

# CHANDIGARH ADMINISTRATION

CHANDIGARH HOUSING BOARD  
8, Jan Marg, Sector 9-D, Chandigarh

No. CEO-CHB/2021/PA/119

Dated: 31.05.2021

## **Subject: Oxygen Audit Report**

The Chandigarh Administration, vide order no. EO-61871/F-4369/FII-(6)/2021/4640 dated 27.04.2021, has appointed the undersigned as the Nodal Officer for managing medical oxygen supply in UT, Chandigarh.

2. Further the Chandigarh Administration vide order no. PS/AA/562 dated 06.05.2021 had assigned the charge to Shri Jagjit Singh, PCS for coordinating with all private hospitals located in Chandigarh regarding their availability of beds and supply of medical oxygen.

3. Vide order no. CEO-CHB/2021/PA/90 dated 09.05.2021 of the undersigned, a committee comprising Shri Jagjit Singh, PCS, Dr. Manjit Singh, GMSH-16 and Dr. Manpreet Singh, GMCH-32 was constituted to audit, educate and sensitize Private Hospitals, Government Hospitals and Mini COVID Centers located in UT Chandigarh for optimum utilization of medical oxygen.

4. The Committee visited all the Private hospitals, Government Hospitals and Mini COVID Care Centers located in Chandigarh during the last 20 days. The Committee interacted with the staff of the Health Care Institutions, gave live demonstrations, replied to their queries and inspected all the oxygen installations there. The health care institutions have admitted that the good efforts of the Committee have bring down their medical consumption by about 20% to 25%. The savings are mainly due to check on wastages, maintenance of oxygen related installations/pipeline, providing appropriate flow to the patient and use of proper equipment etc. The Committee has done an excellent work which has resulted in saving of considerable amount of medical oxygen.

5. Detailed report of the Committee is enclosed herewith for information and further appropriate actions please.

Enclosed: As above



**(Yashpal Garg, IAS)**

CEO, Chandigarh Housing Board  
**Nodal Officer for Oxygen Supplies in UT  
Chandigarh**

To,

The Pr. Secretary (Health), Chandigarh Administration

Copy for information:

1. Director, Department of Public Relations, Chandigarh Administration
2. PS to Adviser to Administrator for kind information of worthy Adviser

To

Mr Yashpal Garg, IAS  
CEO, Chandigarh Housing Board  
Nodal Officer for Oxygen Supplies in UT, Chandigarh

**Subject: Submission of detailed report of the visits at Government and Private Covid Hospitals and Mini Covid Care Centres for oxygen audit**

Sir,

This is with reference to the order No. CEO-CHB/2021/PA/90 dated 09.05.2021 where in it was decided that a committee chaired by Shri Jagjit Singh, PCS along with team of doctors i.e Dr Manjeet Singh, Medical Officer, GMSH 16 and Prof. Manpreet Singh, Anaesthesia and Intensive Care, GMCH-32 will visit all the Private Hospitals, Government Hospital i.e GMCH-32, GMSH-16 and GMCH-48 along with Mini Covid Centres to educate and sensitize the doctors and staff for optimum utilization of oxygen. The oxygen being an essential and precious commodity required special attention as the oxygen quota is fixed for Chandigarh for these hospitals. The purpose of the committee was that the judicious use of oxygen education and practical training onsite to the frontline medical staff will reduce the oxygen requirement also at the time of crisis. Following is the report that is submitted:

1. **Visits at Private Hospitals:** During the period from 12.05.2021 to 14.05.2021, seven Covid Private Hospitals of Chandigarh were visited and following observations were made:
  - a. Oxygen requirement at all centres was enormous ranged from 30 cylinders in one centre to 140 at other centres as per discussion and records of each hospital administration personnel. The total covid bed strength and occupancy of these private hospitals was minimum 18 to maximum 60 beds. Most often all the beds (including HDU /ICU) were occupied during covid surge.
  - b. The quota of the oxygen cylinders per day was fixed for all the Private Hospitals individually as per beds available and oxygen supply available.
  - c. All the Private Hospitals of Chandigarh have two sources of the oxygen supply to patients i.e Oxygen B and D type cylinders bedside and Mini manifolds with medical gas pipeline.
  - d. The hospital administration also appreciated the move of the Chandigarh Administration for allocation of the beds, quota of Oxygen and education and teaching training for judicious use of oxygen.

#### Teaching and Training Mode and Module

A small group interactive training was provided to all medical staff at all private hospitals with hand-outs, posters and banners by Prof. Manpreet Singh,

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28/05/2021

Professor, Department of Anaesthesia and Intensive Care GMCH-32 and Dr Manjeet Singh, Medical Officer, Anaesthesia, GMSH-16. The interaction was bilateral and Onsite bedside demonstration of various procedures was made and proper usage of oxygen-therapy masks.

The module comprised of what is the target oxygen saturation on how much oxygen delivery; and about various equipment used in oxygen delivery system. All were trained in using of various masks, nebulizers, oxygen concentrators and oxygen cylinders.

The hospital authorities were advised to audit daily oxygen stock, consumption and its daily reporting. It was also reemphasized to check all the leakages in pipelines, circuits and cylinders so that the wastage of oxygen and fire hazards can be minimized. Dr. Manjeet Singh demonstrated bedside training of the staff on bedside was also conducted about the role of prone/propped up position, proper use of Non rebreathing masks and venturi masks that are used in patients. Prof. Manpreet Singh elaborately explained the importance of change of water in the oxygen flowmeter bottles to all as it may contribute to the increased problems of fungal infections.

After the training, it was observed that overall 30-40% oxygen consumption was decreased in most of the Pvt. Hospitals as per their records and discussion with their administration. It was also observed that 13-15 percent of bed occupancy was also decreased during this period due to down trend of COVID-19 in city. All hospitals staff highly appreciated the training programme and it was eye an opener for the medical staff.

## 2. Visits at Government Hospitals

During the period from 20.05.2021 to 23.05.2021, the team visited GMSH -16, GMCH-32 and GMCH-48 Government Hospitals of Chandigarh

Following observations were made:

**A. GMSH-16-** Average number of patients per day on oxygen were 203 before the sensitization training education programme and average consumption of Liquid Medical Oxygen was around 2900 litres averaging 14.2 LPM per patient.

This included both covid and non covid patients in 500 bedded government hospital. After this sensitization programme to all medical staff in the hospital it was observed that the daily average consumption of liquid medical oxygen decreased to 2000 litres per day i.e 12.1 litres per patient. The daily LMO consumption was decreased by 31% and oxygen consumption per patient decreased by 23% approx.

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This 500 bedded hospital caters Chandigarh and other states and is contributing at its best for many years in providing clinical care to the patients.

**B. GMCH-32 and GMCH-48 South Campus:** The average number of the patients on oxygen were 210 covid patients and others non covid patients with emergency operation theatres running daily round the clock. Also there were 58 covid ICU patients and 62 non covid ICU/HDU/CCU beds with full occupancy through out .

It is to be noted that the patient on ventilators require almost 2-3 times the oxygen requirement than non ventilator patients.

Regularly 7 emergency operation theatres were functional round the clock that require oxygen in all the cases being operated. This included both covid and non covid operation theatres.

GMCH-32 and GMCH-48 comprises of 1121 beds approximately and it was fully occupied most often. It is the only Medical College of Chandigarh, catering huge number of patients daily from Chandigarh and all other states i.e Punjab, Haryana, Jammu and Kashmir, Himachal Pradesh and adjacent areas of UP.

With above observations it was noted that more than 12KL oxygen was being consumed in GMCH-32 and more than 3 kilo litres was in GMCH-48 before sensitization programme at these hospitals.


After the sensitization regarding rational use of Oxygen to all medical staff and administrative nodal officers, it was noted that more than 2 kilo litres requirement was decreased in GMCH 32 and more than 0.5-0.7 kilo litres in GMCH -48. Also, it is observed that the patients in covid areas decreased from average 309 to 223 i.e. around 27%.

But, it is to be specified here that the non-covid patients who developed complications of covid and mucormycosis increased in hospital. The operation theatres with emergency cases also increased in due course with few numbers.

From above facts and observations it can be inferred that the oxygen consumption has decreased from 15.5 kilo litres to 12 kilo litres and the decrease is especially noted after the sensitization programme. This programme has definitely impacted and contributed in the decreased requirement of liquid medical oxygen in both hospitals.

### **C. Visits at Mini Covid Centres**

Total of 7 mini covid centres were visited in Chandigarh who are catering more than 120 covid patients. The centres were run by trained

  
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nurses and doctors for the patients welfare under various NGOs in coordination of Chandigarh Administration. The training was imparted to all centres and posters were pasted at each centres. All centres are run with mini oxygen manifolds and oxygen cylinders.

All appreciated the efforts of Chandigarh administration and enthusiastically participated in interactive discussion on finer points about the oxygen conservation.

With these visits at different hospitals, it was observed that more than 20-25% medical oxygen consumption was decreased following the sensitization drive and this programme contributed tremendously to judicious utilization of oxygen. The hospital staff has admitted that these oxygen saving sensitization programmes have decreased consumption of oxygen. Every hospital staff thanked the efforts of the team and Chandigarh Administration for holding these educational training with innovative methods. The 20 MT quota is daily redistributed to all the hospitals in Chandigarh efficiently and conservation of oxygen is one of the innovative contribution.



**Dr Manjeet Singh**  
Medical Officer, Anaesthesia,  
GMSH-16, Chandigarh



**Prof. Manpreet Singh**  
Professor, Department of Anaesthesia and Intensive Care  
GMCH-32, Chandigarh



**Shri Jagjit Singh, PCS**  
Controller Printing & Stationery-cum-  
Nodal Officer for Oxygen Supply  
to Private Hospitals U.T. Chandigarh.

# GUIDELINES TO SAVE OXYGEN (U.T. CHANDIGARH)



1. FLOW: Keep flow of oxygen to the lowest permissible level → Target: SpO<sub>2</sub> 90-93%
2. FIT: Oxygen Mask must be appropriate and tightly fitted with elastic strings
3. NORM: 'Up-titration' instead of 'down titration' of O<sub>2</sub> flow levels
4. TRIAGE: Triage of patient according to O<sub>2</sub> requirement

Flow and mask



1. Use NIV, BiPAP or HFNC only when required: Avoid or decrease HFNC usage practice
2. BiPAP must be preferred over HFNC
3. High Flo mask & Venturi mask. Appropriate oxygen flow in patients

Change the Technician



1. Encourage prone position of the patient
2. Prop up position of bed
3. Adequate Chest physiotherapy, Deep Breathing exercises, Incentive Spirometry

Positioning Physiotherapy



1. Leakage in pipelines, circuits and cylinders must be regularly checked
2. Manifolds and Oxygen tanks - Careful about the valves
3. Oxygen pressure must be checked and it should be optimum to maintain requirement

Pressure and Leakages



1. Education of Doctors, Nurses, Technical staff regularly for saving the oxygen
2. Regular rounds on two hourly basis to check the wastage of oxygen
3. Education of staff with demonstration on positioning of patients, oxygen mask fittings
4. Postponement of Elective Surgeries and Only Emergency surgeries to be done

Education Training

1. Daily Oxygen opening stock, consumption, closing stock to be prepared
2. Oxygen Conservation Committee - 1 Physician, 1 Nurse, 1 Technical staff must be made on hospital basis - To audit/teach/record keeping of Oxygen conservation strategies
3. Biweekly/weekly meeting - Assessment - Audit of Oxygen consumption/day & Reporting

Record Keeping Audit

1. Use Oxygen concentrators for step down patients and for those who need less oxygen
2. Use electrical nebulizers and air as source for nebulization instead of O<sub>2</sub>
3. Use good quality Oxygen flow meters
4. Bottles of flow meters must be tightly attached

Equipment Flow Meters

**SAVE OXYGEN SAVE LIFE - OXYGEN IS MOST PRECIOUS**

**CONSERVE O<sub>2</sub>**

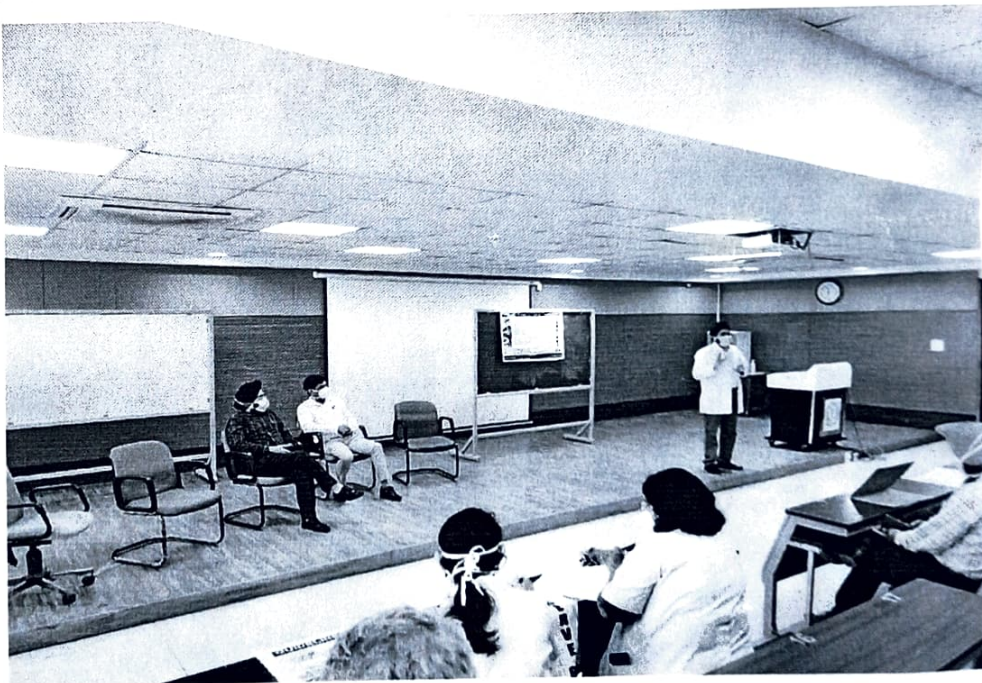
COMPILED BY

**Prof. Manpreet Singh**

Professor, Dept. of Anaesthesia and Intensive Care, GMCH - 32, Chandigarh

**Dr Manjeet Singh**

Medical Officer, Anaesthesia, GMSH - 16, Chandigarh



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*Manpreet Singh*  
*28/05/2021*





GOVERNMENT HOSPITALS

5/7/91

11/2  
25/5/91

Management of  
28/10/91



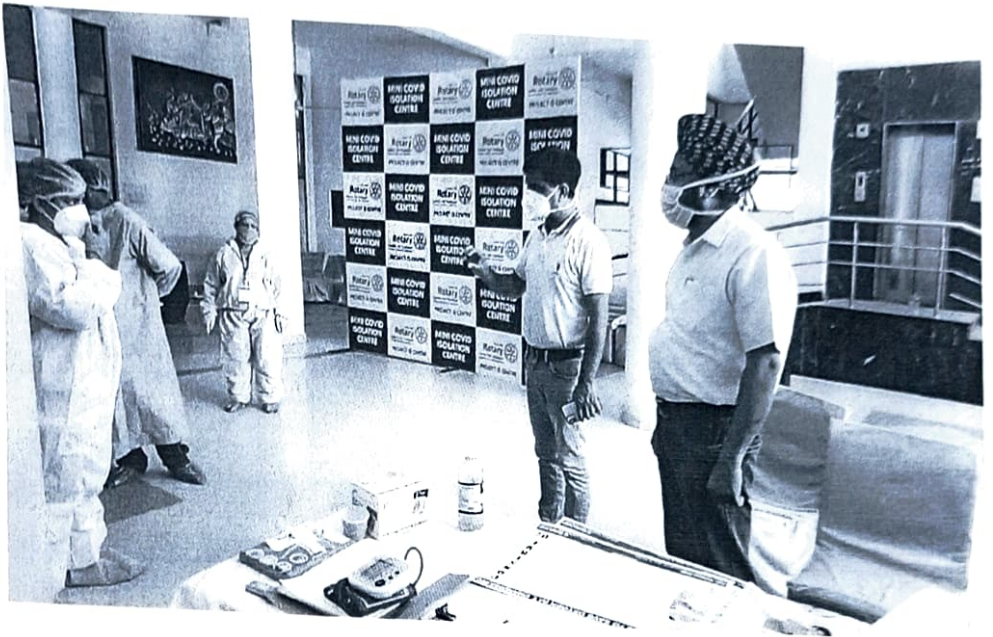
**Private Hospitals**

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MiniCovid Centre

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*28/05/2021*