

# Oxygen Therapy in COVID-19

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During the second wave of COVID-19, an increase in oxygen requirement has been reported in patients. Dr. Ravichandra, Chief Medical Officer, National Tuberculosis Institute, Bangalore [explains](#): “80% of COVID-19 cases reported are mild. Only 15% COVID patients may have moderate disease where one’s oxygen saturation level may go less than 94%. And the remaining 5% COVID infected people may end up having severe disease which shows respiratory rate higher than 30/minute and oxygen saturation level less than 90%.”

Let us take a look at some important aspects involved in restoring oxygen levels in the body, for the benefit of the small proportion of patients who end up needing supplemental oxygen.

## **Be alert to the Symptoms of Low Oxygen Level**

Warning signs of low oxygen level include difficulty in breathing, confusion, difficulty in waking up and bluish lips or face. Adults may develop chest pain that doesn’t go away. Children may experience flaring up of nostrils, grunting while breathing or inability to drink or eat.

## **Why we should be concerned**

According to [WHO](#), Hypoxemia (low oxygen levels in blood) may eventually result in loss of life. When oxygen levels become low because of a sickness such as COVID-19, the cells in the body don’t get enough oxygen to perform their normal functions. If the level remains low for long, maybe due to lack of treatment, organs start to malfunction; in severe cases, it may cause death.

## **Know How to Measure Oxygen Level**

There are two easy ways to measure the oxygen level.

**Pulse Oximeter:** You can measure the oxygen level of a patient using a pulse oximeter which you can place on their finger, toe or earlobe. It’s a painless test, taking less than two minutes.

Pulse oximeters measure the oxygen saturation or percentage of oxygen in the patient’s blood. According to [a WHO training manual on pulse oximetry](#), if the oxygen saturation is 93% or lower, the patient needs to be treated quickly. A saturation of less than 90% is a clinical emergency.

**Respiratory Rate:** Respiratory rate is the number of breaths a person takes per minute. Dr. Somashekhara, Director, National Tuberculosis Institute, Bangalore [explains](#) a simple method to measure the respiratory rate without any device. Keep your palm on your chest, measure your respiratory rate for 1 minute. If the respiratory rate is less than 24 per minute, your oxygen level is safe. If a patient has more than 30 breaths per minute, the oxygen level is low.

## **What to do when you face low oxygen level**

### **Proning**

Patients undergoing home care are advised to lie prone on their stomachs. This will improve breathing and increase oxygen saturation. Please check out more details in the Union Health Ministry’s “Proning for Self Care” advisory [here](#).

## Improve Lung Oxygenation by Lying in Prone Position

If the oximeter reading shows SpO<sub>2</sub> levels below 94%, patients in home care are advised to lie prone on their stomachs. This will improve breathing and increase oxygen saturation.



1. Begin by lying in prone position on a flat bed for 30 minutes to 2 hours

According to [Clinical Management Protocol for COVID-19](#) (in Adults), released by the Union Health Ministry on May 24, 2021

awake proning should be encouraged in all patients who require supplemental oxygen therapy.

| <i>Criteria to be fulfilled</i>  | <i>Avoid proning</i>  |
|--|---|
| <ul style="list-style-type: none"><li>• Normal mental status</li><li>• Able to self-prone or change position with minimal assistance</li></ul> | <ul style="list-style-type: none"><li>• Hemodynamic instability</li><li>• Close monitoring not possible</li></ul> |

The advisory by the Ministry of Health and Family Welfare also underlines important considerations while proning in non-intubated patients

- Any COVID-19 patient with respiratory embarrassment severe enough to be admitted to the hospital may be considered for rotation and early self proning.
- Care must be taken to not disrupt the flow of oxygen during patient rotation
- Typical protocols include 30–120 minutes in prone position, followed by 30–120 minutes in left lateral decubitus (lying on left side), right lateral decubitus (lying on right side), and upright sitting position.

### Using oxygen concentrators

Experts suggest that oxygen therapy may be given only in presence of a healthcare provider. However, one may use them in an emergency, while medical attention is being sought or while waiting for an ambulance.

Professor and Head of Department, Anaesthesia, B. J. Medical College, Pune, Prof. Sanyogita Naik advises: “Oxygen concentrators can be used only in moderate cases of COVID-19, when the patient experiences a drop in oxygen levels, where the oxygen requirement is a maximum of 5 litres

per minute.”

The professor added that oxygen concentrators are also very useful for patients experiencing post-COVID complications which necessitate oxygen therapy.

In both the above cases, the goal of oxygen therapy is to achieve a saturation level of 94%; once the patient has 93% to 94% oxygen level, the oxygen therapy may be discontinued. Excess of oxygen may lead to increase in the level of Carbon Dioxide, leading to complications.

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