

**DIRECTORATE OF HEALTH SERVICES
GOVERNMENT OF MANIPUR**

Revised Guidelines for Management of COVID-19 infection in Adults (Above 18 years)
No.2/COVID-19/DHS-2020, 6th July, 2021.

This revised Guidelines for Management of COVID-19 infection is developed in alignment with “**Comprehensive Guidelines for Management of COVID-19 patients**” by the Directorate General of Health Services, Ministry of Health & FW, Govt. of India, dated 27th May, 2021 and decision of **State Technical Expert Committee meeting** held on 24th June, 2021.

Updated Guidelines for the Management of COVID-19 Infection in Adults.

1. Asymptomatic COVID 19 individuals

1.1. Definition:

- a. Suspected contact (RAT or RTPCR negative or not available)
- b. Incidentally detected (RAT or RTPCR positive)

1.2. Management:

- a. Asymptomatic COVID 19 individuals can be managed at Home Isolation (Tele consultation)
- b. Take 6 min walk test as per details in 6-minute walk test at a glance.
- c. No specific medication required for COVID-19 infection
- d. Continue medications for other co-morbid conditions, if any
- e. Promote tele consultation by patient
- f. Promote COVID appropriate behaviour (mask, strict hand hygiene, physical distancing)
- g. Advice healthy balanced diet with proper hydration
- h. Advice patients and family to stay connected and engage in positive talks through phone, video calls, etc.

1.3. Investigations: Usually, no investigations required at this stage

2. Mild Symptomatic COVID 19 individuals

2.1. Definition:

- a. No shortness of breath
- b. No difficulty in breathing
- c. Respiratory rate < 24/min
- d. SpO₂ ≥ 94% on room air
- e. For other symptoms, please refer to COVID-19 symptoms at a glance box

2.2. Management:

- a. Mild Symptomatic COVID 19 individuals can be managed at Home Isolation (Tele consultation) or COVID Care Centre
- b. Take 6 min walk test as per details in 6-minute walk test at a glance box.
- c. Promote COVID appropriate behaviour (mask, strict hand hygiene, physical distancing)
- d. Advice healthy balanced diet with proper hydration
- e. Advice patients and family to stay connected and engage in positive talks through phone, video calls, etc.
- f. Self-monitoring for fever, breathlessness, SpO₂ or worsening of any symptoms {refer self-monitoring performance guide box}
- g. Anti-Pyretic and Anti-tussive for symptomatic relief
- h. Inhalational Budesonide (given via Metered dose inhaler with spacer device) at a dose of 800 mcg BD for 5 days for cough
- i. No other COVID-19 specific medication required.

2.3. Investigations: Patient may have to be investigated further if symptoms persist or deteriorate

3. Moderate Symptomatic COVID 19 individuals

3.1. Definition:

- a. Shortness of breath ++
- b. Difficulty in breathing ++
- c. Respiratory rate more than 24/min but, less than 30/min
- d. SpO₂: 90-93% on room air
- e. For other symptoms, please refer to COVID-19 symptoms at a glance box

3.2. Management:

- a. Moderate Symptomatic COVID 19 individuals have to be managed at DCHC or COVID hospital
- b. Oxygen support to be titrated to maintain SpO₂ between 92%-95% in patients without COPD. Initial device for oxygen administration (nasal prongs, simple face mask or Non Rebreathing mask) depends upon severity of hypoxia and work of breathing.
- c. In case of COPD, oxygen therapy may not be required as target SpO₂ is between 88%-92% which by definition of moderate cases is already present.
- d. Control of co-morbid conditions especially diabetes.
- e. Steroids have to be given if SpO₂ is below 92%. See details in Drug Therapy Guide Box
- f. Proning helps in better oxygenation of lungs.
- g. Obtain baseline investigations and repeat the same as per investigation guideline below
- h. Further treatment by steroids, anti-coagulants and/or of immune-modulators shall be guided by the results of the baseline and repeat investigations. Details may be seen the relevant Drug Therapy Guide Box.
- i. Prophylactic doses of anti-coagulants such as LMWH or unfractionated heparin.

3.3. Investigations:

- a. Baseline lab investigations include: CBC, Blood Glucose, urine routine, LFT, KFT, CRP, S. Ferritin, D-DIMER, LDH, CPK.
- b. May be repeated as following: CRP and D-DIMER 48 to 72 hourly; CBC, KFT, LFT 24 to 48 hourly; IL-6 levels to be done if deteriorating, may have to be repeated more frequently in ICU settings.
- c. Serial CXR at least 48 hours apart.
- d. HRCT chest to be done ONLY if there is worsening of symptoms. For further details see rational use of HRCT imaging guide box.

4. Severe Symptomatic COVID 19 individuals

4.1. Definition:

- a. Shortness of breath +++
- b. Difficulty in breathing +++
- c. Respiratory Rate more than 30/min
- d. SpO₂: less than 90% on room air except in COPD patients
- e. For other symptoms, please refer to COVID-19 symptoms at a glance box

4.2. Management:

- a. Severe Symptomatic COVID 19 individuals have to be managed at ICU of COVID hospital
- b. Immediate oxygen therapy, initiate at 5 L/Min and titration to reach target SpO₂ \geq 90% in non- pregnant adults and 92-96% in pregnant patients.
- c. Consider use of NIV (Helmet or face mask interface depending on availability) in patients with increasing oxygen requirement.
- d. Consider use of HFNC if patient does not improve.
- e. Consider intubation & mechanical ventilation if patient still does not improve or work of breathing is very high.
- f. Start steroid therapy. See details in Drug Therapy Guide Box
- g. Obtain baseline investigations and repeat the same as per investigation guideline below
- j. Further treatment by steroids, anti-coagulants and/or of immune-modulators shall be guided by the results of the baseline and repeat investigations. Details may be seen the relevant Drug Therapy Guide Box
- k. Prophylactic doses of anticoagulants such as LMWH or UFH eg 0.5 mg/kg per day SC OD or 40 mg enoxaparin S/C daily.
- l. Anticoagulants may also be administered based on clinical judgement.

4.3. Investigations:

- a. Baseline lab investigations include: CBC, Blood Glucose, urine routine, LFT, KFT, CRP, S. Ferritin, D-DIMER, LDH, CPK
- b. May be repeated as following: CRP and D-DIMER 48 to 72 hourly; CBC, KFT, LFT 24 to 48 hourly; IL-6 levels to be done if deteriorating, may have to be repeated more frequently in ICU settings
- c. Serial CXR at least 48 hours apart.
- d. HRCT chest to be done ONLY if there is worsening of symptoms. For further details see rational use of HRCT imaging guide box.

COVID-19 Symptoms at a Glance

Symptoms*	Asymptomatic	Mild	Moderate	Severe
• Fever	✘	+	++	+++
• Cough	✘	+	+	++
• Sore Throat/Throat irritation	✘	+	+/-	+/-
• Body ache/ Headache	✘	+	+	++
• Malaise/Weakness	✘	+	+	++
• Diarrhoea or gastro-intestinal upset	✘	+	+	+
• Anorexia/ Nausea/Vomiting	✘	+/-	+/-	+/-
• Loss of Smell and/or Taste	✘	+/-	+/-	+/-
• Shortness of breath/breathlessness	✘	✘	++	+++
• Respiratory rate/min	12-16	May be raised but less than 24	24-30	≥ 30/min
• SpO ₂ on room air	≥95%	≥ 94%	90%-93%	< 90%

*The possible symptoms, signs and findings have been enlisted and patients in each category may have one or many of these.

Self -Monitoring Performa Guide

Monitoring Sheet for Covid-19 Patients at Home

Name: _____ Age: _____ Sex: _____ Date: _____

Co-morbid conditions, if any and drugs being taken:

Controlled: (Y/N)

1.
2.
3.
4.

Parameters and record:

Day/time	Malaise*	SOB**	Temp	Pulse	BP	SPO2***	Any other
8:00 AM							
12:00 Noon							
4:00 PM							
8:00 PM							

*Malaise: means feeling of unwellness.

**SOB: Shortness of breath/breathing difficulty/breathlessness (may be recorded as Yes/No).

***SPO2: Oxygen levels to be measured by pulse oximeter.

Take a 6-minute walk test as given in the 6-minute test at a glance box

6 - Minute walk test at a Glance Box

How to conduct a 6-minute walk test?

- ❖ A 6-minute walk test is an established simple clinical test to assess cardio-pulmonary exercise tolerance. This test is used to unmask hypoxia.
- ❖ Patient with pulse oximeter attached to his finger is asked to walk in the confines of his room for 6 minutes continuously.
- ❖ Any drop in saturation below 94%, or an absolute drop of more than 3% to 5% or feeling unwell (lightheaded, short of breath) while performing the test or at end of 6 minutes are significant findings. Such patients are labelled as positive for 6-min walk test.
- ❖ Patients with positive 6-minute walk test may progress to become hypoxic and hence early admission to hospital [for observation and oxygen supplementation] is recommended.
- ❖ The test can be repeated every 6 to 8 hours of monitoring in home setting.
- ❖ It should not be done in patients older than 70 years, those with uncontrolled asthma, pregnant patients.



COVID-19 Treatment/What-to-do at a Glance Box.

Do's/Treatment	Asymptomatic	Mild	Moderate	Severe
Wearing Mask	✓	✓	✓	✓
Physical distancing	✓	✓	✓	✓
Hand hygiene	✓	✓	✓	✓
Cough etiquettes	✓	✓	✓	✓
Anti-pyretic (PCM)	✗	✓	✓	✓
Anti-tussive SOS	✗	✓	✓	✓
Inhalational Budesonide	✗	✓	✗	✗
Oxygen Support#	✗	✓	✓	✓
Anti-inflammatory/ Immunomodulatory therapy#	✗	✗	✓	✓
Anticoagulation#	✗	✗	✓	✓
Monitoring (CXR/ HRCT/ Lab investigations)*#	✗	✗	✓	✓

*Please see detailed guidelines for HRCT.

#To be done in hospital setting as per the guidance of treating physician.

COVID-19 Management: EUA/Off Label Drugs use at a Glance Box

Emergency Use Authorization (EUA)/ off label use (based on limited available evidence and only in specific circumstances)

Guidelines for use of Remdesivir

1. Remdesivir is reserved drug approved by DCG (I) under Emergency Use Authorization only based on limited scientific evidence globally. It is to be used only in select moderate/ severe hospitalized COVID-19 patients on supplemental oxygen within 10 days of onset of disease.
2. It is not indicated in mild COVID-19 patients who are in home care/ COVID Care Centers.
3. Physicians are advised to exercise extreme caution in using remdesivir as this is only an experimental drug with potential to harm.

Further, the following additional steps are recommended to stop misuse of Remdesivir:

- ❖ It must be advised by senior faculty members/ specialists directly involved in patient's care.
- ❖ If it has to be advised/ ordered during odd hours, it should be done by the duty doctor after telephonic consultation with a senior faculty member/ specialist/ unit in - charge.
- ❖ Advise/ order for Remdesivir must be written and bear the name, signature and stamp of the concerned doctor.
- ❖ Every hospital needs to set up Special Drug Committee (SDC) which must review use of Remdesivir in their hospital periodically. It would be preferable to have a Pharmacology Professor/ faculty as a member of the SDC wherever available.
- ❖ The Special Drug Committee should share their findings with the clinicians periodically to ensure rational and judicious use of Remdesivir.
- ❖ It should be procured and provided by the hospitals only; the patient's attendants/ relatives should not be asked to procure Remdesivir from retail market.

Guidelines for use of Tocilizumab

- ❖ Tocilizumab is an immunosuppressant drug and it has been approved by DCG (I) for use as an off-label drug ***ONLY** in severe and critically ill patients of COVID-19 meeting following conditions:
 - If the patient shows no signs of improvement in terms of oxygen requirement even after 24-48 hours of administration of steroids, and
 - Has significantly raised inflammatory markers (C-Reactive Protein ≥ 75 mg/L)
- ❖ However, it must be ensured that the patient is free of any bacterial/ fungal/ tuberculous infection at the time of administration of Tocilizumab.
- ❖ Dosage: single dose of 8 mg/kg body weight (not more than 800 mg) in 100 ml normal saline over one hour.

*Off-label use is the use of pharmaceutical drugs for an indication, age group, dosage, or route of administration that is not approved by the regulatory agencies and is not mentioned in the prescribing information for the drug.

COVID-19 Management: Use of Steroids and Anti-Coagulants Guide Box**Guidelines for use of Steroids**

- **Steroids are not indicated and are harmful in asymptomatic and mild cases of COVID-19.**
- Steroids are indicated in only hospitalized moderately severe and critically ill COVID-19 cases.
- Steroids should be used at the **Right Time, in Right dose and for Right duration**
- Self-medication of steroids must be avoided.

- **Recommended dose:**
 - Dexamethasone 6mg IV once daily or per oral for initially for 10 days or till the time of discharge whichever is earlier, based on clinical judgement on daily basis.
 - Equivalent glucocorticoid dose may be substituted (if dexamethasone is unavailable) by methylprednisolone 32 mg orally or 40 mg I/V or 50 mg hydrocortisone intravenously every 8 hours or Prednisone 40 mg (per oral).

- Monitoring of blood glucose is mandatory in all patients put on steroids as it may precipitate hyperglycaemia. In any case, COVID-19 infection and its treatment are likely to precipitate diabetes in previously normal individuals or worsen diabetes in known cases
- It must be also remembered that steroids may prolong viral shedding, and hence caution is required.

Guidelines for use of Anti-coagulants

- **Moderate cases:**
 - Prophylactic doses to be used in moderate cases of COVID-19 with unfractionated heparin or low molecular weight heparin (weight based e.g., Enoxaparin 0.5 mg/kg per day SC OD).
 - There should be no contraindication or high risk of bleeding.

- **Severe cases:**
 - Prophylactic doses to be used in severe cases of COVID-19 with unfractionated heparin or low molecular weight heparin (weight based e.g., Enoxaparin 0.5 mg/kg per day SC OD), therapeutic dose to be used only if there is evidence of thromboembolism.
 - There should be no contraindication or high risk of bleeding.

COVID-19 Management: Rational use of HRCT Imaging Guide Box

High-resolution CT (HRCT) scan of chest provides better visualization of the extent and nature of lung involvement in patients with COVID-19. However, any such additional information gained from HRCT scan of chest often has little impact on treatment decisions. At present, treatment decisions are based almost entirely on clinical severity and physiological impairment. Therefore, treating physicians should be highly selective in ordering HRCT imaging of Chest in patients of COVID-19.

Why routine HRCT imaging of chest in COVID-19 patients is NOT recommended?

- Nearly two-thirds of persons with asymptomatic COVID-19 have abnormalities on HRCT chest imaging which are nonspecific. Most of them do not progress clinically.
- HRCT imaging of chest done in the first week of illness might often underestimate the extent of lung involvement, giving a false sense of security.
- Correlation between extent of lung involvement by HRCT imaging of chest and hypoxia is imperfect. Often, young individuals with extensive lung involvement will not develop hypoxia, while elderly individuals with minimal/ less extensive lung involvement are likely to develop hypoxia.
- Radiation exposure due to repeated HRCT imaging may be associated with risk of cancer later in life.

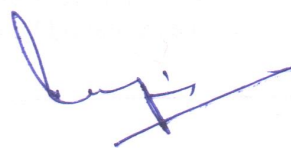
Situations when HRCT imaging of Chest should not be done:

- HRCT scan chest should not be done for the purpose of diagnosing/ screening Covid-19 infection. Diagnosis of Covid-19 should be done only by using approved laboratory tests as recommended by the ICMR.
- It is not indicated in asymptomatic and mild cases of COVID-19.
- It is not required to initiate treatment in COVID-19 patients with hypoxia and an abnormal chest radiograph.
- It is not required to assess response to treatment. More often, the lung lesions show radiological progression despite clinical improvement.

Appropriate indications for HRCT imaging of chest in COVID-19 patients:

- Suspected and confirmed cases of moderate COVID-19 who continue to deteriorate clinically even after initiation of appropriate therapy especially when there is high risk of invasive fungal infection.
- Treating Physician/ Intensivist may consider HRCT chest depending on clinical assessment of the patient.

In view of the above, treating physicians should exercise caution while advising HRCT imaging of chest.



What is Mucormycosis?

Mucormycosis is a fungal disease which occurs in patients with the underlying conditions and predisposing factor such as diabetes mellitus, rampant misuse/overuse of steroids, malignancies, organ transplantation etc. Mode of infection is through inhalation of fungal spores from air. It is not contagious.

Time of presentation: variable but usually around 3rd week of onset of symptoms of COVID-19.

Reasons for increase in Mucormycosis in COVID-19 patients

1. Uncontrolled hyperglycemia due to any reason
2. Misuse, overuse and irrational use of steroids.
3. Prolonged ICU stay, unhygienic humidifiers and irrational use of broad spectrum antibiotics may also be associated with mucormycosis
4. Pre-existing co-morbidities such as haematological malignancies, use of immunosuppressants, solid organ transplant etc.

Signs and symptoms:

1. Facial pain, pain over sinuses, pain in teeth and gums
2. Paraesthesia / decreased sensation over half of face.
3. Blackish discolouration of skin over nasolabial groove/ alae nasii.
4. Nasal crusting and nasal discharge which could be blackish or blood tinged.
5. Conjunctival injection or chemosis.
6. Periorbital swelling.
7. Blurring of vision/ diplopia.
8. Loosening of teeth
9. Discoloration (pale) of palate/ turbinates insensitive to touch. eschar over palate
10. Worsening of respiratory symptoms, haemoptysis, and chest pain; headache, alteration of consciousness and seizures etc

Diagnosis:

- KOH mount and microscopy, histopathology of debrided tissue (presence of Ribbon like aseptate hyphae 5-15 μ thick that branch at right angles). Culture (don't wait for results to initiate therapy as Mucormycosis is an emergency).
- Relevant radiological Investigations such as CT of sinuses, CT chest for suspected pulmonary involvement (presence of more than 10 nodules, reverse halo sign, CT bronchus sign, pleural effusion-highly suggestive of mucor), MRI brain etc. to see the extent of systemic involvement

Management:

- One should have a high index of suspicion of invasive fungal infection such as Mucormycosis in the presence of predisposing conditions as mentioned above. Timely initiation of treatment reduces mortality. Multidisciplinary Team approach is required. Treatment of Mucormycosis involves combination of surgical debridement and antifungal therapy.
- **Liposomal Amphotericin B** in initial dose of 5mg/kg body weight (10 mg/kg body wt in case of CNS involvement) is the treatment of choice. It should be diluted in 5% dextrose; it is **incompatible** with normal saline/ Ringer Lactate. It should be given over 2-3 hours and should be started with full dose from day 1. Monitoring for kidney function tests and a serum electrolyte is recommended. It has to be continued till a favorable response is achieved and disease is stabilized which may take 3-6 weeks following which step down to oral Posaconazole (300 mg delayed release tablets twice a day for 1 day followed by 300 mg daily) or Isavuconazole (200 mg 1 tablet 3 times daily for 2 days followed by 200 mg daily) shall have to be taken for prolonged period as per advice of the physician..
- The therapy has to be continued until clinical resolution of signs and symptoms of infection as well as resolution of radiological signs of active disease and elimination of predisposing
- Risk factors such as hyperglycemia, immunosuppression etc., It may have to be given for quite long periods of time.
- Conventional Amphotericin B (deoxy cholate) in the dose 1-1.5mg/kg may be used if liposomal form is not available.
- Kidney Functions must be monitored during the entire management period.

COVID-19 Management: Supportive therapy

A/9

The following medications may be prescribed in COVID-19 Management {as per decision (a) and (b) of Agenda 1 of State Technical Expert Committee Meeting on 24th June 2021} :

1. Oral Vit. C 500 – 1000 mg / day for 5-10 days
2. Oral Vit. D 60K weekly, or 2K daily for 2 weeks
3. Oral Zinc (20 mg / day) containing Multivitamins for 5-10 days
4. Tab. Ivermectin 12 mg/ day for 3-5 days (Avoid in pregnant and lactating woman) on case to case basis and wisdom of the treating physician.

