Management Protocol for COVID-19 Patients

Ministry of Health and Population, Egypt
Management protocol for COVID-19 Patients
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Any one of the epidemiological 
history with any of the clinical 
features.

epidemiological history:
1. History of travel to or 
residence in communities 
where cases reported within 
the last 14 days.
2. In contact with viral RNA 
positive people 
within the last 14 days.
3. In contact with a patient who 
has fever or respiratory 
symptoms or from a 
community 
with confirmed cases reported 
within the last 14 days.

Asessing the presence of at 
least two of the following 
clinical features:
1. Fever and/or respiratory 
symptoms.
2. Imaging characteristics. 
CT scan is preferred, if not 
applicable do CXR
3. Differential CBC findings: 
white blood cells is normal 
or decreased, with decreased 
lymphocytic count.

Severe Acute Respiratory 
Infection 
(SARI) with no other 
obvious cause.

Patient enters Triage Hospital 
(referred from another hospital, referred by 105, walkin)

Assess to identify suspected cases

N.B.
- Asymptomatic contact to +ve case should undergo home isolation and should seek medical advice whenever symptoms develop.
- Healthcare providers exposed to suspected or confirmed COVID-19 cases should follow the algorithm shown in MoHP guide booklet.
Management in Triage Hospitals

Suspected COVID-19

Assess patient

Yes

Suspected COVID-19

No

Non Covid-19 Cases

Is it an emergency case?

Yes

Stabilize patient

Stable

Refer to general hospital

No

Unstable

Admit to non COVID area

Stable

Obtain PCR sample

Mild symptoms (CT or CXR not showing pneumonia)

Impossible home isolation or sever symptoms (dyspnea, tachypnea, tachycardia, uncontrolled comorbidities, Immunosuppressant, above 60 years)

 Obtain PCR sample

Home Isolation if possible until PCR result
- start management:
  * Rest
  * Infection control (IPC measures)
  * Antibiotic if needed
  * Anti-pyretic (Paracetamol)

Continue treatment until the 7th day

PCR results

Symptoms resolved

Yes

Home isolation for 14 days and close follow up

-ve

No

Manage accordingly

PCR results

Repeat PCR after 48

-ve

+ve

Transfer to COVID-19 hospitals

Manage accordingly

-ve

PCR result

Admitted to COVID-19 area in triage hospital and manage according to protocol

If deteriorated to severe symptoms

-ve

Repeat PCR after 48

Manage accordingly

-ve

PCR sample

Obtain PCR sample

Non Covid-19 Cases

Mild symptoms (CT or CXR not showing pneumonia)

Impossible home isolation or sever symptoms (dyspnea, tachypnea, tachycardia, uncontrolled comorbidities, Immunosuppressant, above 60 years)
PCR Positive Cases

Mild Case

Symptomatic case with lymphopenia or leucopenia with no radiological signs for pneumonia

Check for

1. Age
2. Temperature > 38
3. SaO2 ≤ 92%
4. Heart Rate ≥ 110
5. Respiratory Rate ≥ 25 /min.
6. Neutrophil / lymphocyte ratio on CBC ≥ 3.1
7. Uncontrolled Comorbidities
8. Immunosuppressive Drug
9. Pregnancy
10. Active Malignancy
11. On Chemotherapy
12. Obesity (BMI>40)

All No

AND

Age < 60

• Strict Home Isolation (Symptomatic Treatment)
• Follow and use personal protective guide equipment
• If any deterioration occurs, back to hospital
NB: Paracetamol is the preferred antipyretic

Any YES

OR

Age ≥ 60

Isolation in a healthcare facility

Treatment

- Hydroxychloroquine (400 mg twice in first day then 200 mg twice for 6 days)
- Vitamin C (1gm daily)
- Zinc 50mg daily
- Acetylcysteine 200 mg t.d.s.
- lactoferrin one sachet twice daily
Moderate Case

Patient has pneumonia manifestations on radiology associated with symptoms &/Or leucopenia or lymphopenia

**Hospitalization**

- Lopinavir/Ritonavir (2 tab 200/50) every 12 hrs
- Ribavirin 400 mg every 12 hrs for 14 days
  (Not recommended if symptoms started for more than 7 days)
  + Anticoagulation: prophylactic or Therapeutic if D-dimer > 1000

**OR**

- Hydroxychloroquine (if NO contraindication) 400mg /12 hrs for 1 day then 200 mg every 12 hours for 9 days
  + Anticoagulation: prophylactic or Therapeutic if D-dimer > 1000

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Steroids if patients is dyspneic or CT SCAN showed significant deterioration
Severe and Critically Ill Case

If any of the following criteria is present

1. RR > 30
2. SaO2 < 92 at room air
3. PaO2/FiO2 ratio < 300
4. Chest radiology showing more than 50% lesion or progressive lesion within 24 to 48 hrs
5. Critically ill if SaO2 <92, or RR>30, or PaO2/FiO2 ratio < 200 despite Oxygen Therapy.

Admit to Intermediate Care Or Intensive care

Antiviral Drugs As is In Severe case

Steroids Methylprednisolone 1-2 mg/kg/d

Anti-Coagulation Enoxaparine 1 mg/kg BID

Prone Awake or ventilated

Avoid Hypoxia O2/ NIV/ HFNC/IMV

Early Block the storm if steroids failed

Tocilizumab 4-8mg/kg/dose Max 2 doses

Add Antibiotics As per protocol

1 mg for non ventilated and 2 mg for ventilated

Consider D-dimer level as a guide

Improves V/Q matching and survival

Don’t wait too much for any type of support Keep plateau<30
**Antiviral drugs**

- Lopinavir/Ritonavir (2 tab 200/50) every 12 hrs.
- Ribavirin 400 mg /12 hrs
- Interferon beta 1b + Azithromycin (500mg daily) or doxycycline (200 mg first day then 100mg daily OR
- NB: Remdesivir if available: 200 mg day 1 then 100 mg daily for 9 days

OR

- Hydroxychloroquine (if NO contraindication) 400mg /12 hrs for 1 day then 200 mg every 12 hours for 9 days +
  - Lopinavir/Ritonavir (2tab 200/50) every 12 hrs.+
  - Doxycycline 200 mg first day and 100 mg daily or Azithromycin 500 mg

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**Non Invasive Ventilation or High Flow Nasal Cannula (HFNC)**

- Conscious patients with minimal secretions.
- Hypoxia SpO2 < 90% on oxygen. Or PaCO2 >40 mmHg provided pH 7.3 and above.
- NIV trial shall be short with ABG 30 minutes apart.
- Any deterioration in blood gases from baseline or oxygen saturation or consciousness level shift to IMV.
- CPAP gradually increased from 5-10 cmH2O.
- Pressure support from 10-15 cm H2O.
- HFNC can be alternative to NIV.

**Invasive Mechanical Ventilation:**

- Use PPE specially goggles during intubation and avoid bagging.
Indications:

- Failed NIV or not available or not practical.
- PaO2 < 60 mmhg despite oxygen supplementation.
- Progressive Hypercapnia.
- Respiratory acidosis (PH < 7.30).
- Progressive or refractory septic shock.
- Disturbed consciousness level (GCS ≤ 8) or deterioration in consciousness level from baseline.

Step 1: Initiation of Invasive Mechanical Ventilation

VCV
TV 8 ml/kg
PEEP 5 cmH2O

Plateau Pressure

Less than 30 cmH2O
Sat >93
Keep and Watch

Less than 30 cmH2O
Sat <93
Increase PEEP to 10

More than 30 cmH2O
ARDSnet protocol

Step 2: Shift to ARDSNet protocol if needed

- ARDSNet protocol:

  LOW TV 6-4 ml/kg
  Incremental PEEP
  Plateau P<30 cmH2O
  Driving P<15 cmH2O
Start with tidal volume of 6 ml/Kg to keep plateau pressure on volume controlled ventilation (VCV) below 30 cmH2O, decrease to 4 ml/kg if the plateau remain higher than 30 allow permissive hypercapnia so long the pH is above 7.3 compensate by increasing respiratory rate up to 30 breath/minute. Consider heavy sedation and paralysis. If pressures are high or any evidence of barotrauma shift to pressure controlled ventilation and be cautious about low tidal volume alarms for fear of unnoticed endotracheal tube obstruction. Consider ECMO early if eligible. Increase PEEP gradually if the patient remains hypoxic according to FIO2 level to keep driving pressure < 15cmH2O. NEVER FORGET PRONE POSITION.

**Step 3:** Assessment of respiratory support outcome

![Diagram](image)

**Assess**
ABGs, Clinical Radiological

- **Improved**
  - Weaning of respiratory support
- **Stationary**
  - Continue respiratory support as needed
- **Deteriorating**
  - Criteria for ECMO*

*Criteria for VV ECMO: Age below 55, mechanical ventilation duration less than 7 days, no comorbidities, preserved conscious level, PaO2/FiO2 <100 despite prone RESPscore >0. Expert opinion is needed and depends on availability.
<table>
<thead>
<tr>
<th>NAME</th>
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</tr>
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<tbody>
<tr>
<td>Hossam Hosny Masoud</td>
<td>Professor of Chest Diseases. Head of Pulmonary Hypertension Unit, Faculty of Medicine, Cairo University</td>
</tr>
<tr>
<td>Gehan Ellassal</td>
<td>Professor of Pulmonary Medicine Ain Shams University</td>
</tr>
<tr>
<td>Samy Zaky</td>
<td>Professor of Hepatogastroenterology and Infectious Diseases, Al Azhar University</td>
</tr>
<tr>
<td>Amin Abdel Baki</td>
<td>Consultant of Hepatology, Gastroenterology and Infectious Diseases. National Hepatology and Tropical Medicine Research Institute (NHTMRI), Cairo, Egypt</td>
</tr>
<tr>
<td>Hamdy Ibrahim</td>
<td>Consultant of infectious diseases and director of ICU, Imbaba Fever and infectious diseases hospitals, MoHP</td>
</tr>
<tr>
<td>Wagdy Amin</td>
<td>Director General for Chest Diseases, MoHP</td>
</tr>
<tr>
<td>Akram Abdelbary</td>
<td>Professor of critical care medicine, Cairo University Chairman elect of ELSO SWAAC chapter</td>
</tr>
<tr>
<td>Ahmad Said Abdel Mohsen</td>
<td>Lecturer of critical care medicine, Faculty of Medicine, Cairo University</td>
</tr>
<tr>
<td>Mohamed Hassany</td>
<td>Fellow of Infectious Diseases and Endemic Hepatogastroenterology, National Hepatology and Tropical Medicine Research Institute</td>
</tr>
<tr>
<td>Alaa Eid</td>
<td>Head of Preventive Medical Sector, MoHP</td>
</tr>
<tr>
<td>Noha Asem Mohamed</td>
<td>Minister’s Advisor for Research and Health Development. Chairman of Research Ethics Committee, MoHP. Lecturer of Public Health, Cairo University</td>
</tr>
<tr>
<td>Ehab Kamal</td>
<td>Researcher of Tropical Medicine. Medical Division National Research Center. General Director of Directorate of Fever Hospitals, MoHP</td>
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