



स्वास्थ्य एवं परिवार कल्याण मंत्रालय
 निर्माण भवन, नई दिल्ली-110011
 25/9/20



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भारत सरकार
 स्वास्थ्य एवं परिवार कल्याण मंत्रालय
 निर्माण भवन, नई दिल्ली-110011

Government of India
 Ministry of Health and Family Welfare
 Nirman Bhavan, New Delhi - 110011

आरती आहुजा मा.प्र.से.

अपर सचिव

Arti Ahuja, IAS
 Additional Secretary

Tel. : 011-23061066, 23063809
 E-mail : ash-mohfw@nic.in

(URGENT)
 M.D.(NHM)/D.S.-II
 25/9

D. O. No. 1830290/Immunization/2020
 Dated the 25th September, 2020

8614
 20-9-2020

Subject: Guidelines for rational use of Oxygen for management of COVID-19

Dear Sir / madam,

As you are aware that medical oxygen is one of the mainstays for management of "Moderate" and "Severe" COVID-19 cases. COVID-19 pandemic has led to a need of ensuring adequate supply of oxygen and also the protocols for its rational use.

Keeping above facts in mind, Ministry of Health and Family Welfare has developed new 'Guidelines for rational use of Oxygen for management of COVID-19' which are enclosed.

You are requested to instruct all the concerned state and district level officials to strictly follow these Guidelines for creation of Non-ICU oxygen supported beds & ICU beds and for calculation of oxygen requirement for each and every health facilities providing COVID-19 treatment accordingly.

With warm regards,

Yours sincerely

(Arti Ahuja)

AD, HA
 No. 1/230
 Pl. issue letter to all Districts

Encl: as above

To: - Additional Chief Secretary / Principal Secretary / Secretary (Health) - All States/UTs

Copy to:

1. Mission Director (NHM) - All States/UTs
2. State Nodal Officer, Oxygen - All States/UTs

Jyoti
 25/9/20

GUIDELINES FOR RATIONAL USE OF OXYGEN FOR MANAGEMENT OF COVID-19

These guidelines are being issued based on the recommendations of The Empowered Group 1 (EG – 1) chaired by Dr. V.K. Paul, Member, NITI Aayog, the Joint Monitoring Group (JMG) headed by Director General of Health Services (DGHS) MoHFW and the inputs provided by Prof. (Dr.) Randeep Guleria, Director, AIIMS, New Delhi and Prof. (Dr.) Balram Bhargava, DG ICMR cum Secretary, Department of Health Research.

1. It is assumed that out of the 100 confirmed cases of Covid-19;
 - a. 80 cases will be Asymptomatic / Pre-Symptomatic or with “**Mild**” disease requiring home isolation or admission to Covid Care Center (CCC).
 - b. Out of remaining 20 cases:
 - i. 17 cases will be of “**Moderate**” disease requiring hospitalization for 7 days on Non-ICU Oxygen Supported Beds. States / UTs would require to have oxygen storage capacity for all 17 Beds. However, for the purpose of calculation of Daily Oxygen consumption requirement, 50% of these Beds (i.e. 8.5) would be considered for computation purpose.
 - ii. 3 will be “**Severe**” cases requiring ICU Beds for 18 days in ratio of 20% for Invasive Ventilation, 40% for Non-Invasive Ventilation (NIV) / High Flow Nasal Cannula (HFNC) and remaining 40% for oxygen therapy by Non-Re Breathing Mask (NRBM) etc. For the purpose of calculation of Daily Oxygen consumption requirement at each health facility, all the Beds (i.e. 3) would be considered for computation purpose.
2. For Moderate cases (SpO₂ level *between* 94%-90%), the indicative oxygen flow rate is 2-4 Liters/minute by nasal prongs; 6-10 Liters/minute by facemask and 10-15 Liters/minutes by Non-Rebreathing Mask (NRBM).
3. For Severe cases (SpO₂ level less than 90%), the indicative oxygen flow rate is 10 Liters/minute by Invasive Mechanical Ventilation; 25-60 Liters/minute by Non-Invasive Ventilation and 10-15 Liters/minutes by NRBM.

4. For rational use of oxygen for COVID 19 management and for monitoring of oxygen consumption, the following action points are suggested to be implemented by the States / UTs :-
- i. Oxygen is a life-saving essential drug. The target **Oxygen saturation rate should be 94%-95%** for the hospitalized COVID 19 patient. Once this rate is achieved, 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** may be formed in every hospital which may consist of Additional Medical Superintendent, Head of Anesthesia, Head of Respiratory Medicine (Head of Internal Medicine in case Respiratory Medicine department does not exist) and Nursing Superintendent.
 - iv. The Oxygen Monitoring Committee may be mandated to supervise inventory planning, oxygen consumptions, regular repair and maintenance of gas pipelines, gas plant, and wall mounted gas outlets etc.
 - v. A team of one Nurse and one OT Technician may be designated as **Oxygen Monitoring Team** for each shift at each hospital/health facility level.
 - a. The team must inspect the gas pipeline, wall mounted gas outlets, as well as gas cylinders to detect and promptly address leakages, if any. Nurse in the team will check the oxygen mask on a regular basis.
 - b. Ensure closure of valves during 'no-use' at all times.
 - vi. HFNC device should be used only in ICU setting under supervision of a respiratory physician/physician. Patient should be put on HFNC only after approval of the senior most respiratory physician/physician.
 - vii. Patients who are on oxygen therapy may be reviewed during daily rounds to evaluate their oxygen requirements as well as oxygen saturation rates.

- viii. Regular training of OT Technicians and Nurse should be undertaken on proper oxygen administration and monitoring.
- ix. District Magistrate (DM) assisted by the Chief Medical Officer (CMO) of the district must also monitor the consumption including the rational use of oxygen in all facilities of the district on a weekly basis.

GUIDELINES FOR RATIONAL USE OF OXYGEN FOR MANAGEMENT OF COVID -19

The Ministry of Health and Family Welfare had issued an advisory on the rational use of oxygen vide D.O letter/1830290/immunization/2020 dated 25.09.2020. In the wake of rising cases of COVID-19 and an escalated need to ensure rational use of oxygen, a need was felt to review the advisory and issue updated comprehensive guidelines.

These guidelines are based on the recommendations of the leading clinical teams of the country who participated in a consultation as held on 22/04/2021, chaired by Dr. V.K. Paul, Member, NITI Aayog. Additionally, inputs of the Joint Monitoring Group (JMG) headed by Director General of Health Services (DGHS) MoHFW and Prof. (Dr.) Randeep Guleria, Director, AIIMS, New Delhi and Prof. (Dr.) Balram Bhargav, DG ICMR cum Secretary, Department of Health Research are included.

These guidelines aim to promote judicious use of oxygen therapy in individual cases, and to enhance accountability for oxygen conservation through monitoring and audit without compromising quality of care.

The majority of patients of COVID-19 have mild illness. Out of 100 patients, 80 are treated at home or COVID care centres. Out of the remaining 20, about 17 have moderate disease needing oxygen beds. Only 3 are in ICUs and are treated with oxygen therapy by Non Rebreathing mask (NRBM), Non Invasive ventilation (NIV), High Flow Nasal Cannula (HFNC), and Invasive ventilation.

Oxygen is a precious drug that should be used judiciously and the following action points are necessary to achieve this objective. These guidelines should be implemented by all the states and UTs.

RESPONSIBILITY OF THE HEALTH TEAM: Judicious use

- 1. The flow of oxygen should be adjusted to the lowest permissible level to target an oxygen saturation of 92%-94% for the hospitalized COVID 19 patients.**
2. Indiscriminate use of BIPAP/HFNC should be avoided. When required, BIPAP should be preferred over HFNC; the latter consumes enormous amount

- of oxygen. HFNC device should be used only in the ICU setting under supervision of a respiratory physician/physician. Patient should be put on HFNC only after approval of the senior most respiratory physician/physician.
3. **Prone positioning** should be intermittently done in patients of COVID -19, along with adjunctive physiotherapy. This optimizes the respiratory status.
 4. Individualization of oxygen therapy should be done taking into account the clinical signs like respiratory rate etc. and not just the saturation level. Once the desired saturation is achieved, flow of oxygen should not be increased as it may not provide any additional benefit to the patient. Up-titration instead of down titration of oxygen flow levels should be the norm.
 5. Triaging of patients as per their oxygen status should be done at regular intervals.
 6. An audit of the oxygen use by the ICU / ward should be done by the clinical team leader on a daily basis.

RESPONSIBILITIES OF STATE/HOSPITAL ADMINISTRATORS: Monitoring and Audit

1. A team of one Nurse and one OT Technician may be designated as **Oxygen Monitoring Team** for each shift at each hospital/health facility level. The team will visit all areas where oxygen supply / therapy is instituted.
 - a. Inspect the gas pipeline, wall mounted gas outlets, as well as gas cylinders to detect and promptly address leakages, if any. Nurse in the team will check the oxygen mask on a regular basis.
 - b. Ensure closure of valves during 'no-use' at all times.
 - c. Sensitize nurses and technicians for conservation of oxygen.
2. At the facility level, an **Oxygen Audit Committee** may be formed in every hospital which may consist of Additional Medical Superintendent, Head of Anesthesia, Head of Respiratory Medicine (Head of Internal Medicine incase Respiratory Medicine department does not exist) and Nursing Superintendent.
3. The Oxygen Audit Committee will be mandated to supervise inventory planning, oxygen consumption pattern ,regular repair and maintenance of gas pipelines, gas plant, and wall mounted gas outlets etc. It should review the consumption pattern of oxygen twice a week and conduct and audit and reduce

oxygen consumption if found to be in excess.

4. The hospital management should reduce all elective and emergency services to a minimum in view of the present pandemic situation
5. Regular training of OT Technicians and Nurse should be undertaken on proper oxygen administration and monitoring, and on conserving oxygen.
6. District Magistrate (DM) assisted by the Chief Medical Officer (CMO) of the district must also monitor the consumption including the rational use of oxygen in all facilities of the district on a weekly basis. Home oxygen cylinders should not be encouraged but the use of oxygen concentrators at home should be promoted whenever required.