

COVID-19 is an acute respiratory illness caused by COVID-19 virus that predominantly affects the lungs;

i. Based on current evidence, the COVID-19 virus is transmitted between people through droplets, fomites and close contact, with possible spread through faeces. It is not airborne. As this is a new virus whose source and disease progression are not yet entirely clear, more precautions may be used until further information becomes available;

ii. To date there is no evidence of persons having become infected from exposure to the bodies of persons who died from COVID-19;

iii. The safety and well-being of everyone who attends to bodies should be the first priority. Before attending to a body, people should ensure that the necessary hand hygiene and personal protective equipment (PPE) supplies are available

iv. The dignity of the dead, their cultural and religious traditions, and their families should be respected and protected throughout;

v. Hasty disposal of a dead from COVID-19 should be avoided;

vi. Authorities should manage each situation on a case-by-case basis, balancing the rights of the family, the need to investigate the cause of death, and the risks of exposure to infection

vii. If there is a risk of splashes from the body fluids or secretions, personnel should use facial protection, including the use of face shield or goggles and medical mask;

viii. Prepare the body for transfer including removal of all lines, catheters and other tubes;

ix. Ensure that any body fluids leaking from orifices are contained by blocking the orifices appropriately with a chlorine solution soaked gauze/cotton.

x. Keep both the movement and handling of the body to a minimum;

xi. Wrap body in cloth and transfer it as soon as possible to the mortuary area or the designated area where the body will be washed

- There is no need to disinfect the body before transfer to the mortuary area
- Body bags are not necessary, although they may be used for other reasons (e.g. excessive body fluid leakage)
- Health care workers or mortuary staff or the close relatives involved in washing the body should wear appropriate PPE according to standard precautions (gloves, impermeable disposable gown, medical mask, eye protection);and follow the religious recommendations of washing, the body should be enshrouded in the plan white cloth pieces (kafan) as required by religion.

xii. No special transport equipment or vehicle is required.

xiii. If the family wishes only to view the body and not touch it, they may do so, using standard precautions at all times including hand hygiene. Give the family clear instructions not to touch or kiss the body;

xiv. Adults >60 years and immunosuppressed persons should not directly interact with the body.

Environmental cleaning

Human coronaviruses can remain infectious on surfaces for up to 9 days.COVID-19 virus has been detected after up to 72 hours in experimental conditions. Therefore, cleaning the environment is paramount.

i. The mortuary must be kept clean and properly ventilated at all times;

ii. Lighting must be adequate. Surfaces and instruments should be made of materials that can be easily disinfected

iii. Environmental surfaces, where the body was prepared, should first be cleaned with soap and water, or a commercially prepared detergent solution;

iv. After cleaning, a disinfectant with a minimum concentration of 0.1% (1000 ppm) sodium hypochlorite (bleach), or 70% ethanol should be placed on a surface for at least 1 minute

v. Items classified as clinical waste must be handled and disposed of properly

The belongings of the deceased person do not need to be burned or otherwise disposed of. However, they should be handled with gloves and cleaned with a detergent followed by disinfection with a solution of at least 70% ethanol or 0.1% (1000 ppm) bleach, and

Burial

i. Family and friends may view the body after it has been prepared for burial, in accordance with customs. They should not touch or kiss the body and should wash hands thoroughly with soap and water after the viewing;

ii. Those tasked with placing the body in the grave, on the funeral pyre, etc., should wear gloves and wash hands with soap and water after removal of the gloves once the burial is complete.

14.16 Death Certification

The patient can die due to various reasons suffering from COVID-19. The doctor on duty while certifying death must consider the underlying medical illness contributing to death of COVID-19 patient.

In case the patient is received in terminal stage as a dying patient and is suspected case of COVID-19 on clinical evaluation, his swab must be sent to lab even if he dies before the nasopharyngeal swab is taken. The death certifying doctor will hold his death certificate till his/her PCR lab result is received.

Following are some examples mentioning important factors to be filled in death certificates;

A.

Name of Deceased _____ Date of Death _____

Cause of Death: Acute Respiratory Distress Syndrome

Disease: Corona Virus Pneumonia

Contributory underlying Medical conditions: Diabetes Mellitus, Hypertension

Nasopharyngeal Swab COVID-19 Positive / Negative

B.

Name of Deceased _____ Date of Death _____

Cause of Death: Sepsis

Disease: Corona Virus Pneumonia

Contributory underlying Medical conditions: Diabetes Mellitus, Hypertension

Nasopharyngeal Swab COVID-19 Positive / Negative

14.17 Decontamination of ambulance

The vehicle will require DECONTAMINATION between each patient/dead body transfer

Ensuring thorough decontamination of all exposed surfaces, equipment and contact areas before it is returned to normal operational duties, with universal sanitising wipes or a chlorine-based product.

i. Appropriate PPE must be worn to decontaminate the vehicle - as a minimum, this should include apron and gloves

ii. Any exposed equipment (that is not within closed compartments) including stretcher on the vehicle will require decontamination with chlorine solution soaked wipes

iii. All contact surfaces (cupboards, walls, ledges), working from top to bottom in a systematic process, will require decontamination

iv. Pay special attention to all touch points

v. The vehicle floor should be decontaminated with a detergent solution, this should be at a minimum of the end of every shift, more frequently where facilities exist

15. PATIENT INFORMATION FOR MEDIA

i. Due to the pandemic condition it has been decided by the Government that in order to avoid unrest and fear in public due to error in providing appropriate information, none of the Hospital employee of the healthcare facility is permitted to provide information to print or electronic media. Only following designated officials are authorized for providing information to the media.

- Minister for Health

- Minister for Information
- Secretary Health
- DG Health Services

ii. Patient confidentiality is the utmost right of patient, as such not at any cost the information regarding suspected, confirmed or death cases to be disclosed to the media or any other individual not authorized by the patient.

iii. The healthcare facility should nominate a focal person to coordinate with the nominated team member of the government for providing information regarding condition of the suspected, confirmed or death cases.

16. INSTRUCTION FOR HOME ISOLATION

Following criteria needs to be fulfilled for home isolation

i. A dedicated well ventilated room and bathroom for infected individual if possible.

ii. An educated healthy and rapidly assessable caregiver.

iii. A reliable communication tool (e.g. mobile Phone)

iv. Recommendations for individuals infected (Patient) and the caregivers includes:

a) The patient is instructed to limit contact with others as much as possible and to strictly adhere to cough etiquette and hand hygiene.

b) The dedicated bathroom for infected individual if any should not be shared with other household members.

c) The household members should stay in different rooms or if not possible, maintain a distance of at-least 1.5-2 meters.

d) The house hold member should wear a medical mask when in the same room with the patient. Mask should not be touched or handled during use. If the mask gets wet or dirty with secretions it must be changed immediately.

e) Caregiver should use disposable gloves while handling the patient's body or secretions and perform hand hygiene after removing gloves.

f) Used mask, gloves, tissues and other disposable items should be discarded in a covered waste bin, and hand hygiene performed after touching these items.

g) The floor and touched surfaces of the house and in toilet (commodes/Indian toilet) should be cleaned daily on regular bases and specially after every use of toilet with household detergent (surf etc.) or diluted bleach solution (one part bleach and nine part water).

h) Soiled clothes, bed sheet, pillow covers, and towels etc. of the patient should not be shaken. These items can be cleaned using regular washing soap.

i) The household members should discourage and avoid visitors.

j) The household members must follow cough etiquette and hand hygiene

k) The infected person and household members must wash hands with soap for at least 20 seconds after using toilet and before eating food.

l) The House hold members should not share utensils, towel, bed sheets etc. with the infected individual.

m) In case the symptoms of infected individual exaggerate or the household members develops symptoms which could be related to COVID-19, should immediately inform the local Healthcare Personnel assigned by the health authorities.

APPENDIX I: Visual Triage Checklist for COVID-19 Respiratory Illness

Date:_____Time:_____MRN:_____

Name:_____CNIC#:_____Hospital:_____

Risks for Acute Respiratory Illness		**Score**
A. Exposure Risks (In the past 14 days prior to onset of symptoms OR 14 days in case of asymptomatic patient)		Any Patient (Adult / Paediatric)
1. Had a history of travel abroad or to the identified high-risk area where local transmission has taken place OR A close contact with a confirmed COVID-19 case 14 days prior to symptoms onset OR Working in or attended a health care facility where patients with confirmed COVID-19 were admitted.		3
B. Clinical Signs and Symptoms	Adult	Paediatrics
1. Fever	2	1
2. Cough (new or worsening)	2	1
3. Fatigue / Myalgia	2	-
4. Any of the following Uncommon symptoms • Sore throat • Runny Nose/Congestion • Vomiting /Diarrhoea • Shortness of Breath	1	1
Total score		

Visual Triage Score	**Plan**	**Tick mark which applies**
Triage score, less than 3	• Refer them to main hospital / OPD/ ER	
Triage score more than or equal to 3	• Assurance • Educating regarding pre-cautionary measures. • Providing mask & Cough Et-iquettes leaflet. • Referring patient to station 2	

APPENDIX II: COVID 19 RESPIRATORY ILLNESS PATHWAY

ENTRY POINT OF HOSPITAL / HEALTH CARE FACILITY/FEVER CLINIC

All Staff/ Visitors/ Patients have to pass through Station 1

- Crowd management protocol to be followed, one patient one visitor policy, safe distancing
- Critical patient/Trauma or patient in labor will bypass Visual Triage and will be shifted by assigned staff for emergency management to the relevant unit where triage will be done quickly under Infection Prevention & Control guidelines.
- Attendant of critical patient will pass through station 1 on his first visit to hospital; subsequently he/she has to pass through station 4 (orange color) for every subsequent visit during his stay with admitted patient.

Display Awareness poster for

- Cough Etiquettes
- Safe distance

Station 1

Triage Staff at Station

- One Staff Nurse for scoring
- One assistant

Triage staff

- Must follow KP health department, PPE instructions
- Must keep appropriate distance from patients

Visual Triage

- Segregation of suspected cases
- Also known as Primary Triage.
- Visual triage form to be used
- Number of station- 1 can be increased according to flow of patients/ staff/ visitors

Risks for Accurate Respiratory Illness	Score	
Exposure Risks (In the past 14 days prior to onset of symptoms OR 14 days in case of asymptomatic patient)	Any Patient (Adult or Pediatric)	
Had a history of travel abroad or to the identified high-risk area where local transmission has taken place OR A close contact with a confirmed COVID-19 case 14 days prior to symptoms onset OR Working in or attended a health care facility where patients with confirmed COVID-19 were admitted.	3	
Clinical Signs and Symptoms	Adults	Pediatric
Fever	2	1
Cough (new or worsening)	2	1
Fatigue/ Myalgia	2	
Any of the following Uncommon Symptoms related to COVID 19 Sore throat Shortness of breath Runny Nose/ nasal Congestion Vomiting/ Diarrhea	1	1
Total score		

Triage>3 — Suspected case

Triage <3 — Non Suspected case

Triage Staff will do

Patient Assurance
Educating Patient
Providing to Patient
- Mask
- Cough Etiquettes leaflet

Referring patient to station 2

Station 4

O.P.D / ER
Admit or Discharge with instructions

Already Triaged Attendants of admitted patient's station

Station 2

Waiting Area
- Well ventilated with fans
- Appropriate Seating arrangements
  a) 1.5 meters apart, facing opposite to each other
- Awareness posters
- Well manned at safe distance for controlling non assigned staff and observing IPC, SOP'S

Station 3 (Ideally inside hospital)

Assessment/ screening Area
- Secondary Triage, Clinical Assessment by Medical Officer,
- Initial treatment if required
- Evaluation for
  a) Past Medical illness/Co morbidity
  b) Need of Nasopharyngeal Swab based on official policy
  c) Admission or, Discharge for home isolation
- Case Reporting form filling and submission

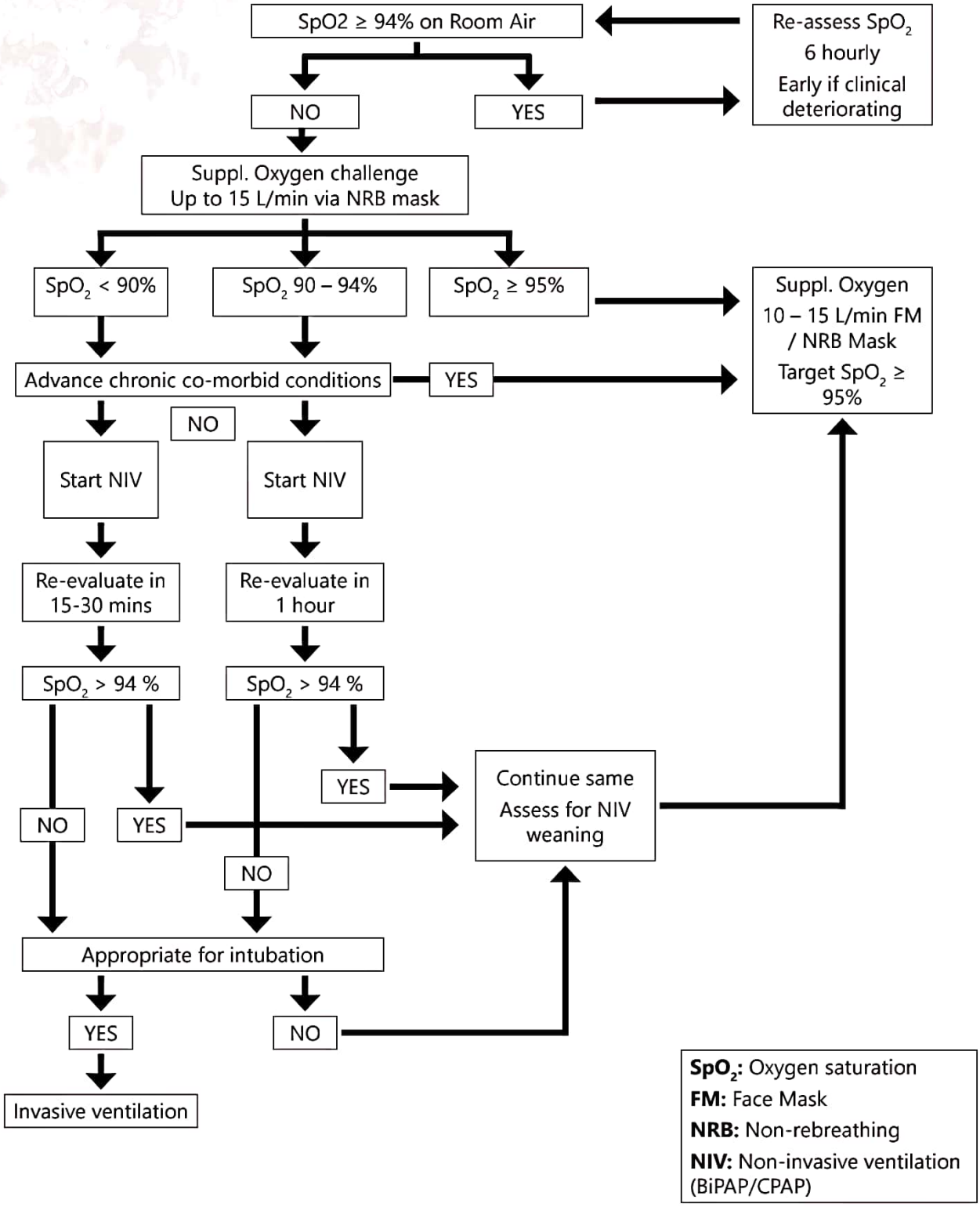
Admission based on
Clinical condition with deranged diagnostic findings OR
As per COVID 19 clinical guidelines regarding admission criteria **reflected in policy for COVID-19**

Discharge
Educate for home Isolation or quarantine.
Discharge instructions given

Keep in isolation

Shift to HDU / ICU

APPENDIX III: OXYGEN THERAPY PATHWAY FOR SUSPECTED / CONFIRMED COVID – 19 PATIENTS

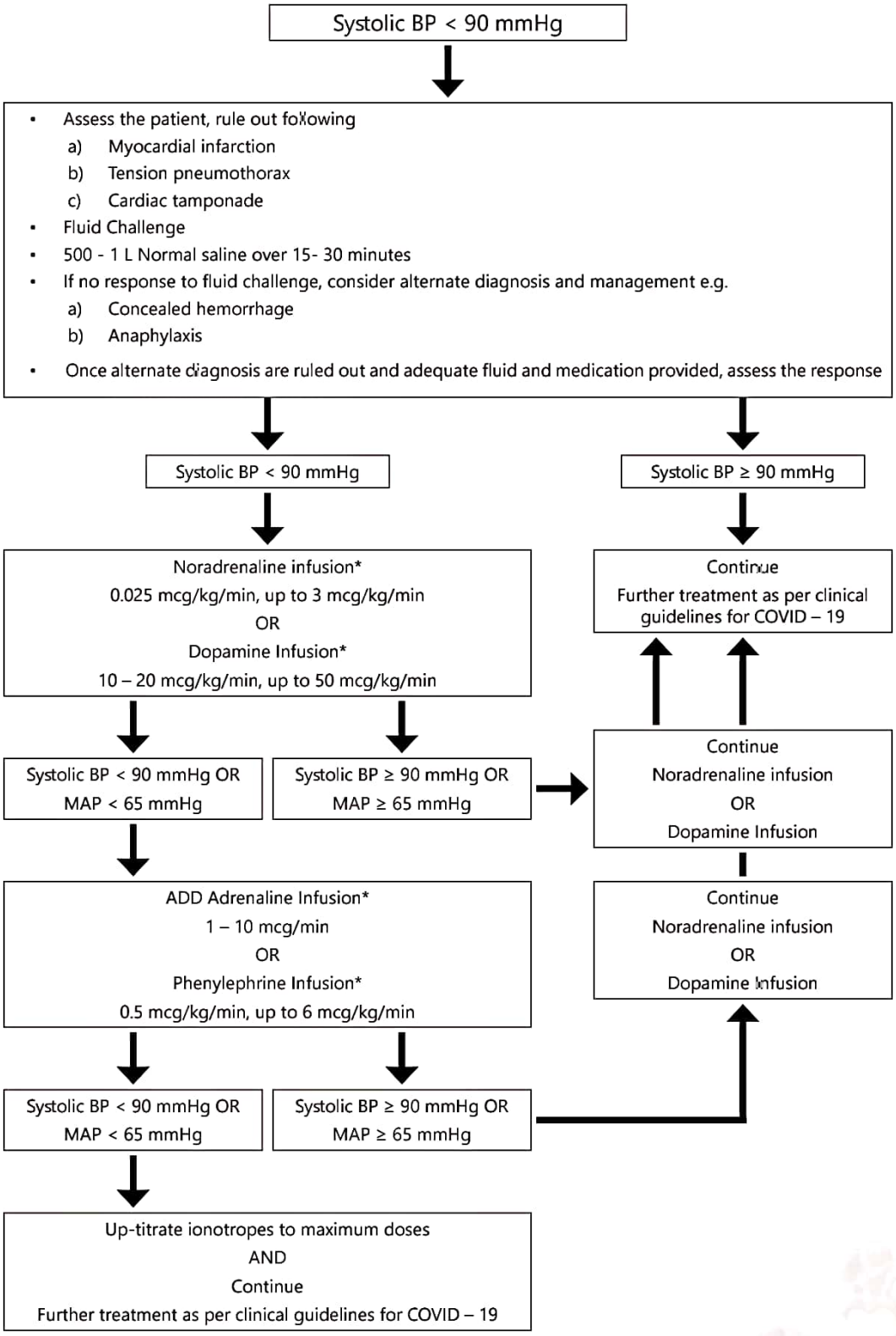


NIV – Special consideration

NIV may be used in selected patients & under very close observation. A low threshold should be kept for intubation if a patient is not responding to NIV as delaying intubation could worsen outcomes.

Additionally, NIV should ideally be applied in negative pressure rooms with staff wearing full PPEs as it can generate aerosols. Where resources are limited, special & separate bays may be designated for NIV use where confirmed or suspected patients can be kept. The staff should again be wearing full PPEs.

APPENDIX IV: HYPOTENSION PATHWAY FOR SUSPECTED / CONFIRMED COVID – 19 PATIENTS



*see attached tables for dose calculation

Tables for dose calculation

Inj. Adrenaline (1 ml ampoule containing 1 mg adrenaline)				
Add 3 amp in 47 ml normal saline to achieve a concentration of 60 mcg/ml				
Infuse via **INFUSION PUMP using 50 ml syringe**				
Dose	**1 mcg/min**	**2 mcg/min**	**5 mcg/ min**	**10 mcg/min**
Infusion rate	1 ml/hour	2 ml/hr	5 ml/hr	10 ml/hr

Inj. Adrenaline (1 ml ampoule containing 1 mg adrenaline)				
Add 1 amp in 100 ml normal saline to achieve a concentration of 10 mcg/ml				
Infuse via **100 ml INFUSION CHAMBER** (60 small drops = 1 ml = 10 mcg)				
Dose	**1 mcg/min**	**2 mcg/min**	**5 mcg/ min**	**10 mcg/min**
Infusion rate	6 drops/min	12 drops/min	30 drops/min	60 drops/min

Inj. Dopamine (5 ml ampoule containing 200 mg dopamine)				
Add 1 amp in 45 ml normal saline to achieve a concentration of 4 mg/ml (4000 mcg/ml)				
Infuse via **INFUSION PUMP using 50 ml syringe**				
Dose	**10 mcg/Kg/min**	**20 mcg/Kg/min**	**30 mcg/Kg/min**	**50 mcg/kg/min**
40 KG	6 ml / hr	12 ml/hr	18 ml/hr	30 ml/hr
50 KG	7.5 ml/hr	15 ml/hr	22.5 ml/hr	37.5 ml/hr
60 KG	9 ml/hr	18 ml/hr	27 ml/hr	45 ml/hr
70 KG	10.5 ml/hr	21 ml/hr	31.5 ml/hr	52.5 ml/hr
80 KG	12 ml/hr	24 ml/hr	36ml/hr	60 ml/hr
90 KG	13.5 ml/hr	27 ml/hr	40.5 ml/hr	67.5 ml/hr
100 KG	15 ml/hr	30 ml/hr	45 ml/hr	75 ml/hr

Inj. Dopamine (5 ml ampoule containing 200 mg dopamine)				
Add 1 amp in 95 ml normal saline to achieve a concentration of 2 mg/ml (2000 mcg/ml)				
Infuse via **DIAL FLOW** (1 ml = 2 mg)				
Dose	**10 mcg/Kg/min**	**20 mcg/Kg/min**	**30 mcg/Kg/min**	**50 mcg/kg/min**
40 KG	12 ml/hr	24 ml/hr	36ml/hr	60 ml/hr
50 KG	15 ml/hr	30 ml/hr	45 ml/hr	75 ml/hr
60 KG	18 ml/hr	36 ml/hr	54 ml/hr	90 ml/hr
70 KG	21 ml/hr	42 ml/hr	63 ml/hr	105 ml/hr
80 KG	24 ml/hr	48 ml/hr	72 ml/hr	120 ml/hr
90 KG	27 ml/hr	54 ml/hr	81 ml/hr	135 ml/hr
100 KG	30 ml/hr	60 ml/hr	90 ml/hr	150 ml/hr

Tables for dose calculation

Inj. Phenylephrine (1ml ampoule containing 10 mg phenylephrine)				
Add 1 amp in 99 ml normal saline to achieve a concentration of 0.1 mg/ml				
Infuse via **DIAL FLOW** (1 ml = 0.1 mg)				
Dose	**0.5 mcg/Kg/min**	**1 mcg/Kg/min**	**3 mcg/Kg/min**	**6 mcg/kg/min**
40 KG	12 ml/hr	24 ml/hr	72 ml/hr	144 ml/hr
50 KG	15 ml/hr	30 ml/hr	90 ml/hr	180 ml/hr
60 KG	18 ml/hr	36 ml/hr	108 ml/hr	216 ml/hr
70 KG	21 ml/hr	42 ml/hr	126 ml/hr	252 ml/hr
80 KG	24 ml/hr	48 ml/hr	144 ml/hr	288 ml/hr
90 KG	27 ml/hr	54 ml/hr	162 ml/hr	324 ml/hr
100 KG	30 ml/hr	60 ml/hr	180 ml/hr	360 ml/hr

Inj. Norepinephrine (Norpine)(4 ml ampoule containing 4 mg norepinephrine base / 8 mg norepinephrine acid tartrate)				
Add 1 amp in 46 ml normal saline to achieve a concentration of 0.08 mg / ml				
Infuse via **INFUSION PUMP using 50 ml syringe**				
Doses are based on Norepinephrine **base** concentration				
Dose	**0.025 mcg/Kg/min**	**0.05 mcg/Kg/min**	**0.1 mcg/Kg/min**	**0.3 mcg/kg/min**
40 KG	0.75 ml/hr	1.5 ml/hr	3 ml/hr	9 ml/hr
50 KG	0.9 ml/hr	1.8 ml/hr	3.6 ml/hr	11.2 ml/hr
60 KG	1.1 ml/hr	2.2 ml/hr	4.4 ml/hr	13.5 ml/hr
70 KG	1.3 ml/hr	2.6 ml/hr	5.2 ml/hr	15.8 ml/hr
80 KG	1.5 ml/hr	3 ml/hr	6 ml/hr	18 ml/hr
90 KG	1.7 ml/hr	3.4 ml/hr	6.8 ml/hr	20.3 ml/hr
100 KG	1.9 ml/hr	3.8 ml/hr	7.6 ml/hr	22.5 ml/hr

Inj. Norepinephrine (Norpine)(4 ml ampoule containing 4 mg norepinephrine base / 8 mg norepinephrine acid tartrate)				
Add 1 amp in 96 ml normal saline to achieve a concentration of 0.04 mg / ml				
Infuse via **100 ml INFUSION CHAMBER** (60 small drops = 1 ml = 0.04 mg)				
Doses are based on Norepinephrine **base** concentration				
Dose	**0.025 mcg/Kg/min**	**0.05 mcg/Kg/min**	**0.1 mcg/Kg/min**	**0.3 mcg/kg/min**
40 KG	1.5 drops/min	3 drops/min	6 drops/min	18 drops/min
50 KG	2 drops/min	4 drops/min	8 drops/min	24 drops/min
60 KG	2.5 drops/min	5 drops/min	10 drops/min	30 drops/min
70 KG	3 drops/min	6 drops/min	12 drops/min	36 drops/min
80 KG	3 drops/min	6 drops/min	12 drops/min	36 drops/min
90 KG	3.5 drops/min	7 drops/min	14 drops/min	42 drops/min
100 KG	4 drops/min	8 drops/min	16 drops/min	48 drops/min

APPENDIX V: Personal Protective Equipment's (PPE) Requirements for Different Staff and General Public

Why we need Personal Protective Equipment (PPE)?

PPE protects its user against the hazard that the workplace may present. The aim of this document is to provide information on the selection and use of PPE in Health Care settings and general environment focusing on the current Pandemic of COVID-19.

What are different PPEs related to Health Care?

i. Surgical Mask (3ply)
ii. Isolation Gown
iii. Surgical Gown
iv. Water impermeable Apron
v. Tyvek Suit /Surgical Gown
vi. N-95 Mask
vii. Goggles / Face Shield
viii. Gloves
ix. Long-Sleeved Heavy-Duty Gloves
x. Rubber Gum Boats

Standard Infection Control Precautions:

i. Patient Placement/ assessment for infection risk. Patient with symptoms should be segregated from non- symptomatic as soon as possible and at home should be kept in a separate room or in case of single room at safe distance from other people.
ii. Hand wash with plain soap or hand hygiene with a sanitizer must be performed immediately after touching any common touch surfaces or a patient or a medical equipment or removing any PPE and before any patient contact.
iii. Cough etiquettes/ Respiratory Hygiene. Patient, Staff, Visitors and General Public should be encouraged to minimize transmission through good respiratory hygiene and to use a tissue while coughing or to cough into the sleeve/elbow.

Routs of transmission and Transmission based Precautions:

i. Droplet
ii. Contact
iii. Aerosol
iv. Airborne only during Aerosol generating procedure

What are Aerosol generating procedures?

i. Intubation, extubation and related procedures; for example, manual ventilation and open suctioning

ii. Cardiopulmonary resuscitation
iii. Bronchoscopy (unless carried out through a closed circuit ventilation system)
iv. Surgery and post-mortem procedures in which high-speed devices are used
v. Dental procedures
vi. Non-invasive ventilation (NIV) e.g. bi level positive airway pressure ventilation (BiPAP)
vii. Continuous positive airway pressure ventilation (CPAP)
viii. High frequency oscillatory ventilation (HFOV)
ix. Induction of sputum
x. Obtaining diagnostic nose and throat swabs
xi. Administration of pressurized humidified oxygen
xii. Administration of medication via nebulization

Droplet transmission can be effectively controlled by safe distancing that is 6 feet away from the source patient. For any person having flu like symptoms/cough the recommendation is to use a tissue while coughing or to cough in the sleeve and to use a surgical face mask and avoid going into crowds.

Contact transmission can be effectively controlled by proper hand hygiene/ hand wash and regular disinfection of common touch surfaces.

DONNING & DOFFING

Below is the standard sequence for Donning & Doffing and should be tailored according to the PPE required for specific situations as detailed below. But the sequence should not be changed:

SEQUENCE OF DONNING (Putting ON) PPE:

i. Hand hygiene/ Hand wash
ii. Gown / Apron/ Tyvec Suit
iii. Mask
iv. Eye Protection (Googles/ Face Shield)
v. Gloves

SEQUENCE OF DOFFING (Putting OFF) PPE:

i. Gloves
ii. Hand Hygiene
iii. Eye protection
iv. Gown
v. Hand Hygiene
vi. Mask
vii. Hand Hygiene

General Public:

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer

ii. Cough etiquette

Contact Precautions:

i. No PPE Required

ii. Avoiding touching surface (Doorknobs, Stairs railings etc.)

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. No PPE Required in general at home

iii. Medical mask or an ordinary cloth mask are recommended for overcrowded public areas, public transport and halls where ventilation can't be ensured

Droplet Precautions for Patient and Care Providers:

i. Medical Mask (Only to be used when you are having Cough/Flu or taking care of a sick patient with respiratory symptoms)

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

Law Enforcement Agency/ Hospital Security Staff:

Standard precautions:

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer

ii. Cough etiquette

Contact Precautions:

i. No PPE required

ii. Avoiding touching common use surfaces (Doorknobs, phones, Stairs, Railings etc.)

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. In general settings No Specific COVID-19 related PPE required

iii. In case they are deputed at a COVID-19 related care unit. They should be using Medical mask only.

iv. Follow standard SOPs as per duty

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

Administration:

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer after any contact or touching a common object/surface

ii. Cough etiquette

Contact Precautions:

i. Avoiding touching common use surfaces (Doorknobs, phones, Stairs, Railings etc.)

Droplet Precautions:

ii. Safe Distancing (6 feet)

iii. No specific PPE required if the area is ventilated and not overcrowded else a medical mask may be used

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

Screening Staff at different entry points

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer after every contact or touching a common object/surface

ii. Cough etiquette

Contact Precautions:

i. Avoiding touching common use surfaces (Doorknobs, phones, Stairs, Railings etc.)

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. Medical Mask (3 ply)

iii. Face Shield/ Goggles depending on risk assessment

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

Triage Duty Staff:

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer after every patient contact or touching a common object/surface

ii. Cough etiquette

Contact Precautions:

i. Avoiding touching common use surfaces (Doorknobs, phones, Stairs, Railings etc.)

ii. Gloves for patient contact +/- (Depend upon Situation)

Droplet Precautions:

For Visual Triage

i. Safe Distancing (6 feet)

ii. Medical Mask (3 ply)

For clinical Triage

i. Medical Mask (3 ply)

ii. Gloves

iii. Face Shield/ Goggles

iv. Isolation gown/apron

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

Emergency Department Staff:

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer after every patient contact or touching a common object/surface

ii. Cough etiquette

Contact Precautions:

i. Gloves +/- (Depend upon Situation) and should be removed after every use followed by Hand wash

ii. Avoiding touching common use surfaces (Doorknobs, phones, Stairs, Railings etc.)

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. Medical mask

iii. Apron/ Isolation Gown

iv. Face Shield based on risk assessment

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

COVID-19 Respiratory Sampling Staff/Laboratory staff:

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer where indicated or touching a common object/surface

ii. Cough etiquette

iii. Contact Precautions:

iv. Gloves

v. Avoiding touching common use surfaces (Doorknobs, Stairs railings etc.)

Droplet Precautions:

i. Isolation Gown

ii. Goggles/Eye Shield

Airborne Precautions:

i. N95 mask

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

Phlebotomy Staff

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer where indicated or touching a common object/surface

ii. Cough etiquette

Contact Precautions:

i. Gloves

ii. Avoiding touching common use surfaces (Doorknobs, Stairs railings etc.)

Droplet Precautions:

i. Medical Mask

ii. Isolation Gown

iii. Goggles/Eye Shield

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

Isolation Unit Staff:

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer after every patient contact or touching a common object/surface

ii. Cough etiquette

Contact Precautions:

i. Avoiding touching common use surfaces (Doorknobs, Stairs railings etc.)

ii. Gloves +/- (Depend upon Situation) and should be removed after every use

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. Isolation Gown

iii. Medical Mask (3 Ply)

Airborne precautions:

i. In Case of Aerosol generating procedure as discussed above use N-95 mask

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch surface disinfection with detergent solution or a chlorine based solution.

Quarantine Unit Staff:

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer after any contact with others or touching a common object/surface

ii. Cough etiquette

Contact Precautions:

i. Avoiding touching common use surfaces (Doorknobs, phones, Stairs, Railings etc.)

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. Medical Mask (3 Ply)

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

High Dependency Unit / Intensive Care Unit Staff/Operating room/Endoscopy/Bronchoscopy

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer after any contact or touching common surfaces/objects

ii. Cough etiquette

Contact Precautions:

i. Avoiding touching common use surfaces (Doorknobs, phones, Stairs, Railings etc)

ii. Gloves

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. Tyvek Suit /Surgical Gown

iii. Goggles / Face Shield

Airborne precautions:

i. N-95 mask

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

[1]Non COVID-19 related clinical areas

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer after any contact or touching common surfaces/objects

ii. Cough etiquette

Contact Precautions:

i. Avoiding touching common use surfaces (Doorknobs, Stairs, and Railings etc.)

ii. Gloves

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. Medical Mask

iii. Goggles / Face Shield for Ophthalmology, ENT, Dental procedures

Airborne precautions:

i. N-95 mask for ENT examination and dental procedures

Waste Management/Laundry Staff:

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer after any contact or touching waste, common surfaces/objects

ii. Cough etiquette

Contact Precautions:

i. Isolation gown

ii. Long-Sleeved Heavy-Duty Gloves

iii. Rubber Gum Boats

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. Medical Mask

iii. Disinfection of reusable items after every use with Chlorine or Detergent Solution

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

For Patient: (Suspected or Confirmed)

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer after any contact or touching common surfaces/objects

ii. Cough etiquette

Contact Precautions:

i. Avoiding touching common use surfaces (Doorknobs, Stairs, and Railings etc.)

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. Medical Mask (3ply)

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

Ambulance Driver:

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer

ii. Cough etiquette

Contact Precautions:

i. Gloves (In Case of Patient Handling)

Droplet Precautions:

i. Safe Distancing (6 feet)

ii. Medical Mask

iii. Isolation gown if handling a patient

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

For Burial Staff – Relatives:

Standard precautions

i. Hand Wash with Plain Soap/Hand Hygiene with Sanitizer

ii. Cough etiquette

Contact Precautions:

i. Gloves

ii. Apron/Surgical Gown

iii. Take bath after burial if involved in direct body management

Droplet Precautions:

i. If Dead body is in Body Bag and Box and properly decontaminated (No PPEs Required)

Other Wise

i. Medical Mask

ii. Gloves

iii. Change Clothes and Wash Separately

Note: All the disposable PPE must be disposed OFF into a biohazard bag for proper disposal as infectious waste. Common touch Surfaces disinfection with detergent solution or a chlorine based solution.

NB: THE EMERGING EVIDENCE IS RAPIDLY EVOLVING. FURTHER UPDATES MAY BE MADE TO THIS GUIDANCE AS AND WHERE REQUIRED

APPENDIX VI: Guidance on how to make a negative pressure isolation ward or room

Due to none existence of standard negative pressure rooms in the health care facilities, this is an interim guidance to make the existence rooms into negative pressure room

Summary

i. Install exhaust fan (24 inch) in corridors directed inward to create positive pressure

ii. Install multiple exhaust fan (16-18 inch) in ward/room directed outward to create negative pressure

iii. Install exhaust fan (20-22 inch) in washroom directed outward to create more negative pressure compared to the room/ward

Details

i. Preferably the doors should be self-closing

ii. The room should be "well-sealed with the windows closed.

iii. The negative pressure should exceed the supply

iv. The corridors outside the wards or rooms should be made into positive pressure rooms by placing exhaust fans directed towards the corridors.

v. The bathroom/WC should be at negative pressure with respect to the isolation room so the exhaust fan of the washroom is bigger than the isolation room/ward exhaust if the washroom is en-suite

vi. The exhaust from the isolation rooms should be at least 25 ft from other ventilation intakes or occupied areas.

vii. The windows are openable only by the use of a tool/keys (or permanently sealed), as opening the windows will reduce the negative pressures inside the room.

viii. The ventilation switching controls are not (repeat not) within reach of the patient/visitors/members of the public. They should either be key operated and the key available along with the drug cupboard keys or the switches should be totally away from the ward.

ix. Temperature control should be within the room such that whatever the season there is no temptation to open the door/window and/or frustration at being unable to do so.

x. There should be 1/2" gap under the door.

xi. The exhaust ducts should be oversized to allow for loss of efficiency i.e. expected airflow plus 50%

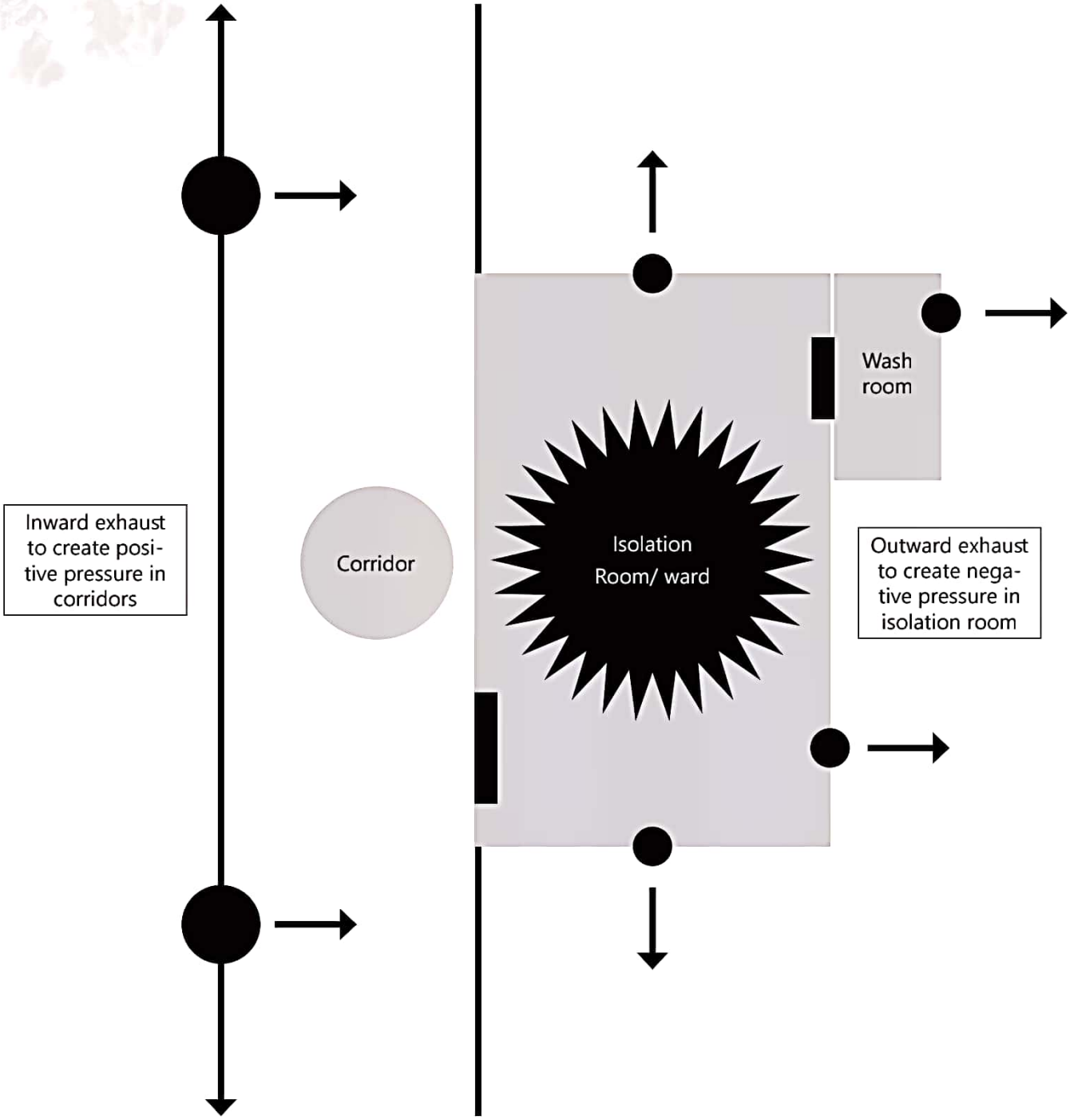
xii. Exhaust ducts should be labelled "Caution - negative pressure isolation room exhaust". The labels should be present at least every 20' along the ducting and at all penetration points.

xiii. A permanent warning sign should be posted on the exhaust fans buttons- "Negative pressure isolation room exhaust fan - contact Infection Control or duty nurse before turning off fan".

xiv. The fan discharge should be directed preferably vertically upward. Discharge location should be at least 25' away from public areas or openings into buildings.

xv. The airflow of clean air from the staff to the patient and from the patient to be exhausted via as short a route as possible. Ideally the exhaust should access near the floor at the head of the bed, with the grill starting approximately 6 inches above the floor. The supply air should be from the ceiling above the foot of the bed.

Figure


Inward exhaust to create positive pressure in corridors
Corridor
Isolation Room/ ward
Wash room
Outward exhaust to create negative pressure in isolation room

APPENDIX VII: Key Performance Indicators for Health Care Facilities with Isolation and OR HDU/ICU

1. Appropriate TRIAGE for segregation of suspected cases adopted
2. Reporting Performa appropriately submitted regarding suspected case
3. Disinfection procedures for clinical areas properly followed
4. Staff orientation and training regarding IPC practices done
5. Appropriate visitors access and movement within the facility

APPENDIX VIII: Visitor Checklist for Unit /Ward_____

Date:	Time in:	Triage Clearance Slip Yes/No	Name:	CNIC#/Address:	Mobile #:	IPC Precautions explained	Hand Sanitizer Used	Mask given	Signature	Time Out:

APPENDIX IX: CLINICAL AREAS CLEANING CHECKLIST

	Check Stock						Clean & Tidy										
Date	MOP	Soap and hand Sanitizer	Chlori-nated Disinfec-tant Solution	Wiper	Color coded Hands free Bins	Wipe Cloth	Litter Picked up	Bins Emptied	Refuse bag replaced in Bins	Furni-ture/ Touched surfaces Wiped	Mirror Sink and Taps Wiped	Blood / Vomet / excreta spill cleaned if any	Win-dows Knobs Wiped with Disinfec-tant	Floor washed with freshly prepared Disinfec-tant	Door Knobs Wiped with freshly prepared Disinfec-tant	Soap Hand Sanitizer Solution in place	Signed By
Superviser Inspection																	
10:00 AM																	
Superviser Inspection																	
4:00 PM																	
Deep Clean-ing																	
Superviser Inspection																	
10:00 PM																	
Tick box only if an item has been restocked or completed																	

Report any faulty or broken items to your supervisor as soon as possible

Note: In addition to above mentioned timings:
1. After discharge and shifting of every patient the specific area will be cleaned appropriately as per above mentioned checklist
2. Blood, vomits, excreta will also be cleaned immidately after every spill,

APPENDIX X: WASHROOM CLEANING CHECKLIST

	Check Stock							Clean & Tidy								
Date	Muslim Shower/ Pitcher	Soap and hand Sanitizer	Chlori-nated Disinfec-tant Solution	Wiper	Com-mode Cleaning Brush	Color coded Hands free Bins	Wipe Cloth	Wipe Sink and Taps	Mirror Wiped	Com-mode/ Indian Toilet Cleaned with Disinfec-tant	Litter Picked up	Bins Emptied	Refuse bag replaced in Bins	Floor washed with Disinfec-tant	Door Knobs Wiped with Disinfec-tant	Signed By
Superviser Inspection																
9am																
10am																
11am																
Superviser Inspection																
12pm																
1pm																
2pm																
Superviser Inspection																
3pm																
4pm																
5pm																
Deep Clean-ing																
Tick box only if an item has been restocked or completed																
Report any faulty or broken items to your supervisor as soon as possible								Note: In addition to above mentioned timings the toilets will be also cleaned immidately after every use								

کرونا وائرس کے مریضوں اور ان کی دیکھ بال کرنے والوں کے لئے ضروری ہدایات

جن مریضوں میں کرونا وائرس کی شناخت ہو چکی ہے یا اسکا اندیشہ ہے ، ان کے گھر پر کونسی احتیاط کرنا لازم ہے؟

۱۔ ہوا دار علیحدہ کمرے میں رہیں۔

۲۔ مشترکہ کمرے یا باتھ روم کے استعمال سے گریز کریں۔

۳۔ چہرے کا ماسک ہمہ وقت پہنے رکھیں۔ ماسک اگر گیلا یا گندہ ہو جائے تو فوراً تبدیل کریں۔

۴۔ کھانستے اور چھینکتے وقت منہ کو کہنی یا ٹشو کی مدد سے ڈھانپ لیں اور ٹشو کو فوراً کوڑادان میں ڈال دیں اور ہاتھ دھو لیں۔

۵۔ ہاتھ صابن سے ۲۰ سیکنڈ تک دھوئیں یا ہینڈ سینانائزر کا استعمال کریں۔

تیمارداری کے لئے احتیاطی تدابیر کیا ہیں؟

۱۔ صرف صحت مند افراد مشتبہ افراد یا مریض کی دیکھ بال کریں ۔

۲۔ تیماردار اگر مشتبہ افراد یا مریض کے کمرے میں جائیں تو چہرے کا ماسک استعمال کریں۔

۳۔ ماسک کا سامنے والے حصے کو استعمال کے دوران یا اتارتے وقت چھونے سے گریز کریں۔

۴۔ ماسک اتارنے کے فوراً بعد اسے کوڑادان میں ڈال دیں اور ہاتھوں کو اچھی طرح صابن سے دھوئیں۔

مشتبہ افراد کے ساتھ گھر میں رہنے والوں کو کیا احتیاط کرنی چاہئے ؟

۱۔ مہمانوں کی آمد و رفت سے گریز کریں۔

۲۔ گھر کے باقی افراد علیحدہ کمرے میں رہیں اور اگر ایسا ممکن نا ہو تو کم از کم ایک میٹر کا فاصلہ رکھیں۔

۳۔ کھانا پکانے اور کھانے سے پہلے اور بعد میں اور باتھ روم استعمال کرنے کے بعد ہاتھ صابن سے کم ازکم ۲۰ سیکنڈ تک دھوئیں۔

گھر کے اندر کیا خاص اقدامات کرنے کی ضرورت ہو گی؟

۱۔ مریضوں اور مشتبہ افراد کے لئے برتن ، چادر اور تولیہ علیحدہ رکھیں۔

۲۔ علیحدہ باتھ روم کا استعمال کریں اور اگر ایسا ممکن نا ہو تو باتھ کی صفائی کا خاص خیال رکھیں۔

۳۔ ڈھکن والے کوڑے دان کا استعمال کریں۔

۴۔ کوڑادان میں پلاسٹک کی تھیلی رکھیں جسے باندھ کر پھینکا جا سکے۔

۵۔ گھر کے فرش اور دیگر سطحوں جیسے میز ، فرنیچر اور باتھ روم کو صابن اور پانی سے دھوئیں اور اسکے بعد بلیچ سے صاف کریں۔

۶۔ صفائی کرتے وقت دستانے استعمال کریں اور استعمال کے بعد کوڑادان میں پھینک کر ہاتھ صابن سے اچھی طرح دھو لیں۔

۷۔ مشتبہ افراد اور مریض کے استعمال شدہ کپڑے ، چادریں اور تولیہ وغیرہ کو جھاڑنے سے گریز کریں اور انھیں دھونے سے پہلے بند تھیلے یا شاپر میں رکھیں۔

۸۔ مشتبہ افراد اور مریض کے استعمال شدہ کپڑے ، چادریں اور تولیہ وغیرہ صابن اور گرم پانی سے دھوئیں اور دھوپ میں خشک کریں۔

۹۔ گندے کپڑوں کو دستانے پہن کر چھوئیں اور اپنی جلد سے دور رکھیں۔

اگر مشتبہ افراد اور مریض کے اہل خانہ یا ملنے والوں کو علامات ظاہر ہوں تو ان کو کیا کرنا چاہئے؟

اگر مشتبہ افراد اور مریض کے اہل خانہ یا ملنے والوں کو بخار یا کھانسی جیسے علامات ظاہر ہو تو ہر گز پریشان نہ ہو۔ اس صورت میں اگر آپ پہلے سے کسی دائمی بیماری میں مبتلا ہو یا آپکی عمر ساٹھ سال سے زیادہ ہو یا کسی وجہ سے آپکی مدافعت کا نظام کمزور ہو تو اپنے ڈاکٹر سے رابطہ کریں۔ بصورت دیگر آپ اپنے گھر میں رہیں اور کسی سے ملنے جلنے سے گریز کریں ۔ آپکی یہ علامات تین سے سات دن میں خود بخود ختم ہو جائینگے۔ علامات ختم ہونے کے کم ازکم تین سے چار دن بعد آپ معمول کی سرگرمیاں شروع کر سکتے ہیں۔

The following resources have been used in the preparation of this document.

https://www.nih.org.pk/wp-content/uploads/2020/04/COVID-19-NAP-V2-13-March-2020-1.pdf

https://www.who.int/emergencies/diseases/novel-coronavirus-2019

https://www.cdc.gov/coronavirus/2019-ncov/index.html

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PROVINCIAL COVID-19 CLINICAL CARE COMMITTEE
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