



# National Guidelines for Clinical Management and Treatment of COVID-19

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*Version 2*

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## Objectives

The objectives of this document are:

- To provide guidance on clinical management of the COVID-19 infection
- To provide a protocol on the practical steps to deal with COVID-19 cases
- To detail the measures necessary to protect hospital staff, patients and visitors
- This guideline is **not intended to override the clinical decisions** that will be made by clinicians providing individualized patient care.
- **This guideline will be updated as more information becomes available.**

## Introduction to Coronaviruses (CoV)

- Corona virus is a large family of viruses that cause illness in humans and animals
- In people, Corona virus can cause illness ranging in severity from the common cold to Pneumonia and Severe Acute Respiratory Illness
- Corona virus is one of seven types of known human coronaviruses. SARS COV2 like the MERS and SARS coronaviruses, likely evolved from a virus previously found in animals
- The estimated **incubation period** is unknown and currently considered to be up to 14 days post exposure.

## Case Definition:

**Suspected COVID-19** case is defined as:

1. Please refer to the local health authority websites for updated information on local case definition.

MOHAP, DoH, SEHA and DHA

**Confirmed COVID-19** is defined as:

A person with confirmed positive COVID-19 test positive (SARS COV2 PCR) by an approved laboratory.



## Clinical Findings and Complications

Some patients with initially mild symptoms may progress over the course 5-7 days from symptom onset.

**Clinical Symptoms:** Signs and symptoms include:

- Fever
- Cough
- Myalgia or fatigue
- Shortness of breath
- Sore throat
- Runny nose
- Diarrhoea and nausea
- Muscle ache
- Headache
- Pneumonia and ARDS
- Loss of sense of smell
- Renal failure, pericarditis and Disseminated Intravascular Coagulation

**Complications:**

- Severe Pneumonia
- Acute Respiratory Failure and ARDS
- Acute Renal failure
- Disseminated intravascular coagulation
- Sepsis or septic shock

**High-risk group**

- Age above 60 years old
- Smoker
- Cardiovascular disease
- Diabetes
- Hypertension
- Immune deficiency and or suppression ( HIV/AIDS, long-term steroid therapy, post- transplant cases, chemotherapy, immune modulator therapy)
- Pre-existing pulmonary disease ( uncontrolled Asthma, COPD, bronchiectasis)
- Other chronic disease such as chronic kidney disease, Chronic Respiratory disease, Sickle cell...etc.

## Baseline Investigations

**Chemistry and Haematology:**

1. Complete blood count and differential
2. Renal function and Electrolytes
3. Serum Glucose (HbA1C if diabetic)
4. Liver Function test including Liver enzymes



5. CRP
6. procalcitonin
7. G6PD (if treatment with chloroquine is being considered)
8. LDH
9. Coagulation profile
10. Ferritin
11. D-dimer
12. Troponin & creatinine kinase (CK)
13. HIV Ag/Ab
14. Pregnancy test in women of child-bearing age

### **Microbiology:**

SARS COV2 PCR on following samples

1. Deep respiratory samples (sputum or deep tracheal aspirate) if lower respiratory tract infection
2. Nasopharyngeal Aspirate/Swab and oropharyngeal swab (should use non-cotton flocked swab) if upper respiratory tract infection

#### **Staff should be trained on Sample collection.**

3. For intubated patients, obtain deep tracheal aspirate for:

- a) SARS-CoV2 PCR
- b) Atypical PCR panel if available (Mycoplasma, chlamydia, legionella)
- c) Respiratory viral panel
- d) Other investigations to consider if the aetiology of the severe pneumonia is not identified:

i. Legionella urinary antigen

ii. Mycoplasma titres

iii. AFB stain/culture Tuberculosis culture and PCR

iv. Opportunistic pathogens in immunocompromised patients

**All specimens should be regarded as potentially infectious**, and HCWs who collect, or transport clinical specimens should adhere rigorously to standard precautions to minimize the possibility of exposure to pathogens.

### **Radiology**

Ensure infection control measure are taken if patient is transferred to radiology or any other department outside the isolation room

1. CXR
2. Chest CT scan (HRCT or non-contrasted CT scan) is mandatory for all high-risk group patients admitted to hospitals and for patients with rapidly progressing illness. Consider CT scan chest while waiting COVID-19 PCR report as a diagnostic modality to guide early treatment and in patients with clinical features of pneumonia and normal chest X ray.



(when mobilising patient ensure infection control measures are followed during and after transport)

### Cardiac investigations:

3. ECG
4. Transthoracic Echocardiogram, pro-BNP, Troponin T and CK-MB if clinically indicated

### Other tests

If and when clinically indicated as per clinical condition and judgment of managing physician.

### Requesting COVID19 PCR test:

Fill notification form and patient under investigation (PUI) form
<b>Governmental Facilities:</b>
Send the samples to their dedicated virology laboratory.
<b>Private Facilities:</b>
Fill appropriate documents e.g. "Infectious Disease Reference Laboratory Request Form" <u>or</u> "Miscellaneous Request Form" accompanied by copy of Emirate ID <u>or</u> passport copy
Send samples after informing the laboratory in each district
<b>Abu Dhabi:</b> Sheikh Khalifa Medical City
<b>Dubai:</b> Latifa Hospital
<b>Northern Emirates:</b> Al Qassimi Hospital, Sharjah
<b>Approved private laboratories</b>

### Transport of Respiratory Secretions Samples

Transport of the respiratory secretions sample to the reference laboratory of your district, using double packing system at 2-8°C temperature.

Trained personnel following safe handling practices should transport specimen

### Medical Care for Patients with confirmed COVID-19 infection

- All suspected or confirmed cases should have the Patient under Investigation (PUI) Form Filled (Appendix II) and submitted to concerned Public Health Authority
- Adopt test and treat all positive cases regardless of clinical presentation.
- All confirmed cases should be treated, as per UAE Health Authorities' recommendation.
- All positive cases to be assessed, if fitting criteria for institutional isolation, can be isolated at designated isolation building, with full instructions and to inform PH/PHC/OPD for follow up. If patient's condition deteriorates, they will be transferred to the nearest healthcare facility for further assessment and management.
- Admit patients with stable moderate illness and patients with mild illness and risk factors to hospitals/isolation facilities and follow active treatment pathway according to the clinical data. If patient's condition deteriorates, upgrade level of care.



- Admit all severe and critically ill patients to hospitals and once their condition stabilizes, they can be transferred to lower levels of care areas.
- Admit all patients with COVID19 infection to single rooms with good ventilation and separate toilet, unless aerosol generating procedures is anticipated then in a room with Negative Pressure Ventilation.
- If hospital capacity is full, positive COVID 19 cases can be cohorted in the same room, provided there is 6 feet distance between the patients.
- Implement standard, contact and droplet precautions whenever coming in contact with positive cases. (Appendix I). Unless aerosol generating procedure then, airborne precaution.
- Follow recommended active management plan for patients with moderate to severe illness.

### Dealing with Patients attending Primary Health Care (PHC) or Accident and Emergency (AE)

**\*Suspected cases if admitted need to be in a single room with droplet precaution unless aerosol generating procedure then, airborne precaution.**

Clinical Scenario	Decision
No symptoms Not meeting case definition	<ul style="list-style-type: none"> <li>• COVID19 testing is not indicated</li> <li>• Reassure and discharge</li> </ul>
Meeting case definition	<ul style="list-style-type: none"> <li>• Collect sample for lab-based SARS CoV2 PCR on Respiratory samples</li> <li>• Fill required forms</li> <li>• Respiratory Panel test as indicated</li> <li>• Baseline work up and chest X ray are indicated</li> <li>• If there is evidence of an alternate diagnosis and the patient is stable; less likely to be COVID19, and manage accordingly, however, it does not rule out coinfection with COVID-19</li> <li>• Admission or discharge bases on clinical stability</li> <li>• If discharged, quarantine until results are out</li> <li>• If first COVID19 test is Positive, follow Positive cases management pathway</li> <li>• If first COVID19 test is Negative, and clinical presentation and investigation is suggestive of COVID-19, repeat SARS CoV2 PCR</li> </ul>



## Clinical Management and Treatment for confirmed COVID 19 cases

- **Treat all positive cases of COVID-19 regardless of clinical presentation.**
- Apply Standard Precautions, Contact Precautions, and Droplet Precautions with eye protection should always be used when caring for the patient
- If asymptomatic or mild symptoms can be cared for in single room with good ventilation and droplet precaution. Negative pressure rooms are not required unless aerosol generating procedures.
- Clinical management includes prompt implementation of recommended infection prevention and control measures and supportive management of complications, including advanced organ support if indicated.
- No specific treatment for COVID19 infection is currently approved except chloroquine, please see table below
  - Give supplemental oxygen therapy, as needed.
  - Use conservative fluid management, if possible.
  - Give empiric antimicrobials as indicated.
  - DO NOT routinely give systemic corticosteroids for treatment of viral pneumonia or ARDS.
  - Closely monitor patients for signs of clinical deterioration.
  - Address co-morbid condition(s).

### Possible Therapeutics options:

- There are currently no antiviral drugs approved, other than chloroquine/hydroxychloroquine, and convalescent sera from patients who recovered COVID19 infection and had a sustained antibody response to treat patients with COVID19 infection.
- Decision to initiate/stop/modify antiviral medication should always be made after consultation with Infectious Disease Physician.
- If the patient is admitted to a private hospital and Active treatment is indicated, please contact the Public Health and Health Regulations in concerned Emirate/Health Authority

### Laboratory and Radiological Monitoring

- Baseline tests should be done prior to treatment initiation for all patients.
- Repeat PCR test after 5 days of therapy initiation.
- Repeat blood tests every 72 hours and imaging every week, earlier if clinically indicated, while on treatment.
- Repeat more frequently in critically ill patients if indicated.



### Recommended monitoring parameters for Drug Therapy management

- CBC, Renal Profile and extended electrolytes (Na<sup>+</sup>, K<sup>+</sup>, Mg<sup>++</sup>, Ca<sup>++</sup>, Phosphate), Uric Acid, Hepatic Profile, Serum Amylase, Serum Lipase, Coagulation profile,
- **G6PD test baseline**
- Blood glucose in patients with **Chloroquine or hydroxychloroquine**, frequent **blood glucose monitoring** is required in **diabetic patients** as **risk of hypoglycaemia is high** ((may require **adjusting Insulin** or other diabetic medications dosing)

### ECG Monitoring

Perform **Baseline ECG** on **every patient** and may repeat every 24 to 48 hours for patients suspected to have QT prolongation, or high risk for QT prolongation i.e.

- Elderly patients
- Patients with any of electrolytes imbalance (Hypokalaemia, Hypomagnesemia, Hypophosphatemia, Hypocalcaemia etc.)
- History of cardiac arrhythmia
- On concurrent QTc prolonging drugs (Fluoroquinolones, Macrolides, Azoles, Ivabradine, Anti-emetics, Anti-depressant, Antipsychotics, Antiarrhythmic etc **(Avoid these and any other QT prolonging drugs in patient on COVID-19 treatment)**)
- Resource for QT prolonging drugs and related topics below websites
- [www.qtdrugs.org](http://www.qtdrugs.org)
- <https://crediblemeds.org/ndfa-list/> (QTFactors.org)

**Table: Prognostic Factors & Markers for Severe COVID-19 Disease**

Epidemiological- Category 1	Vital signs- Category 2	Labs-Category 3
Age > 55	Respiratory rate>24 breaths/min	D-dimer>1000 ng/mL
Pre-existing pulmonary disease	Heart rate > 125 beats/min	CPK>twice upper limit of normal
Chronic kidney disease	SpO2 <90% on ambient air	CRP>100
Diabetes with A1c>7.6%		LDH>245 U/L
History of hypertension		Elevated troponin
History of Cardiovascular disease		Admission absolute lymphocyte count<0.8
Use of biologics		Ferritin>300 ug/L



History of transplant or other immunosuppression		
All patients with HIV (regardless of CD4 count)		

### Treatment Options:

- The various treatment options including regimens are provided in table 1 for consideration
- Suggested treatment duration is 5-7 days for mild cases, 7-10 days for moderate cases and 10-14 days for severe pneumonia/critically ill.
- Any drug-induced side effect to be managed accordingly
- **Rule out pregnancy before starting Favipiravir- Favipiravir is absolutely contraindicated in pregnancy.**
- Get Informed consent from patient for treatment of COVID19, if patient can't provide consent then his family member /guardian

### Table 1: Proposed Therapeutic Regimens for Adults

- Chloroquine dose is according to Chloroquine Phosphate salt NOT on Chloroquine Base
- For patients having renal or hepatic impairment, consult individual drug monograph for additional monitoring or dose adjustment.
- \* Chloroquine dose is according to Chloroquine Phosphate salt NOT on Chloroquine Base
- **Baseline Monitoring parameters and early initiation of treatment is highly advisable**

### Suspected cases qualifying for possible therapy:

Typical clinical presentation with supporting laboratory and imaging tests

Clinical Presentation	Suggested Medications
Clinical Presentation	Dosing & frequency mentioned is for normal Renal & Hepatic Functions For Moderate to severe Hepatic Impairment & or severe Renal impairment, Drug interaction etc (Consult individual drug monograph for additional monitoring or dose adjustment)
Contact	No Post exposure Prophylaxis is indicated for the time being
Suspicion of COVID-19  URTI without pneumonia	Symptomatic treatment



<p><b>Suspicion of COVID-19</b></p> <p><b>Moderate to severe</b></p>	<p><b>Symptomatic treatment PLUS Empirical treatment</b></p> <p><b>Empirical including:</b>  <b>Symptomatic without pneumonia:</b>  <b>Chloroquine phosphate</b> 500 mg bid for (5 days) <b>OR Hydroxychloroquine</b> 400 mg bid Loading on day 1 followed by maintenance of 200 mg bid for (5 days).</p> <p><b>Symptomatic with pneumonia</b>  <b>Chloroquine phosphate</b> 500 mg bid for (5 days) <b>OR Hydroxychloroquine</b> 400 mg bid Loading on day 1 followed by maintenance of 200 mg bid for (5 days) <b>and Lopinavir-Ritonavir</b> (200/ 50 mg) 2 tablets PO BID</p>
<p><b>Confirmed COVID19</b></p> <p><b>Asymptomatic</b></p>	<p><b>Hydroxychloroquine</b> 400mg BID x2 doses, then 200mg PO BID for 5 days</p> <p style="text-align: center;"><b>OR</b></p> <p><b>Chloroquine Phosphate</b> 500 mg PO BID for 5 days</p>
<p><b>Confirmed COVID19</b></p> <p><b>Mild symptoms</b></p> <p><b>For 5-7 days</b></p>	<p><b>Hydroxychloroquine</b> 400mg BID x2 doses, then 200mg PO BID. Preferentially give with food</p> <p style="text-align: center;"><b>OR</b></p> <p><b>Chloroquine Phosphate</b> 500 mg PO BID preferentially give with food</p> <p><i>However, if <u>radiological evidence of Pneumonia</u> THEN treat as pneumonia</i></p>
<p><b>Confirmed COVID19</b></p> <p><b>URTI without Pneumonia</b></p> <p><b>For 7-10 Days</b></p>	<p><b>Hydroxychloroquine</b> 400mg PO BID x2 doses, followed by 200mg PO BID +<b>Favipiravir</b>1600mgPO BID on Day1, then 600 mg PO TID from day 2 <sup>[8,13]</sup></p> <p style="text-align: center;"><b>OR</b></p> <p><b>Chloroquine Phosphate</b> 500 mg PO BID + <b>Favipiravir</b> 1600 mg PO BID on day1, then 600 mg po TID from day2</p> <p style="text-align: center;"><b>OR</b></p> <p><b>Lopinavir-Ritonavir</b> (200/ 50 mg) 2 tablets PO BID <sup>[7]</sup> + <b>Hydroxychloroquine</b> 400 mg po BID X 2 doses, then 200 mg PO BID (alternatively Chloroquine 500 mg PO BID X 2 doses, followed by 250 mg PO BID)</p> <p style="text-align: center;"><b>OR</b></p> <p><b>Hydroxychloroquine</b> 400mg PO BID x2 doses, followed by 200mg PO BID + <b>Azithromycin</b> 500mg PO OD on Day1 then 250 mg PO OD for 4 days (check criteria for this combination and close monitoring)</p>



<p><b>Confirmed COVID19</b></p> <p><b>Pneumonia For 7-14 days</b></p>	<p><b>Hydroxychloroquine</b> 400mg po BID, then 200mg po BID + <b>Favipiravir</b>1600 mg PO BID on day 1, then 600 mg PO TID from day 2 <sup>[8,13]</sup> ± <b>Camostat</b> 200 mg PO TID</p> <p style="text-align: center;"><b>OR</b></p> <p><b>Chloroquine Phosphate</b> 500 mg PO BID + <b>Favipiravir</b> 1600 mg PO BID on day1, then 600 mg po TID from day2 ± <b>Camostat</b> 200 mg PO TID</p> <p style="text-align: center;"><b>OR</b></p> <p><b>Lopinavir-Ritonavir</b> (200/ 50 mg) 2 tablets PO BID <sup>[7]</sup> + <b>Hydroxychloroquine</b> 400 mg po BID X 2 doses, then 200 mg PO BID (alternatively Chloroquine 500 mg PO BID X 2 doses, followed by 250 mg PO BID) ± <b>Camostat</b> 200 mg PO TID</p> <p style="text-align: center;"><b>OR</b></p> <p><b>Remdesivir</b> 200 mg IV on day 1, followed by 100 mg IV daily <sup>[8,15]</sup></p>
<p><b>Confirmed COVID19</b></p> <p><b>Severe Pneumonia /Critically ILL patients For 14-21 days</b></p>	<p><b>Hydroxychloroquine</b> 400mg PO X 2 doses followed by 200mg po BID + <b>Favipiravir</b>1600 mg PO BID on day 1, then 600 mg PO TID from day 2 ± <b>Camostat</b> 200 mg PO TID</p> <p>[The addition of <b>Kaletra (Lopinavir-Ritonavir 200/50)</b> 2 tablets PO BID to the above regimen may be on <b>case by case basis</b> as per decision primary team according to benefits vs risks i.e. Hepatotoxicity &amp; other side effects]</p> <p style="text-align: center;"><b>OR</b></p> <p><b>Remdesivir</b> 200 mg IV on day 1, followed by 100 mg IV daily <sup>[8,15]</sup></p> <p><b>Preferred approach</b> should be to <b>start other COVID-19 drugs (Do not rush to start Interferon)</b>, monitor patient for “Cytokine Storm “ if candidate for <b>Tocilizumab</b>” then can use <b>Tocilizumab for 2 doses</b> in rare cases 3<sup>rd</sup> dose can be considered after thorough evaluation of patient response &amp; condition by primary team for risk of side effects vs benefits.</p> <p>(If patient is in early ARDS and Possible Cytokine Storm as per criteria set below in Tocilizumab protocol and may be a candidate for Tocilizumab, <b>THEN Do-Not Start Interferon</b> as high risk of potential side effects concurrently with two Immune modulating drugs (i.e. Tocilizumab, Interferon).</p> <ul style="list-style-type: none"> <li>● <b>If patient is already on Interferon discontinue it</b> (If considering use of Tocilizumab)</li> <li>● At least 24-48 hrs gap after last dose of regular interferon, and</li> <li>● At least 3-5 days gap after ‘Pegylated Interferon (taking into consideration average half-life)’ before starting Tocilizumab.</li> <li>● <b>Do Not use or restart</b> Interferon therapy in patient who <b>received Tocilizumab</b></li> </ul> <p><b>Possible use of Convalescent sera</b></p> <p><b>Dosing of Interferon if to be used in individual rare cases not all ICU patients.</b> (The addition of Interferon to be discussed between ID &amp; Primary team) Beta-interferon 1b 0.25 mg Sub-Q on alternative days for total of 5-7 doses <sup>[8]</sup> (10-14 days) or Pegylated Interferon180 microgram once weekly for 2 weeks</p>



For ICU patients consider empirical antibiotics if bacterial co-infection is suspected

**Camostat Mesylate**<sup>[10,17]</sup> is approved drug for medical use in Japan for more than 10 years in other indications like: **Chronic Pancreatitis, Post surgery reflux esophagitis** (Specific dosing regimen information for COVID-19 Not yet available the doses suggested in the guidelines are based on extrapolation from approved dosing regimens for above mentioned other indications.)

- According to research in Germany on SARS-2 Virus of COVID-19 attack on Lung cells in laboratory setting showed that Camostat Mesylate inhibited TMPRSS 2 partially & resulted in ~ 50 % blockage of attack through ACE2 receptors pathway. “Hoffmann et al., SARS-CoV-2 Cell Entry Depends on ACE2 and TMPRSS2 and Is Blocked by a Clinically Proven Protease Inhibitor”, Cell (2020), <https://doi.org/10.1016/j.cell.2020.02.052>.
- As per their recommendation the drug should be tried in clinical studies <sup>16,Hoffmann et al</sup>

**Azithromycin**<sup>[18]</sup>: In the open label French study of COVID-19 Patients of the total 36 patients, 16 were in control arm, 20 were in treatment arm (Hydroxychloroquine). Among hydroxychloroquine-treated patients **six patients** received azithromycin (500mg on day1 followed by 250mg per day, the next four days) to prevent bacterial super-infection under daily electrocardiogram control. (Antiviral effect of Azithromycin either Invitro or In-vivo data for COVID-19 Virus is unknown at this point in time).

The authors of this study conclude that combination therapy led to greater viral load reduction compared to monotherapy with hydroxychloroquine. However, more patients receiving hydroxychloroquine monotherapy had higher baseline viral burden (estimated by cycle threshold values). When limiting the analysis to those with comparable baseline cycle threshold values, combination therapy with hydroxychloroquine and azithromycin led to a similar proportion of negative testing by day 6 compared to hydroxychloroquine monotherapy.

**\*=Note: Addition of Azithromycin is conditional on**

- If patient is suspected to have Bacterial Co-infection **AND**
- Patient is **not on any other QT prolonging drugs** other than chloroquine / hydroxychloroquine or
- No risk for QTc prolongation as per ECG Monitoring criteria mentioned above in Monitoring part (**Strict monitoring for QT prolongation** to be done, if Azithromycin is to be used)
- Dosing of Azithromycin 500 on Day1, then 250 mg once daily (5-7 days)



**Remdesivir:** Is investigational drug for compassionate use. It may require approval from regulator, Hospital Ethics committee for specific patient case, Informed consent from patient explaining to patient its investigational drug, risks vs benefits need to be explained)

## **Tocilizumab “Protocol for severely ill ICU patients with COVID-19 Pneumonia”**

(Do Not Use Sub-Q formulation pre-filled syringes, autoinjectors to prepare IV Solutions) Use only Commercial product specific for IV use)

### **Background:**

In patients with COVID-19 infection with a serious course, there is a picture of pneumonia that can rapidly lead to respiratory failure. The elderly and immunosuppressed subjects are at greatest risk of evolving towards a serious picture of ARDS.

Although immuno-inflammatory therapy is not routinely recommended in **COVID-19** Pneumonia, in consideration of the picture of CRS and of the anatomopathological findings of pulmonary edema and formation of hyaline membranes, a temporally targeted therapeutic approach accompanied by adequate Ventilation support may be of benefit in patients with severe pneumonia who develops ARDS<sup>[15]</sup>

Tocilizumab for Cytokine Release syndrome (CRS):

It is FDA approved drug for treatment of CRS due to (Chimeric antigenic T-Cell therapy):

**Tocilizumab For severely ill ICU patients with COVID-19 Pneumonia** <sup>[7, 15,22,23]</sup>

**Severe Form of Disease** [7]: Adults who meet any one of the following:

Shortness of breath, RR > 30 breaths/minute;

Oxygen saturation < 93% at rest

Arterial oxygen partial pressure (PaO<sub>2</sub>)/ fraction of inspired oxygen (FiO<sub>2</sub>) < 300mmHg (1mmHg=0.133kPa).

### **Step 1:**<sup>[23]</sup>

<b>Grade 1</b> – mild reaction
<b>Grade 2</b> – moderate reaction, fever, need for IVF (not hypotension), mild oxygen requirement
<b>Grade 3</b> – severe, liver test dysfunction, kidney injury, IVF for resuscitation, low dose vasopressor, supplemental oxygen (high flow, BiPAP, CPAP)
<b>Grade 4</b> – life threatening, mechanical ventilation, high dose vasopressors

### **Step2: Determine Treatment Intervention** <sup>[23]</sup>

<i>Grade 1 – No treatment with Tocilizumab</i>
<i>Grade 2 – send for serum IL-6</i>
<i>Grade 3 – send for serum IL-6; consider tocilizumab, if no effect can repeat x 2 more doses Q8H apart; if no response, consider low dose corticosteroids</i>
<i>Grade 4 – send for serum IL-6; consider tocilizumab as Grade 3; consider corticosteroids</i>

Indication criteria for Use of Tocilizumab <sup>[7,15]</sup>

◇ Extensive and bilateral lung disease and severely ill patients with elevated IL-6 level (> 40 pg/ml), alternatively High levels of d-dimer and / or CRP/ or ferritin and / or fibrinogen progressively increasing.

◇ Worsening of respiratory exchanges such as to require non-invasive or invasive support from ventilation

Laboratory Parameters also supportive of cytokine storm <sup>[26]</sup>



- Serum IL-6  $\geq 3x$  upper normal limit
- Ferritin  $>300$  ug/L (or surrogate)
- with doubling within 24 hours
- Ferritin  $>600$  ug/L at presentation
- and LDH  $>250$  U/L
- Elevated D-dimer ( $>1$  mg/L)

Tocilizumab Exclusion Criteria of Patients: <sup>[7,15,24]</sup>

- Active TB
- AST / ALT values higher than 5 times the normal levels.
- Neutrophil value lower than  $500$  cells /  $mm^3$
- Platelets value lower than  $50,000$  cells /  $mm^3$
- Complicated diverticulitis or intestinal perforation

Skin infection in progress (e.g. dermohypodermatitis not controlled by antibiotic therapy)

- Immunosuppressive anti-rejection therapy

Adult Tocilizumab Dosing Regimen <sup>[7,10,15]</sup>

(**Need to Send IL-6 level** prior to giving first dose of Tocilizumab)

The initial dose should be 4-8mg/kg, with **the usual dose 400mg**,

2<sup>nd</sup> infusion 8-12 hours after the first dose. If partial or incomplete clinical response POSSIBLE third infusion 8-12 hrs after the second dose (Maximum 3 doses)

In morbidly obese patients (Maximum dose if calculated by mg per kg basis, is 800 mg/dose)

**Administration:** Dilute in 100 ml of 0.9 % saline, allow diluted solution to reach room temperature, infuse over 60 minutes using **dedicated line** (Do Not infuse if opaque particles or discoloration visible same)

◇ After 24-48hrs from the last dose repeat IL-6 Level & or D-Dimer, CRP, Ferritin, LDH

**Convalescent sera:** Follow Convalescent sera protocol if available at your facility

### Pediatric Patients COVID-19 treatment options

- For Paediatric patients' case by case basis after consultation with ID Physician and concerned speciality
- Consideration of antiviral therapy in combination with Chloroquine should be based on patient condition, safety profile and preference of the patient and treating team.
- Get Informed consent from patient for treatment of COVID19, If patient can't provide consent then his family member /guardian
- \* Chloroquine dose is according to Chloroquine Phosphate salt NOT on Chloroquine Base



In Paediatric ICU if patient is **in early ARDS and Possible Cytokine Storm** as per criteria set in Tocilizumab protocol and may be a candidate for Tocilizumab, **THEN Do-Not Start Interferon** as high risk of potential serious side effects concurrently with two Immune modulating drugs (i.e. Tocilizumab, Interferon).

Interferon should **not be** routine option for all PICU patients, in very rare cases **based on thorough evaluation of serious risks vs benefits** by Intensivist with ID, may be used. (For Interferon dosing check Lexicomp for general dosing according to individual patient need, if need any adjustment or not)

**“Preferred approach** should be to **start other COVID-19 drugs (Do not rush to start Interferon), monitor patient for “Cytokine Storm “if candidate for Tocilizumab” then can use Tocilizumab for 2 doses** in rare cases 3<sup>rd</sup> dose may be considered after thorough evaluation of patient response to Tocilizumab & condition by primary team with ID for risk of serious side effects vs benefits.

- **If patient is already on Interferon discontinue it**(If considering use of Tocilizumab)
- At least 24-48 hrs gap after last dose of regular interferon, and
- At least 3-5 days gap after 'Pegylated Interferon (taking into consideration average half-life) ’ before starting Tocilizumab.
- **Do Not use or restart** Interferon therapy in patient who **received Tocilizumab**

Clinical Presentation	Suggested Medications (for paediatrics)
<b>Confirmed COVID 19</b>	<b>Follow the below recommendations</b>
<b>Drug</b>	<b>General dosing</b>
<b>Hydroxychloroquine Sulfate</b> <sup>[10,20,21]</sup> (Per Oral)	<b>Loading Dose:</b> 10 mg/kg PO (Maximum 400 mg per dose) BID X 2 doses, followed by <b>Maintenance:</b> 3 mg/kg PO (maximum 200 mg per dose) BID Hydroxychloroquine <u>may have advantage over</u> Chloroquine in Pneumonia Cases in pediatrics <u>due to less drug interaction</u> potential with Lopinavir-Ritonavir.
<b>Chloroquine Phosphate</b> <sup>[10,11]</sup> Dose based on Chloroquine Phosphate salt NOT on Chloroquine Base	<b>Chloroquine Loading dose Day One:</b> 8.3 mg/kg Once (Maximum 500 mg per dose) <b>Maintenance dose from day two:</b> 5 mg/kg once daily (250 mg per day)  (Chloroquine Phosphate Normal dose is 8.3 mg/kg/day. However due to interaction between Lopinavir-Ritonavir & Chloroquine the maintenance dose is reduced to 5 mg/kg /day (maximum 250 per day) from Day2)
<b>Lopinavir/Ritonavir</b> <sup>[7,10]</sup>	<b>Weight-directed dosing (Children and Adolescents) (Per oral)</b> <15 kg: Lopinavir 12 mg/3 mg /kg/dose PO twice daily 15 to 40 kg: Lopinavir 10 mg/2.5 mg/kg/dose PO twice daily >40 kg: Lopinavir 400 mg/100 mg PO twice daily



Favipiravir (Avigan) 200 mg Tablet per oral	<b>Favipiravir dosing is in patients <math>\geq 12</math> months of Age &amp; body weight <math>\geq 10</math>kg</b>	
	<b>10-15 kg</b>	<b>Loading Dose: One tablet PO TID for One day (maximum 600 mg/day)</b> <b>Maintenance from Day2: One tablet PO (200 mg) qAM &amp; Half Tablet (100 mg) PO qPM (maximum 300 mg/day)</b>
	<b>16-21 kg</b>	<b>Loading Dose: Two tablets PO TID for One day (maximum 1200 mg/day)</b> <b>Maintenance from Day2 : One Tablet PO TID ( maximum 600 mg/day)</b>
	<b>22-35 kg</b>	<b>Loading Dose: Four tablets PO BID for One day (maximum 1600 mg/day)</b> <b>Maintenance from Day2: Two Tablets PO BID (maximum 800mg/day)</b>
	<b>36-45 kg</b>	<b>Loading Dose: Five tablets PO BID for One day (maximum 2000 mg/day)</b> <b>Maintenance from Day2: Three tablets PO BID (maximum 1200 mg/day)</b>
	<b>45-55 kg</b>	<b>Loading Dose: Six tablets PO BID for One day (maximum 2400 mg/day)</b> <b>Maintenance from Day2: Four tablets PO qAM, Three tablets PO qPM (maximum 1400mg/day)</b>
<b>&gt;55 kg Adult dosing for COVID-19 Loading dose: 1600 mg po BID X 2 doses, followed by 600 mg po BID</b>		

\* [The addition of Kaletra (Lopinavir-Ritonavir for a patient who is already on Hydroxychloroquine and Favipiravir combination therapy, should be on case by case basis as per decision of ID & primary team according to benefits vs risks i.e. Hepatotoxicity & other side effects]

**Tocilizumab use in PICU patients: Use** Restricted to Intensivist & ID only AND COVID-19 positive patients with severe ARDS after failing or not qualifying for first line treatments.

◇ **Need to send for IL-6 Level before starting therapy with Tocilizumab**

**Step 1:**<sup>[23]</sup>

<b>Grade 1</b> – mild reaction
<b>Grade 2</b> – moderate reaction, fever, need for IVF (not hypotension), mild oxygen requirement
<b>Grade 3</b> – severe, liver test dysfunction, kidney injury, IVF for resuscitation, low dose vasopressor, supplemental oxygen (high flow, BiPAP, CPAP)
<b>Grade 4</b> – life threatening, mechanical ventilation, high dose vasopressors

**Step2: Determine Treatment Intervention**<sup>[23]</sup>

<i>Grade 1 – No treatment with Tocilizumab</i>
<b>Grade 2 – send for serum IL-6</b>
<b>Grade 3 – send for serum IL-6; consider tocilizumab, if no effect can repeat x 2 more doses Q8H apart; if no response, consider low dose corticosteroids</b>
<b>Grade 4 – send for serum IL-6; consider tocilizumab as Grade 3; consider corticosteroids</b>

**Severe Form of Disease in Children [7]:** Children who meet any one of the following:

- Show shortness of breath (< 2 months old, RR > 60 times/min;
- 2~12 months old, RR > 50 times/min;



- 1~5 years old, RR > 40 times/min; except the effects of fever and crying;
- Oxygen saturation <92% at rest.

Labored breathing (wheezing, flaring of nostrils, three concave sign), cyanosis, intermittent apnea.

- Lethargy, convulsions.
- Refusal to eat or difficulty feeding; signs of dehydration.

**Critical form of Disease:** Meeting any of the following criteria:

- ◇ Respiratory failure occurs and mechanical ventilation is required, Shock,
- ◇ Combined failure of other organs that requires ICU monitoring

**Indication criteria for Use of Tocilizumab** [7,15,23,25]

- ◇ Extensive and bilateral lung disease and severely ill patients with elevated IL-6 level
- ◇ Alternatively, High levels of d-dimer and / or CRP/ or ferritin and / or fibrinogen progressively increasing.
- ◇ Worsening of respiratory exchanges such as to require non-invasive or invasive support from ventilation

**Laboratory Parameters also supportive of cytokine storm** [25]

The inflammatory markers criteria should be in context of IL-6 along with other markers mentioned below

- Serum IL-6 > 10 x upper normal limit
- Ferritin >300 ug/L (or surrogate)
- with doubling within 24 hours
- Ferritin >600 ug/L at presentation
- and LDH >250 U/L
- Elevated D-dimer (>1 mg/L)
- High CRP

**Tocilizumab Exclusion Criteria of Patient:** [7,15,24]

- Active TB
- AST / ALT values higher than 5 times the normal levels.
- Neutrophil value lower than 500 cells / mm<sup>3</sup>
- Platelets value lower than 50,000 cells /mm<sup>3</sup>
- Complicated diverticulitis or intestinal perforation
- Skin infection in progress (e.g. dermohypodermatitis not controlled by antibiotic therapy)
- Immunosuppressive anti-rejection therapy

**Tocilizumab Paediatric dosing regimen: Cytokine Release Syndrome (CRS) due to chimeric antigen receptor T-Cell Therapy, Severe or life threatening.** [10]: (Round to nearest 200 mg) - based on actual body weight)

- **Weight < 30 kg:** 12 mg/kg/dose x 1 IV infusion
- **Weight ≥ 30 kg:** 8 mg/kg/dose (maximum 400 mg per dose) x 1 IV infusion

**Can use Tocilizumab for 2 doses** in rare cases 3<sup>rd</sup> dose may be required.

(The decision to repeat the dosing must be thoroughly evaluated in view of clinical improvement and benefits vs potential harm) 2<sup>nd</sup> dose **not earlier than** 8-12hrs after the 1<sup>st</sup> dose &



**Administration:** Dilute in 100 ml of 0.9 % saline, allow diluted solution to reach room temperature, infuse over 60 minutes using **dedicated line** (Do Not infuse if opaque particles or discoloration visible same)

- ◇ After 24-48hrs from the last dose repeat IL-6 Level & or D-Dimer, CRP, Ferritin, LDH.

### Explanation for Calculation of “Favipiravir dosing” for COVID-19 in paediatrics

**Use of Favipiravir [19,20] (Avigan) In Paediatrics’  $\geq 12$  months of Age & body weight  $\geq 10$ kg :** As such no dosing information data available from any ongoing or proposed trial or study in Paediatrics’ in COVID-19. Dosing regimens were derived based on Pharmacokinetic simulation & allometric dosing method from the doses used in Ebola Trial [19] in 12 children  $\geq 12$  months of Age & body weight  $\geq 10$ kg [19].

**Adult patients Favipiravir (Avigan) COVID-19 Dosing is less than Ebola dosing i.e. (COVID-19 Loading dose is 50% less , maintenance dose 25% less compared to Ebola Loading & maintenance dose) based on almost similar scale it is plausible to adopt the same strategy in children for dose reduction as well for the safety reasons and hence COVID-19 dosing were adopted for “Paediatrics”**

### Pregnant patient

In **Pregnant Patients** management of COVID-19 Case by case basis with ID Consultation and obstetrician

### Medication Safety Information

#### Drug Use Management of COVID-19 Patients

**Follow the basic principle of Medicine” First Do No Harm”**

COVID -19 patients are often with underlying diseases receiving multiple types of drugs, at risk for adverse effects.

The following is expected from every healthcare giver to ensure safety of treatment options

- **Strict compliance** to Labs, ECG monitoring Parameters (mentioned in this guideline)
- Side Effects Monitoring, prompt action accordingly
- Check for Drug interaction & if dose adjustment required when patient is on COVID-19 drugs.

#### Nursing monitoring Parameters:

- ◇ For any potential side effects and inform MD on Duty “
- ◇ Strict Monitoring of Glucose, Hypoglycaemia especially in diabetic or NPO, Insulin & Diabetic medications dose adjustment may be required case on cases basis
- ◇ Monitor sign of arrhythmia, immediately inform MD

**Rule of out Pregnancy in women of childbearing age before starting Favipiravir. It is absolutely contraindicated in pregnancy.**



**Favipiravir is distributed in Sperms. Male patients must avoid** unprotected intercourse or sex with pregnant women for 4 weeks after stopping favipiravir.

- Check for any potential drug interaction if patient is on any other medication or being started while on COVID-19 treatment
- Avoid concurrent use of Macrolides, and other QT prolonging drugs in patient with chloroquine therapy if possible
- Keep monitoring patient clinically for any early sign of potential drug adverse effect and take prompt action to assess the patient regimen and manage accordingly
- When administering **Favipiravir** to **lactating women**, instruct to stop lactating.

(The major metabolite of Favipiravir, a hydroxylated form, was found to be distributed in breast milk.)

### Hydroxychloroquine & G6PD Concerns:

- " In Lexicomp Drug information source: It mentions as precaution not Contra-indication for G6PD deficiency: Although the manufacturer's labelling recommends hydroxychloroquine be used with caution in patients with G6PD deficiency due to a potential for haemolytic anaemia, there is limited data to support this risk. Many experts consider hydroxychloroquine, when given in usual therapeutic doses to WHO Class II and III G6PD deficient patients, to probably be safe (Cappellini 2008; Glader 2017; Luzzatto 2016; Youngster 2010). Safety in Class I G6PD deficiency (ie, severe form of the deficiency associated with chronic hemolytic anemia) is generally unknown (Glader 2017). In a retrospective chart review, no incidence of hemolytic anemia was found among the 11 patients identified with G6PD deficiency receiving hydroxychloroquine therapy, despite >700 months of exposure (all patients were African American and located in the US) (Mohammad 2017). In addition, the ACR Rheumatology guidelines do not mention the need to evaluate G6PD levels prior to initiation of therapy (Singh 2016).
- So, if used, exercise cautions and monitor closely for any early sign of Hemolytic anemia & manage accordingly
  - **8001717: The Operation Center, Department Of Health**
  - **80011111: Ministry Of Health And Prevention**
  - **800342: Dubai Health Authority**
- If you are advised to report to nearest Hospital ER or PHC, please wash your hands thoroughly before leaving home and put on a face mask.
- Please do not hesitate in contacting health authorities if you have any other queries related to



COVID19 regarding yourself or other family members

If you think that the situation is serious, please contact the Ambulance Service and they will attend you immediately whenever needed

### Discharge Criteria for COVID19 confirmed cases

- if COVID19 PCR test from nasopharyngeal sample or lower respiratory sample is positive, repeat samples after 5 days and every 72 hours thereafter.
- Once a sample becomes negative, collect after 24 hours
  
- Patient can be discharged once they have
  - 2 consecutive Negative tests for COVID 19 that are more than 24 hours apart
  - Patient is afebrile for more than 3 days and
  - Patient has minimal respiratory symptoms and
  - Pulmonary imaging (CXR/ HRCT) shows significant improvement
  
- Discharged patients to be seen in the clinic in the hospital after 2 weeks, unless patient develops respiratory symptoms to attend earlier.
- If asymptomatic at 2 weeks, no more follow up
- All patients after discharge should be quarantined at home for 14 days from discharge date and instructions and quarantine undertaking to be given to the patient and documented in medical record
- Notify Public health/Preventive medicine at discharge.

### Infection Control Measures for Suspected or Confirmed COVID19 Cases in Healthcare Facilities

#### Early Recognition

#### Enhance early recognition of suspected cases by:

- Visual triage at the entry point of the healthcare facility, for early identification of all patients with acute respiratory illness (ARI).
- Visual triage station should be placed at the entry point of the AE and any entry point
- Attended by a trained nurse or nurse assistant. Staff should be trained on appropriate questions to ask as well as actions based on findings and updated case definition
- Post visual alert signage to enhance self-reporting by symptomatic patients.
- Provide enough supply of surgical masks & hand hygiene sanitizers in the AE room.
- All identified acute respiratory infection (ARI) patients should be offered to



- Wear a surgical mask, if they can tolerate it, and should be asked to perform hand hygiene.
- All contacts of suspected patients should also be offered to wear a surgical mask and should be asked to perform hand hygiene.
- Do not allow suspected COVID19 into common areas with other patients.
- Place suspected COVID19 in a dedicated waiting area with at least 3 feet and preferably 6 feet distance between them.
- Screen all patients walking into the ED for symptoms of acute respiratory illness (ARI) using the COVID-19 visual triage form below.
- Perform Infection Control Risk Assessment in triage.

## Infection Control Practices In Healthcare Facilities:

### Training

- All healthcare workers entering these rooms should be trained on proper use of PPE and fit tested in order to use N95.(Appendix I)
- Ensure that patients and visitors receive education about the precautions being used; the duration of precautions; the prevention of transmission of infection to others; and use of appropriate PPE.
- Ensure that front line staff as well as other staff at risks i.e. radiology, respiratory therapist; cleaning staff receive training on COVID19 preventative strategies.

***The mode of transmission of COVID 19 remains unknown.***

### General recommendations:

#### Implement Standard Precautions for all patients at all times focusing on

- Hand hygiene: adherence to WHO steps and moments
- Ensure availability and Proper use of PPE.
- Follow Respiratory Hygiene Practices:
  - Offer a medical mask for suspected cases of COVID 19 for those who can tolerate it.
  - Educate patient and relatives about cough and sneeze etiquette ie. Cover nose and mouth during coughing or sneezing with tissue or flexed elbow for others.
  - Avoid touching your eyes, mouth or nose.
  - Post visual aid for cough etiquette, hand hygiene and symptoms to report early.
- Risk assessment is critical for all activities, i.e. assess each health care activity and determine the personal protective equipment (PPE) that is needed for adequate protection.



## Practice droplet and contact Precaution when dealing with Suspected Cases (Appendix I)

### For suspected cases:

Patients to be placed in a single room with its own toilet.

### Practise droplet and contact precautions for suspected cases:

- Wear a surgical mask, eye protection i.e. goggles or a face shield, gloves and impermeable gown.
- Practice airborne precautions for aerosol-generating procedures (wear fit tested N95 mask) as (bronchoscopy, open suction, nebulization, sputum induction, ambu-bagging intubation and extubation, BiPAP, CPR, and autopsy)

## Practice droplet and contact Precaution when dealing with Confirmed Cases

### For confirmed cases:

- Place patient in airborne infection isolation room if available, otherwise in a single room with good ventilation.
- If a negative pressure room is needed for aerosol generation procedures but not available, arrange to transfer the patient to a hospital with AIIR capability, or put the patient in a single room and place air disinfectant (Plasma air or Portable HEPA filter) in the room, next to patient's head.
- Avoid the presence of unnecessary individuals in the room.
- Practice airborne precautions for aerosol-generating procedures
- Note that high risk patients may present with mild symptoms but are at high risk of deterioration.

## Personal Protective Equipment (PPE) for confirmed cases of COVID 19

PPE should be available where and when it is indicated in the correct size and sufficient quantity

- Ensure all staff wear a fit-tested N95 mask, eye protection i.e. goggles or a face shield, gloves, head cover and impermeable gown
- Designate staff who will be responsible for caring for suspected or known COVID-19 patients. Ensure they are trained on the infection prevention and control recommendations for COVID-19 and proper use of personal protective equipment.
- All health care provider should wear and remove the PPE safely.
- If there is concern and/or breach of PPE during patient care, leave the patient care area when safe to do so and properly remove and change the PPE and report it to your direct line manager and infection control Practitioner/unit
- Minimize the time spent and entry to the patient room by cohorting the task together
- All PPE should be used for certain task with certain patient and should be removed and discarded before leaving the patient room except N95 will be removed immediately outside patient room
- In case of shortage of PPE, refer to WHO and CDC guidelines for extended use/reuse of PPE



### Patient Care Equipment

- When possible use disposable devices or equipment.
- If disposables devices and equipment not an option, dedicate devices or equipment to a single patient
- If dedicated devices or equipment is not available, clean and disinfect the shared equipment before using it for other patients with approved disinfectant maintaining product contact time
- Approved disinfectant for COVID 19: quaternary ammonium compounds, sodium hypochlorite and 70% alcohol wipes

### Patient Transport in the hospital

- Avoid the movement and transport of patients out of the isolation room or area unless medically necessary.
- The use of designated portable X-ray, ultrasound, echocardiogram and other important diagnostic machines is recommended when possible.
- If transport is unavoidable, the following should be observed:
  - Patients should wear a surgical mask during movement to contain secretions.
  - Use routes of transport that minimize exposures of staff, other patients, and visitors.
  - Notify the receiving area of the patient's diagnosis and necessary precautions before the patient's arrival.
  - Ensure that healthcare workers (HCWs) who are transporting patients wear appropriate PPE if they will participate in direct patient care and perform hand hygiene afterward.
  - Area used by the patient/wheelchair to be cleaned appropriately after patient's transfer.

### Patient Transport to another facility:

- Inform the other facility about referring a suspected/confirmed case
- Call ambulance and inform about the case being suspected/confirmed COVID 19, which will be transferred in designated ambulance
- If hospital ambulance used ensure that ambulance will be cleaned and disinfected based on hospital guide
- If ambulance personnel will come in contact with the patient, they should wear appropriate PPE.



### Additional Measures

- Dedicate HCWs and limit the number of persons present in the room to the absolute minimum required for the patient's care and support
- Limit visitors entering the room to the minimum necessary.
- Keep log sheet of all persons coming in contact with the suspected/confirmed COVID 19 patients
- Exclude immunocompromised, pregnant, non-competent staff from the care of suspected/confirmed COVID 19 patients

### Environmental cleaning in isolation rooms/areas

- Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly
- Increase frequency of cleaning by housekeeping in patient care areas especially high touch surfaces (door handle, call bell, patient side rails ...etc.)
- Isolation areas should have their own cleaning supplies that are separate from clean patient care areas and are kept in or near isolation area
- Responsible housekeeping staff should be trained and educated with regard to cleaning method and technique, donning and doffing of PPE, spill management, dealing with occupational exposure ...etc.)
- Cleaners/housekeeping should wear appropriate PPE when cleaning an isolation room or area
- All waste from the isolation area is considered contaminated and should be disposed of following your facilities methods for contaminated waste use Virkon or sodium hypochlorite for regular cleaning while patient is in the isolation room.
- After patient is discharged, use terminal cleaning with fumigation with accelerated hydrogen peroxide 6% or use UVC, time and cycles adjusted per room size and shape.

### Linen and laundry management, food service utensils and waste management, related to COVID19 case

Refer to the facility guideline/ protocol for waste management, to be dealt with as infectious material



## Managing Suspected /Confirmed case in Operation Theater

- Postpone elective operations immediately.
- Only emergency or medically necessary surgery should be performed
- Designate a specific operating theater for all COVID-19 cases. This room should be out of high-traffic areas and be completely emptied of all non-essential materials. When an anteroom is available, this should be used as an area for donning and doffing of personal protective equipment and exchange of equipment, medications and materials for the case.
- Use of personal protective equipment is recommended by the Centers for Disease Control for every operative procedure performed on a patient with confirmed COVID-19 infection or a patient where there is suspicion for infection.
- N95 respirators or respirators that offer a higher level of protection should be used when Performing, or present for, an aerosol-generating procedure (e.g. OR patient intubation) in COVID-19 or suspected infected patient.
- All traffic in and out of the operating theater should be minimized. A runner or support staff should be dedicated to the Operating theater to provide all materials needed throughout the case with exchanges performed using a material exchange cart placed immediately outside of the room or in the anteroom.
- Procedures should be performed by senior and experienced staff to minimize procedure time.

### **Performing intubation and/or extubation in Operating Room (OR):**

- Ideally intubate patients in an Airborne Infection Isolation Room (AII) room and then transfer them to the positive pressure OR (once intubated they are considered low risk because it is a closed system). Also consider transferring the patient to an AII room for extubation.
- If not possible, a portable high-efficiency particulate air (HEPA) filtration unit may be used by positioning the unit near the patient's breathing zone.
- switching the portable unit off during the surgical procedure.
- Only essential personnel wearing respiratory protection, such as an N95 respirator or PAPR, should be in the OR when intubation and extubation occur
- A bacterial filter that filters particles 0.3  $\mu\text{m}$  in size and has a filter efficiency of >95 percent should be placed on the patient's anesthesia breathing circuit at the endotracheal tube or expiratory side of the circuit. The entire circuit should be changed after the surgery is completed

### **After the procedure:**

- the patient should be recovered in the operating theatre with dedicated staff until they can be transferred to an isolation room on the ward or in the intensive care unit.
- Adequate air exchanges should occur before environmental services enters the room for cleaning. With 15-20 air exchanges it will be around 30 minutes.



## Managing bodies in the Mortuary

- Although no post-mortem transmission of COVID 19 has been documented, deceased bodies theoretically may pose a risk when handled by untrained personnel.

### Preparing and packing the body for transfer from a patient room to mortuary

- The health worker attending to the dead body should follow standard precaution such as perform hand hygiene, ensure proper use of PPE (water resistant apron, goggles, N95 mask, gloves).
- All tubes, drains, and catheters on the dead body should be removed. Any puncture holes or wounds (resulting from removal of catheter, drains, tubes, or otherwise) should be contained with dressing.
- Keep both the movement and handling of the body to a minimum;
- There is no need to disinfect the body before transfer to the mortuary area
- Place patient in leak-proof plastic body bag (Cadaver bags) and those handling the body at this point should use PPE (surgical mask, clean gloves, and isolation gown).
- If the family of the patient wishes to view the body at the time of removal from the isolation room or area, they may be allowed to do so with the application of **Standard Precautions and should wash hands thoroughly with soap and water after the viewing.**
- **Give the family clear instructions not to touch, kiss or hug the body, Adults >60 years and immunosuppressed persons should not directly interact with the body**
- Morgue's staff should be informed about infectious status of the deceased, risk of infection and appropriate precautions required before transferring the patient to mortuary and should be well trained on standard precaution and infection control measure.
- Limit the number of Mortuary staff handling COVID dead body to limit the exposure
- No special transport equipment or vehicle is required. The trolley carrying the body must be disinfected after transmission with approved disinfectant (with 1% Hypochlorite solution, quarterly ammonium chloride ...etc)
- Dead bodies should be stored in cold chambers maintained at approximately 4°C
- The mortuary must be kept clean. Environmental surfaces, instruments and transport trolleys should be properly disinfected
- **Preparing and transferring the body from mortuary to Graveyard**
- The body is prepared for burial in mortuary department of the healthcare facility as its forbidden to transport it to the home and it is only allowed to move it to public washing



places with trained and competent people with appropriate equipment to deal with the dead bodies of infectious diseases.

- Limit the number of people washing the body
- All personal performing the body wash should be competent and should wear appropriate PPE (gloves, mask, gown and face shield) and should thoroughly wash their hands with soap and water when finished
- Instruct the family to avoid large gathering at the burial ground it should limited to close family contacts
- 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, Clothing and other fabric belonging to the deceased should be machine washed with warm water at 60–90°C (140–194°F) and laundry detergent
- After removing the body, the mortuary fridge, door, handles and floor should be cleaned with approved disinfectant such as 1% Hypochlorite solution
- The vehicle, after the transfer of the body must be decontaminated

## Surveillance

- Develop a database containing information for all suspected/confirmed case who were/are assessed at your facility.
- Develop a database containing information for all healthcare workers and visitors that were in contact /caring for the confirmed cases of COVID 19

## Surge capacity

- Develop an emergency response plans to provide surge capacity, the plan should include human resources; staffed beds, ICU and non-ICU beds; critical equipment, supplies and other resources, including extra quantities of personal protective equipment, ventilators, ECMO machines, etc...).



## Occupational Health for Healthcare workers

### This Guidance is for Screening, Risk Assessment, Active Management and Return to Work Policy on Occupational Exposure to Patients with Coronavirus Disease

- This guidance is based on currently available data about COVID-19. Recommendations will be updated as more information becomes available
- The guidelines cover Screening, Risk Assessment post exposure, Active management and Return to Work policy for Health Care Providers (HCP).
- Recommendations regarding which HCP are restricted from work may not anticipate every potential exposure scenario and will be updated according to new information emerging.
- Healthcare facilities should have a low threshold for evaluating symptoms and testing symptomatic HCP, particularly those who fall into the *high-* and *medium-* risk categories described in this guidance.
- Healthcare facilities, in consultation with public health authorities, should use clinical judgement as well as the principles outlined in this guidance to assign risk and determine need for work restrictions.
- Currently, this guidance applies to HCP with potential exposure in a healthcare setting to patients with confirmed COVID-19. However, HCP exposures could involve a PUI who is awaiting testing. Implementation of monitoring and work restrictions described in this guidance could be applied to HCP exposed to a PUI if test results for the PUI are not expected to return within 48 to 72 hours. A record of HCP exposed to a PUI should be maintained and HCP should be encouraged to perform self-monitoring while awaiting test results. If the results will be delayed more than 72 hours or the patient is positive for COVID-19, then the monitoring and work restrictions described in this document should be followed.
- Healthcare facilities should have a low threshold for screening staff in high-risk areas like Emergency rooms, Primary Healthcare Centers and Isolation facilities. In addition, immediate triage pathway (clinical examination and testing) should be implemented for HCP falling under High and Medium risk exposure as will be detailed below in this guidance.
- Healthcare facilities should use clinical judgement as well as the principles outlined in this guidance to assign risk and determine need for work restrictions.
- Asymptomatic HCP who have had an exposure to COVID19 patients will be allowed to continue to work in case of severe staff shortage that is affecting smooth daily workflow and after consultation and approval from direct line manager and Occupational Health Clinics or other designated clinics in each Health Authority or Facility.
- This guidance does not cover Community Exposure or Travel-related Exposure in HCP. Please refer to related Public Health Policies and procedures in this regard.
- At the time of preparing this document, decision will be made can be made using a test-based strategy. Testing guidance is based upon limited information and is subject to change as more information becomes available.



## **Definitions related to Occupational Health for Healthcare workers**

**Self-monitoring:** HCP should monitor themselves for fever by taking their temperature twice a day and remain alert for respiratory symptoms (e.g., cough, shortness of breath, sore throat, headache). Anyone on self-monitoring should be provided a plan for whom to contact if they develop fever or respiratory symptoms during the self-monitoring period to determine whether medical evaluation is needed.

**Active monitoring:** The facility or the local public health authority assumes responsibility for establishing regular daily follow up of potentially exposed HCP in High or Medium risk category to assess for the presence of fever and/or active respiratory symptoms. Mode of communication may include telephone calls, mobile Apps or any electronic-based means of communication. This can be delegated to facility occupational health clinics, infection control offices or other designated teams/clinics at the discretion of hospitals and local Health Care Authorities.

**Self-Monitoring with delegated supervision:** in a healthcare setting means HCP perform self-monitoring with oversight by their healthcare facility's occupational health or infection control office. On days HCP are scheduled to work, healthcare facilities could consider measuring temperature and assessing symptoms prior to starting work. Alternatively, a facility may consider having HCP report temperature and absence of symptoms to occupational health prior to starting work. Mode of communication may include telephone calls, mobile Apps or any electronic-based means of communication.

**Close contact:** for healthcare exposures is defined as follows: a) being within approximately 6 feet (2 meters), of a person with COVID-19 for a prolonged period of time (such as caring for or visiting the patient; or sitting within 6 feet of the patient in a healthcare waiting area or room); or b) having unprotected direct contact with infectious secretions or excretions of the patient (e.g., being coughed on, touching used tissues with a bare hands).

- Data are limited for definitions of close contact.

Factors for consideration include

- the duration of exposure (e.g., longer exposure time likely increases exposure risk)
- clinical symptoms of the patient (e.g., coughing likely increases exposure risk)
- whether the patient was wearing a facemask (which can efficiently block respiratory secretions from contaminating others and the environment)
- PPE used by personnel
- whether aerosol-generating procedures were performed.



## **Defining Exposure Risk Category**

**High-risk exposures:** refer to HCP who have had prolonged close contact with patients with COVID-19 who were not wearing a facemask while HCP nose and mouth were exposed to material potentially infectious with the virus causing COVID-19.

**Medium-risk exposures:** include HCP who had prolonged close contact with patients with COVID-19 who were wearing a facemask while HCP nose and mouth were exposed to material potentially infectious with the virus causing COVID-19.

HCP who were wearing a gown, gloves, eye protection and a facemask (instead of N95) during an aerosol-generating procedure would be considered to have a medium-risk exposure. If an aerosol-generating procedure had not been performed, they would have been considered low-risk.

**Low-risk exposures:** refer to brief interactions with patients with COVID-19 or prolonged close contact with patients who were wearing a facemask for source control while HCP were wearing a facemask or respirator. Use of eye protection, in addition to a facemask or respirator would further lower the risk of exposure. HCP not using all recommended PPE who have only brief interactions with a patient regardless of whether patient was wearing a facemask are considered low risk. Examples of brief interactions include: brief conversation at a triage desk; briefly entering a patient room but not having direct contact with the patient or the patient's secretions/excretions; entering the patient room immediately after the patient was discharged.

**No identifiable risk exposure:** HCP who walk by a patient or who have no direct contact with the patient or their secretions/excretions and no entry into the patient room are considered to have no identifiable risk. HCP falling in this category do not require monitoring or restriction from work.

### **A- Screening Recommendations:**

- In view of increasing risk of COVID19 acquisition in healthcare settings and in the community, it is recommended to perform regular screening (every 2-4 weeks) for HCP working in front lines who come into frequent and incidentally un-protected exposure to COVID19 positive cases.
- This includes staff in Emergency Rooms, Isolation units/facilities, Institutional Quarantine facilities, Intensive care Units and Primary Healthcare Centers and virology labs processing COVID19 samples.

### **B- Risk Assessment**

- While body fluids other than respiratory secretions have not been clearly implicated in transmission of COVID-19, unprotected contact with other body fluids, including blood, stool, vomit, and urine, might put HCP at risk of COVID-19. Proper adherence to currently recommended infection control practices, including all recommended PPE, should protect HCP having prolonged close contact with patients infected with COVID-19.
- HCP with no direct patient contact and no entry into active patient management areas who adhere to routine safety precautions do not have a risk of exposure to COVID-19 (i.e., they have no identifiable risk and should not be tested routinely).



- HCP in any of the risk exposure categories who develop signs or symptoms compatible with COVID-19 must contact their established point of contact (public health authorities or their facility's occupational health clinic) for medical evaluation prior to returning to work.

### **C- Active Management**

- **HCP in the high- or medium-risk category** should undergo
  - restriction from work in any healthcare setting preferably until 14 days, (may be reduced to 7 days in case of staff shortage) after their last exposure and quarantine at home for the same period
  - test for COVID-19 by SARS CoV2 PCR
  - active monitoring for fever and symptoms related to COVID-19
  - If they develop any fever (measured temperature > 38 degrees OR respiratory symptoms consistent with COVID-19, they should immediately self-isolate and notify their line manager and healthcare facility promptly to be retested
- **HCP in the low-risk category** should
  - Perform self-monitoring with delegated supervision until 14 days after the last potential exposure.
  - Asymptomatic HCP in this category are not restricted from work.
  - They should check their temperature twice daily and remain alert for respiratory symptoms consistent with COVID-19.
  - They should ensure they are afebrile and asymptomatic before leaving home and reporting for work. If they do not have fever or respiratory symptoms, they may report to work.
  - If they develop fever (measured temperature  $\geq$  38 degrees or subjective fever) OR respiratory symptoms they should immediately self-isolate and notify their line manager and their healthcare facility promptly.
  - On days HCP are scheduled to work, healthcare facilities could consider measuring temperature and assessing symptoms prior to starting work.
  - Should wear mask all the time and ensure contact and droplet precautions while dealing with others

### **D- Return to Work Criteria for HCP with Confirmed or Suspected COVID-19**

- Decisions about return to work for HCP with confirmed or suspected COVID-19 should be made in the context of local circumstances, risk stratification of degree of potential exposure and work load/nature in that particular care area in healthcare facility.
- Un-justified restriction of HCP from work can lead to increased workload on remaining team members, increased risk of medical errors and delayed patient care and discharge process. It can also lead to breaches in Infection Control measures by exposing reduced numbers of HCP to increasing number of patients.
- The HCP should still report temperature and absence of symptoms each day prior to starting work.
- The HCP should wear a facemask and practice frequent and adequate Hand Hygiene during working hours.
- If HCP develop even mild symptoms consistent with COVID-19, they must cease patient care activities, notify their line manager/Infection Control office immediately



- If signs/symptoms are reported during working hours: HCP should attend Occupational Health clinic (or equivalent) during working hours and ED after working hours.
- HCP will be Patient Under Investigation (PUI) and appropriate work up as per pathway will be initiated.

At the time of preparing this document, decision can be made using a test-based strategy

**Epidemiologic Risk Classification<sup>1</sup> for Asymptomatic Healthcare Personnel Following Exposure to Patients with Coronavirus Disease (COVID-19) or their Secretions/Excretions in a Healthcare Setting, and their Associated Monitoring and Work Restriction Recommendations**

Epidemiologic risk factors	Exposure category	Recommended Monitoring for COVID-19 (until 14 days after last potential exposure)	Work Restrictions for Asymptomatic HCP
<b>Prolonged close contact with a COVID-19 patient who was wearing a facemask (i.e., source control)</b>			
HCP PPE: None	Medium	Active	Exclude from work for 14 days after last exposure
HCP PPE: Not wearing a facemask or respirator	Medium	Active	Exclude from work for 14 days after last exposure
HCP PPE: Not wearing eye protection	Low	Self with delegated supervision	None
HCP PPE: Not wearing gown or gloves <sup>a</sup>	Low	Self with delegated supervision	None
HCP PPE: Wearing all recommended PPE (except wearing a facemask instead of a respirator)	Low	Self with delegated supervision	None



**Epidemiologic Risk Classification<sup>1</sup> for Asymptomatic Healthcare Personnel Following Exposure to Patients with Coronavirus Disease (COVID-19) or their Secretions/Excretions in a Healthcare Setting, and their Associated Monitoring and Work Restriction Recommendations**

Epidemiologic risk factors	Exposure category	Recommended Monitoring for COVID-19 (until 14 days after last potential exposure)	Work Restrictions for Asymptomatic HCP
<b>Prolonged close contact with a COVID-19 patient who was not wearing a facemask (i.e., no source control)</b>			
HCP PPE: None	High	Active	Exclude from work for 14 days after last exposure
HCP PPE: Not wearing a facemask or respirator	High	Active	Exclude from work for 14 days after last exposure
HCP PPE: Not wearing eye protection <sup>b</sup>	Medium	Active	Exclude from work for 14 days after last exposure
HCP PPE: Not wearing gown or gloves <sup>a,b</sup>	Low	Self with delegated supervision	None
HCP PPE: Wearing all recommended PPE (except wearing a facemask instead of a respirator) <sup>b</sup>	Low	Self with delegated supervision	None

HCP=healthcare personnel; PPE=personal protective equipment

<sup>a</sup>The risk category for these rows would be elevated by one level if HCP had extensive body contact with the patients (e.g., rolling the patient).

<sup>b</sup>The risk category for these rows would be elevated by one level if HCP performed or were present for a procedure likely to generate higher concentrations of respiratory secretions or aerosols (e.g., cardiopulmonary resuscitation, intubation, extubation, bronchoscopy, nebulizer therapy, sputum induction). For example, HCP who were wearing a gown, gloves, eye protection and a facemask (instead of a respirator) during an aerosol-generating procedure would be considered to have a medium-risk exposure.

**Exclude from work until**

- Resolution of fever without the use Antipyretics **and**
- Improvement in respiratory symptoms (e.g., cough, shortness of breath), **and**
- Negative results: at least two consecutive nasopharyngeal swab specimens collected  $\geq 24$  hours apart (total of two negative specimens) even if less than 14 days (in case of staff shortage)
- All test results should be final before isolation is ended and the HCP is allowed to resume duties.

**TABLE 2: Aerosol- generating procedures**

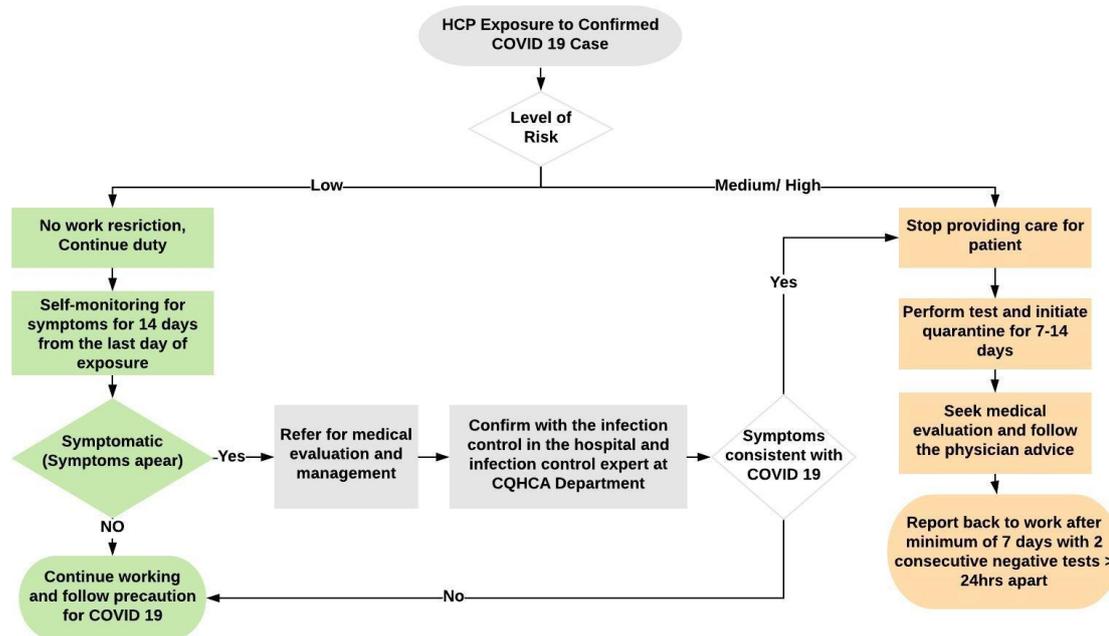
Aerosol- generating procedures putting HCP at high –risk exposure category on patients with COVID-19 when the healthcare providers’ eyes, nose, or mouth were not protected:

- Cardiopulmonary resuscitation
- Intubation
- Extubation
- Ambu Bagging
- Bronchoscopy
- Upper GI endoscopy
- Dental Procedures
- Nebulizer therapy
- Sputum induction

## Flowchart on the Management of Healthcare Workers Exposure to COVID 19

**Attachment 2:** Flowchart on the Management of Health care provider’s Exposure to Coronavirus Disease (COVID 19).

**Note:** This Flowchart is applicable only to HCPs that have provided direct care to a confirmed case of COVID 19. Exposure risk assessment must be conducted by the facility's Infection Control Practitioner, using Attachment 1.



**High-risk exposures:**HCP who have had prolonged close contact withpatients with COVID-19 who were not wearing a facemaskwhile HCP nose and mouth were exposedto material potentially infectious with the virus causing COVID-19.

**Medium-risk exposures:**HCP who had prolonged close contact withpatients with COVID-19 who were wearing a facemaskwhile HCP nose and mouth were exposedto material potentially infectious with the virus causing COVID-19.

**Low-risk exposures:**brief interactions with patients with COVID-19 or prolonged close contact withpatients who were wearing a facemaskfor source controlwhile HCP were wearing a facemask or respirator.

\* quarantine Ideally for 14 days, but if staff shortage may reduce to at least7 days



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## Appendix I: Proper Use of PPE

### COVID-19 Personal Protective Equipment (PPE) for Healthcare Personnel

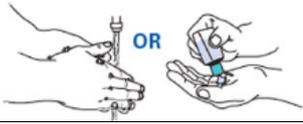
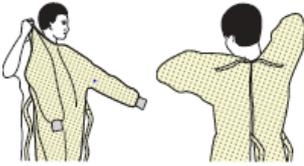
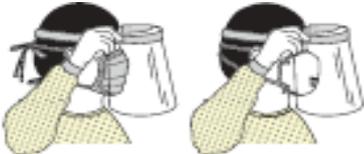
Preferred PPE – Use N95 or Higher Respirator	Acceptable Alternative PPE – Use Facemask
<p>Face shield or goggles</p> <p>N95 or higher respirator</p> <p>When respirators are not available, use the best available alternative, like a facemask.</p> <p>One pair of clean, non-sterile gloves</p> <p>Isolation gown</p>	<p>Face shield or goggles</p> <p>Facemask</p> <p>N95 or higher respirators are preferred but facemasks are an acceptable alternative.</p> <p>One pair of clean, non-sterile gloves</p> <p>Isolation gown</p>

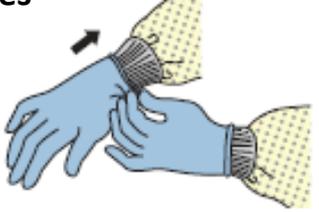
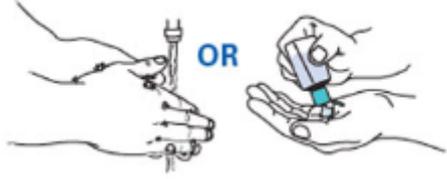
[cdc.gov/COVID19](https://www.cdc.gov/COVID19)

CS 115808 C 03/20/2020

## Donning Personal Protective Equipment (PPE)

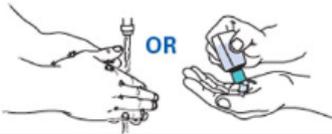
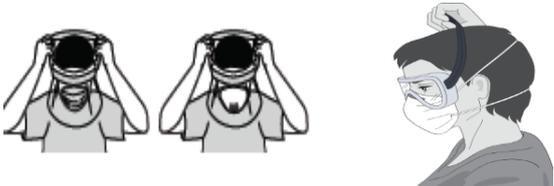
The following PPE sequence is specific to the situation requiring **Standard, Contact, and Airborne precautions.**

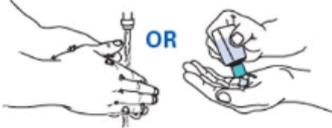
Step	Coaching Sequence	Observed
<p><b>1. Hand Hygiene</b></p> 	<p>1. Perform hand hygiene following WHO steps.</p>	<input type="checkbox"/>
<p><b>2. Gown</b></p> 	<p>1. Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back. 2. Fasten gown by tying at the waist.</p>	<input type="checkbox"/>  <input type="checkbox"/>
<p><b>3. N95 Mask</b></p>  <p><b>Perform a user seal Check</b></p> 	<p>1. Cup the respirator in your hand with the nosepiece at fingertips, allowing the head straps to hang freely below hand. 2. Position the respirator under your chin with the nosepiece up while holding the respirator in place, pull the top strap over your head. 3. While continuing to hold the respirator firmly in place, pull the bottom strap over your head and position it below your ears. Untwist the straps. Position the respirator low on your nose. 4. Using both hands, mold the nosepiece to the shape of your nose by pushing inward while moving your fingertips down both sides of the nosepiece. 5. <b><u>PERFORM A USER SEAL CHECK:</u></b> Place both hands completely over the respirator, being careful not to disturb the position, and exhale sharply. If air leaks around your nose, adjust the nosepiece as described in step 5. If air leaks at respirator edges, adjust the straps back along the sides of your head.</p>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>
<p><b>4. Face Shield</b></p> 	<p>1. Place over face and eyes and adjust to fit.</p>	<input type="checkbox"/>

<p><b>5. Put the Head Cover</b></p> 	<p>1. Caps coverings must cover all hair, and jewelry must be removed or contained within the head.</p>	<input type="checkbox"/>
<p><b>6.Wear Gloves</b></p> 	<p>1. Wear the appropriate size. Extend to cover wrist of isolation gown.</p>	<input type="checkbox"/>
<p><b>7.Hand Hygiene</b></p> 	<p>1. Perform hand hygiene following WHO steps.</p>	<input type="checkbox"/>

## Doffing Personal Protective Equipment (PPE)

**Standard, Contact, and Airborne precautions.** Always assume that the outside of your gloves, mask, and face shield and the front and sleeves of your gown are contaminated. Use particular caution when maneuvering near your face. Remove all your PPE inside the patient room except N95 mask, it will be removed outside.

Step	Coaching Sequence	Observed
<b>1. Removing the Gloves</b> 	<ol style="list-style-type: none"> <li>1. Inspect the gloves for any torn, tears or holes.</li> <li>2. Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove.</li> <li>3. Hold removed glove in gloved hand.</li> <li>4. Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove.</li> <li>5. Discard gloves in a waste container.</li> </ol>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>2. Perform Hand Hygiene</b> 	<ol style="list-style-type: none"> <li>1. Perform hand hygiene following WHO steps and adhere to proper timing (count for 5 for each step)</li> </ol>	<input type="checkbox"/>
<b>3. Remove the head cover</b> 	<ol style="list-style-type: none"> <li>2. Remove the head cover from behind the head to front</li> </ol>	<input type="checkbox"/>
<b>4. Perform Hand Hygiene</b> 	<ol style="list-style-type: none"> <li>3. Perform hand hygiene following WHO steps and adhere to proper timing (count for 5 for each step)</li> </ol>	<input type="checkbox"/>
<b>5. Removing the Face Shield/goggles</b> 	<ol style="list-style-type: none"> <li>1. Remove goggles or face shield from the back by lifting head band or ear pieces.</li> <li>2. Discard face shield in an infectious waste container.</li> <li>3. Decontaminate hands with alcohol-based hand sanitizer.</li> </ol>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

<p><b>6. Perform Hand Hygiene</b></p> 	<p>4. Perform hand hygiene following WHO steps and adhere to proper timing (count for 5 for each step)</p>	<input type="checkbox"/>
<p><b>3. Removing N95 Mask</b></p> 	<ol style="list-style-type: none"> <li>1. If anti room is available remove your N95 mask in anteroom if not available then discard immediately outside patient room.</li> <li>2. Without touching the respirator, slowly lift the bottom strap from around your neck up and over your head.</li> <li>3. Lift off the top strap. Do not touch the respirator</li> <li>4. Discard the Mask in infectious Waste.</li> </ol>	<input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>
<p><b>4. Perform Hand Hygiene</b></p> 	<ol style="list-style-type: none"> <li>1. Perform hand hygiene following WHO steps and adhere to proper timing (count for 5 for each step).</li> </ol>	<input type="checkbox"/>



## Appendix II: Patient under Investigation (PUI) Form

### Interim COVID-19 patient under investigation (PUI) form

As soon as possible, notify and send completed form to preventive medicine department in the district where the case is discovered.

Date [D][D]/[M][M]/[Y][Y][Y]

Patient ID \_\_\_\_\_ Case record \_\_\_\_\_ Reporting institution \_\_\_\_\_ City \_\_\_\_\_/UAE

Interviewer's name \_\_\_\_\_ Phone \_\_\_\_\_

Email \_\_\_\_\_

Physician's name \_\_\_\_\_ Phone \_\_\_\_\_ Email \_\_\_\_\_

Case Classification  Confirmed  Probable

Detected at point of entry  No  Yes  Unknown If yes, date [D][D]/

[M][M]/[Y][Y][Y][Y]

### Patient information

Sex  M  F Date of Birth: [D][D]/[M][M]/[Y][Y][Y][Y] or estimated age: [ ] in years  
If < 1 year old, [ ][ ] in months or if < 1 month, [ ][ ] in days

Residency  UAE resident  Non-UAE resident, country \_\_\_\_\_

Occupation \_\_\_\_\_

### Medical History

Date of onset of symptoms: [D][D]/[M][M]/[Y][Y][Y][Y]  Asymptomatic  Unknown

Does the patient have the following signs and symptoms (check all that apply)

Fever  Cough  Sore throat  Shortness of breath

Others, Specify \_\_\_\_\_

Does the patient have these additional signs and symptoms (check all that apply)?

Chills  Headache  Muscle aches  Vomiting  abdominal pain  Diarrhea

Other, Specify \_\_\_\_\_

Underlying conditions and comorbidity (Check all that apply)

Pregnancy  Post-partum (< 6 weeks)

Cardiovascular diseases including hypertension  Immunodeficiency, including HIV

Diabetes  renal diseases

Liver diseases  chronic lung diseases

chronic neurological diseases  Malignancy

Others, Specify \_\_\_\_\_

Admission to hospital  Yes  No  Unknown

Date of admission to the hospital [D][D]/[M][M]/[Y][Y][Y][Y]

Date of isolation [D][D]/[M][M]/[Y][Y][Y][Y]



**Presentation**  Pneumonia (Clinical or radiological)  acute respiratory distress syndrome

**In the 14 days before symptoms onset, did the patient:**

<p><b>Spend time in any of the top 10 WHO countries with local transmission?</b> <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown</p> <p>If yes,</p> <p><b>Does the patient live in any of these countries?</b> <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown Town name .....</p> <p>Which country?</p> <p>Non-residents: Date traveled to the mentioned country _____ Date traveled from the mentioned country.....</p> <p>Date arrived in UAE..... Airport name: ..... Airline name: .....</p>
<p><b>Has the patient had close contact with a person who is under investigation for COVID-19 while that person was ill?</b> <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown</p> <p><b>If yes, contact setting (check all that apply):</b></p> <p><input type="checkbox"/> Health care worker <input type="checkbox"/> Family member <input type="checkbox"/> work place <input type="checkbox"/> Unknown <input type="checkbox"/> Others, Specify _____</p>
<p><b>Have close contact with a laboratory-confirmed COVID-19 case while that case was ill?</b></p> <p><input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown</p> <p>If yes, identify the case _____</p> <p><b>If yes, contact setting (check all that apply):</b></p> <p><input type="checkbox"/> Health care worker <input type="checkbox"/> Family member <input type="checkbox"/> work place <input type="checkbox"/> Unknown <input type="checkbox"/> Others, Specify _____</p>
<p><b>Is the patient a health care worker?</b> <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown</p>
<p><b>Have history of being in a healthcare facility in the 14 days prior the symptoms onset (as a patient, worker, or visitor), in any of the top countries with local transmission?</b> <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown</p>
<p><b>Is patient a member of a cluster of patients with severe acute respiratory illness (e.g., fever and pneumonia requiring hospitalization) of unknown etiology in which COVID-19 is being evaluated?</b></p> <p><input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown</p>
<p><b>Has the patient visited any live animal markets in the 14 days prior to symptom onset?</b></p> <p><input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown</p>



## Respiratory diagnostic results

### Specimens for COVID-19 testing

Specimen type	Specimen ID	Date collected	Sent to CDC?
NP swab			<input type="checkbox"/>
OP swab			<input type="checkbox"/>
Sputum			<input type="checkbox"/>
BAL fluid			<input type="checkbox"/>
Tracheal aspirate			<input type="checkbox"/>

Specimen type	Specimen ID	Date collected	Sent to CDC?
Stool			<input type="checkbox"/>
Urine			<input type="checkbox"/>
Serum			<input type="checkbox"/>
Other, specify			<input type="checkbox"/>
Other, specify			<input type="checkbox"/>

Test	Pos	Neg	Pending	Not done
Influenza rapid Ag <input type="checkbox"/> A <input type="checkbox"/> B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Influenza PCR <input type="checkbox"/> A <input type="checkbox"/> B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MERS- CoV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RSV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. metapneumovirus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parainfluenza (1-4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Test	Pos	Neg	Pending	Not done
Adenovirus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rhinovirus/enteroviruses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coronavirus (OC43, 229E, HKU1, NL63)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>M. pneumoniae</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>C. pneumoniae</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, Specify	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Final Diagnosis:** \_\_\_\_\_

**Outcome:**  Recovered and discharged  
 Intubated and admitted to the ICU  
 Died



### Appendix: III

### Informed consent to treatment with INVESTIGATIONAL medication

This is a consent form. Its purpose is to inform you about risks and benefits when using a new INVESTIGATIONAL drug in the management of your condition (COVID- 19)

**Treatment regimen could include one or more of the following drugs:**

.....  
.....  
.....

**Treatment duration:**

-----

I, \_\_\_\_\_, understand that there is no approved FDA treatment yet for the treatment of my current Infectious Illness (COVID19 infection).

In view of the current lack of other safe and effective alternatives, I give my consent for being treated with above mentioned investigational drug/drugs by my managing team.

I acknowledge that possible common drug-related side effects have been explained to me.

Hospital name: .....

Physician name: \_\_\_\_\_ staff number: \_\_\_\_\_ signature: \_\_\_\_\_

Witness name: \_\_\_\_\_ staff number: \_\_\_\_\_ signature: \_\_\_\_\_

Patient's name (next of kin) name and signature: \_\_\_\_\_

Date/time: \_\_\_\_\_



## الموافقة المسبقة على العلاج بالأدوية التجريبية

هذا نموذج موافقة. الغرض منه هو إبلاغك بالمخاطر والفوائد عند استخدام دواء تحقيقي جديد في إدارة حالتك (كوفيد-19).

يمكن أن يشمل نظام العلاج واحدًا أو أكثر من الأدوية التالية:

-----  
-----  
-----

### مدة العلاج:

أنا، \_\_\_\_\_ ، أفهم أنه لا يوجد علاج معتمد من إدارة الغذاء والدواء حتى الآن لعلاج مرضي المعدي الحالي (كوفيد-19).

في ضوء النقص الحالي في البدائل الأخرى الآمنة والفعالة، أُمِنح موافقتي على العلاج بالعقار/العقاقير التجريبية المذكورة أعلاه من قبل الفريق الطبي.

أقر بأن الأعراض الجانبية الشائعة المتعلقة بالعقاقير قد تم شرحها لي.

اسم المستشفى: \_\_\_\_\_

اسم الطبيب: \_\_\_\_\_ رقم الموظف: \_\_\_\_\_ التوقيع: \_\_\_\_\_

اسم الشاهد: \_\_\_\_\_ رقم الموظف: \_\_\_\_\_ التوقيع: \_\_\_\_\_

اسم المريض (أقرب الأقرباء) وتوقيعه: \_\_\_\_\_

التاريخ / الوقت: \_\_\_\_\_



## Appendix: IV

### Informed consent to treatment with OFF-LABEL medications

This is a consent form. Its purpose is to inform you about risks and benefits when using an OFF-LABEL drug in the management plan of your condition, covid-19 (SARS coV2 Infection)

#### Any of the following treatment regimen:

Lopinavir-Ritonavir 2 tablets per oral daily every 12 hours

Interferon 1-B 180 microgram Subcutaneous once per week

Favipiravir 1600 mg twice a day for 1 day then 600 mg twice a day

Other treatment as indicated

#### Treatment duration:

4-28 days

I \_\_\_\_\_, understand that medication listed above are all FDA approved for other medical indications with proven safety and efficacy, and they are not approved yet for the treatment of my acute infectious illness (2019 Novel Corona Virus Infection).

In view of the current lack of other safe and effective alternatives, I give my consent for being treated with one or a combination of above drugs by my managing team.

I acknowledge that possible drug-related side effects have been explained to me (drug allergy, skin rash, mild anaemia, loose motions)

**Hospital name:**

**Physician name:**

**staff number**

**signature:**

**Witness name:**

**staff number:**

**signature:**

**Patient's name (next of kin):**

**signature:**

**Date:**

**Time:**



## الموافقة المسبقة على العلاج بالأدوية لغير استخدامها المعتمد

هذا نموذج موافقة. الغرض منه هو إبلاغك بالمخاطر والفوائد عند استخدام دواء لغير استخدامها المعتمد في خطة إدارة حالتك (كوفيد – 19).

### نظام العلاج:

Lopinavir-Ritonavir حبة يومياً عن طريق الفم كل 12 ساعة

180 Interferon 1-B ميكروغرام تحت الجلد مرة واحدة في الأسبوع

Favipiravir 1600ملغ في اليوم الأول ثم 600 ملغ يوميا

أي علاج آخر تستدعيه حالتني

### مدة العلاج:

4-28 يوم

أنا \_\_\_\_\_ ، أفهم أن الأدوية المذكورة أعلاه معتمدة من قبل هيئة الغذاء والدواء لمؤشرات طبية أخرى ذات سلامة وفعالية مثبتة، ولم تتم الموافقة عليها بعد لعلاج مرضي المعدي الحاد (كوفيد – 19).

في ضوء النقص الحالي في البدائل الأخرى الآمنة والفعالة، فأنا أعطي موافقتني على العلاج بواحد أو مجموعة من الأدوية المذكورة أعلاه من قبل الفريق الطبي.

أقر بأن الأعراض الجانبية المحتملة المتعلقة بالأدوية قد تم شرحها لي (حساسية، طفح جلدي، فقر دم خفيف، اسهال)

اسم المستشفى: \_\_\_\_\_

اسم الطبيب: \_\_\_\_\_ رقم الموظف: \_\_\_\_\_ التوقيع: \_\_\_\_\_

اسم الشاهد: \_\_\_\_\_ رقم الموظف: \_\_\_\_\_ التوقيع: \_\_\_\_\_

اسم المريض (أقرب الأقرباء): \_\_\_\_\_ التوقيع: \_\_\_\_\_

التاريخ: \_\_\_\_\_ الوقت: \_\_\_\_\_



## Appendix: V- Home Quarantine Consent

### Undertaken to implement the home quarantine procedure for contact

I the under-designed, declare that I was notified about the health procedures and the medical advices that I should follow, and that I am aware of the risks that could happen to the society in case I am not committed to them, so for the sake of the public health and to avoid the legal accountability I hereby declare that I will not leave the house and I will consider not to get in contact with others as much as I can until the required health measures end , and the duration of the quarantine is 14 days starting from \_\_\_\_\_ (decided by health authority)

This is my acknowledgment that I have been notified of the above mentioned.

Name: \_\_\_\_\_

Passport / ID No.: \_\_\_\_\_

Mobile number: \_\_\_\_\_

Home number: \_\_\_\_\_

Number of friend/sponsor/next of kin:

Email address: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

### اقرار وتعهد بتنفيذ اجراءات الحجر الصحي للمخالطين

انا الموقع ادناه اتعهد بانه تم إبلاغي بالإجراءات الصحية والنصائح الطبية الواجب اتباعها، وإنني أدرك المخاطر التي من الممكن ان تلحق بالمجتمع في حال عدم التزامي، لذا حرصا على الصحة العامة وتجنب المسائلة القانونية اتعهد بعدم مغادرة المنزل مع مراعاة تجنب مخالطة الاخرين قدر الامكان حتى نهاية الاجراءات الصحية المطلوبة وفترة الحجر الصحي لمدة 14 يوما اعتبارا من تاريخ \_\_\_\_\_ (تحده الجهة الصحية)

وذلك اقرارا مني بانه تم إخطاري بما ذكر اعلاه

رقم الجواز / الهوية الوطنية: .....

الاسم : .....

رقم الهاتف الثابت: .....

رقم الهاتف المتحرك : .....

البريد الالكتروني: .....

رقم أحد الأقارب أو الكفيل: .....

التاريخ: ..... / ..... / .....

التوقيع: .....



## Appendix: VI

### Instructions for HOME Quarantine for (COVID-19)

### تعليمات الحجر الصحي المنزلي ل (كوفيد - 19)

Self- isolation for the next 14 days from the date of discharge from the hospital/clinic

العزلة الذاتية للأيام الـ 14 القادمة من تاريخ الخروج من المستشفى/ العيادة

1. Stay at home in a single room with separate washroom and separate yourself from other people in your home.
2. If you share any facility at home, please make sure you disinfect it thoroughly after every use with warm water and detergent then dry your items with a separate towel that only you would use
3. Don't go outside your room, unless its unavoidable and then wear a facemask
4. Cover your mouth and nose when you cough or sneeze with tissue then dispose of it immediately in a sealed plastic bag
5. Wash your hands frequently with soap and water for 20 seconds at least then dry them well and avoid touching your eyes, nose and mouth if you haven't washed your hands
6. Avoid sharing household items
7. Monitor your symptoms (Breathing difficulty, Fever, Sore throat, Cough, Runny nose, Headache) and check your temperature daily. (or the person you are caring for, as appropriate)
8. Do not have visitors in your home
9. If you have pets in the household, try to keep away from your pets. If this is unavoidable, wash your hands before and after contact.
10. Waste management: All waste that has been in contact with the individual, including used tissues, and masks if used, should be put in a plastic rubbish bag and tied when full. The plastic bag should then be placed in a second bin bag and tied.
11. If you need to visit your doctor, call ahead before visiting.

1. ابق في المنزل في غرفة واحدة مع دورة مياه منفصلة وافصل نفسك عن الآخرين في منزلك
2. إذا كنت تشارك أي مرفق في المنزل ، يرجى التأكد من تطهيره جيداً بعد كل استخدام بالماء الدافئ والمنظف ، ثم جفف أغراضك بمنشفة منفصلة تستخدمها أنت فقط
3. لا تخرج خارج غرفتك، إلا إذا كان ذلك لا مفر منه ثم ارتدِ كامامة
4. غطِّ فمك وأنفك عند السعال أو العطس بالمنديل ثم تخلص منه فوراً في كيس بلاستيكي محكم الغلق
5. اغسل يديك بشكل متكرر بالماء والصابون لمدة 20 ثانية على الأقل ثم جففها جيداً وتجنب لمس عينيك وأنفك وفمك إذا لم تغسل يديك
6. تجنب مشاركة الأدوات المنزلية مع الآخرين
7. راقب أعراضك (صعوبة التنفس ، الحمى ، التهاب الحلق ، السعال ، سيلان الأنف ، الصداع) وافحص درجة حرارتك يومياً. (أو الشخص الذي تعتني به ، حسب الاقتضاء)
8. لا تستقبل الزوار في منزلك
9. إذا كان لديك حيوانات أليفة في المنزل، حاول الابتعاد عن حيواناتك الأليفة. إذا كان ذلك لا مفر منه، اغسل يديك قبل وبعد الاتصال
10. إدارة النفايات: يجب وضع جميع النفايات التي كانت على اتصال مع الفرد، بما في ذلك المناديل الورقية المستخدمة والأقنعة في حالة استخدامها، في كيس قمامة بلاستيكي وربطها عند امتلائها. يجب بعد ذلك وضع الكيس البلاستيكي في كيس آخر وربطه.
11. إذا كنت بحاجة إلى زيارة طبيبك ، اتصل مسبقاً قبل الزيارة.

*If you develop any active complaints (fever, body aches, headache, cough, throat pain or shortness of breath) during home quarantine period, please contact one of the following numbers for advice:*

- **8001717: The Operation Center, Department Of Health**
- **80011111: Ministry Of Health And Prevention**
- **800342: Dubai Health Authority**