

Advisory for Rational use of Oxygen Therapy for Covid - 19 Treatment

MOHFW, AIIMS and ICMR have jointly issued treatment guidelines for management of Covid - 19 patients in the form of a guidance/algorithm on 23.04.2021 available at: https://www.mohfw.gov.in/pdf/COVID_19_ManagementAlgorithm22042021v1.pdf. This guidance/algorithm is easy to understand, practice and is widely followed. But this guidance/algorithm does not provide advisory for rational use of Oxygen therapy in Covid - 19 patients.

The purpose of this document is to prevent irrational use of Oxygen therapy. For this reason, Joint Monitoring Group under Chairmanship of DGHS took into consideration expert opinion to issue this advisory.

1. It is assumed that patients with Mild disease ($SpO_2 \geq 94\%$) may require home isolation and care. Patient with Moderate disease ($SpO_2 \leq 93\%$ to 90%) may require hospitalization in non - ICU Oxygen Supported Beds. Severe cases ($SpO_2 < 90\%$ on room air) may require ICU Beds for Invasive Ventilation/ Non-Invasive Ventilation (NIV) / High Flow Nasal Cannula (HFNC).
2. For Moderate cases ($SpO_2 \leq 93\%$ to 90% on room air), the indicative oxygen flow rate is 2 to 4 Litres/minute by nasal prongs; 6 to 10 Litres/minute by facemask and 10 to 15 Litres/minutes by Non - Rebreathing Mask (NRBM).
3. For Severe cases ($SpO_2 < 90\%$ on room air), the aim is to achieve oxygen saturation of 94%, the **indicative oxygen consumption rates** are about: 10 Liters/ minute with invasive mechanical ventilation, 25 to 60 Liters/ minute with Non Invasive Ventilation / High Flow Nasal Cannula (HFNC) and 10 to 15 Litres/minutes by Non – Rebreather Mask (NRBM).
4. For optimal use of oxygen for Covid - 19 patient management and for monitoring of oxygen consumption, the following action points are suggested.
 - i. Oxygen is a life-saving essential drug. The target Oxygen saturation should be between 92% to 96% for the hospitalized Covid - 19 patients. Once this level is achieved, the flow of oxygen may not be increased as it may not provide any additional benefit to the patient.
 - ii. Oxygen consumption should be regularly monitored at each hospital/health facility level.
 - iii. Oxygen Monitoring Committee should be formed in every hospital which may consist of Additional Medical Superintendent, Head of Anaesthesia, Head of Respiratory Medicine and Nursing Superintendent or their nominees.
 - iv. The Oxygen Monitoring Committee should be mandated to supervise inventory planning, oxygen consumption, regular repair and maintenance of gas pipelines, gas plant, and wall mounted gas outlets, etc.
 - v. A team of 1 Nurse and 1 OT Technician should be designated as Oxygen Monitoring Team for each shift at each hospital/health facility level. The team must inspect the gas pipelines, wall mounted gas outlets, as well as gas cylinders to detect any leakage and promptly address the same.
 - vi. Nurse/OT Technician in the team will check the oxygen masks on a regular basis. Ensure closure of valves during non - use at all times.
 - vii. High Flow Nasal Cannula (HFNC) device should be used only in ICU setting under supervision of Anaesthesiologist/ Intensivist/ Respiratory Physician/ Physician. Patient should be put on HFNC only after approval of the senior most Anaesthesiologist/ Respiratory Physician/ Physician present in ICU during that point of time.
 - viii. Patients who are on oxygen therapy should be reviewed during daily rounds to evaluate their oxygen requirements as well as oxygen saturation.
 - ix. Regular training of OT Technicians and Nurses should be undertaken on proper oxygen administration and monitoring.
 - x. Maintenance of appropriate records pertaining to the handling and use of compressed gases including an up-to-date inventory and training records should be done.
 - xi. The other methods to improve oxygenation such as frequent change of posture/ proning should be done under strict medical supervision.

5. For Oxygen therapy at home:

- i. Asymptomatic and mild cases of Covid – 19 ($\text{SpO}_2 \geq 94\%$) in home care do not require oxygen support.
- ii. If such patients require oxygen support for any reason (on advise of treating doctor) it should be done using oxygen concentrators.
- iii. Patients in home care whose oxygen saturation does not improve even after oxygen supplementation using oxygen concentrators should seek medical attention from a nearby hospital.
- iv. Use of oxygen cylinders at home is generally not recommended as it is full of hazards (explosion, fire etc.) However, if it is to be used due to compelling reasons, then it should be used under strict supervision of a qualified and suitably trained doctor/ nurse.

Reference:

1. WHO Interim Guidance: Oxygen sources and distribution for COVID-19 treatment centres (April 2020)
2. Advisory from Indian Society of Anesthesiologists (National) , vide SEC/ISA NHQ/RTK/2021/102, DT. 26-04-2021