



CMASL NEWS

THE OFFICIAL NEWSLETTER OF THE COLLEGE OF MEDICAL ADMINISTRATORS OF SRI LANKA

JUNE 2021, VOLUME 01, ISSUE 02



Cover Story.... Page 07



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1. PRESIDENT'S NOTE



Addressing the demand for Oxygen to face the COVID-19 Pandemic

Dr. R.M.S.K. Ratnayake, President, CMASL

Oxygen can be considered as a life-saving commodity in the third wave of the COVID 19 pandemic. This paper illustrates the current Oxygen consumption pattern, prediction for the future and the plan to increase capacity.

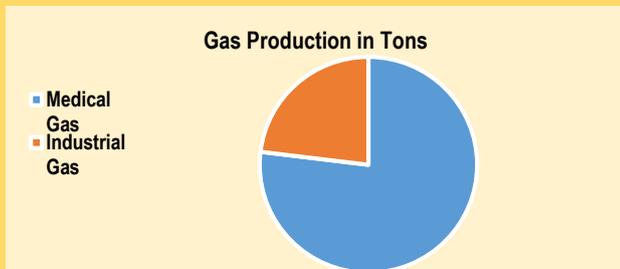
Where are we now?

Table 1: Total capacity for Medical Oxygen Production

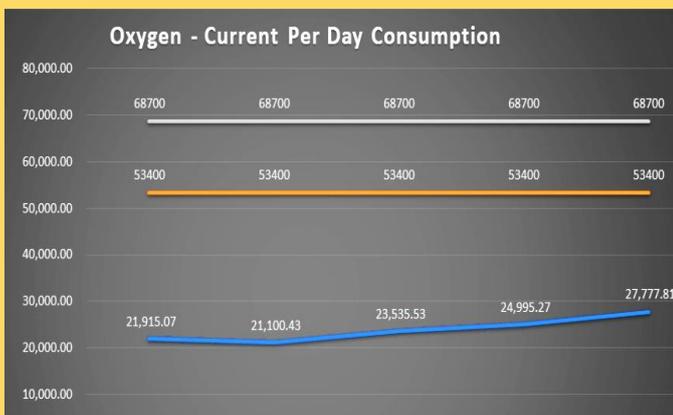
Name of the company	Total Production per day		
	Tons	In Liquid O ₂ (Litres)	In Jumbo Cylinders (Litres)
Company 1	42	37250	4565
Company 2	31	27450	3431
Company 3			450
Other	5	4000	320
Total	78	68700	8766

We have to run Jumbo cylinders in a cycle (Oxygen company– road– hospital-- road). Therefore, all Jumbo cylinders are not filled with Oxygen and in hospitals at any given time. In addition, these companies produce industrial Oxygen gas as well. Chart 1 shows the total availability of Oxygen when industrial gas is also considered.

Chart 1: Total oxygen capacity at present in Sri Lanka



Graph 1: The current Oxygen Consumption per day by all patients.



	Jan	Feb	Mar	Apr	May till 30
Consumption Per Day	21,915.07	21,100.43	23,535.53	24,995.27	27,777.81
Medical Gas Production - Max	53,400	53,400	53,400	53,400	53,400
Total Gas Production	68,700	68,700	68,700	68,700	68,700

Table 2: Medical Oxygen distribution capacity

Name of the company	Ceylon Oxygen Ltd	Gas World Ltd	Total
Number of Cylinder distribution trucks	17	10	27
Cylinder distribution capacity per day on a single trip basis (Large and small)	2750 (Large) 8250 (Small)	1025 (Large) 825 (Small)	3775 (Large) 9075 (Small)
Liquid oxygen tanker trucks for bulk distribution	7	3	10
Bulk distribution capacity (per day)	67,000 L	25,000 L	92,000 L

Availability of Jumbo Cylinders

With the use of high flow rates (As in High-flow Oxygen units), the requirement of Oxygen will increase and it will limit the number of patients who can be given Oxygen therapy (Table 3).

Table 3: The number of patients who can be cared for with different flow rates of Oxygen

Flow Rate (L/min)	Maximum no of Patients (If Oxygen only used for COVID)	Maximum number with Other day to day work Oxygen consumption	No of Jumbo Cylinders required to be in the Hospital	Total Jumbo Cylinders requirement (Hospital+ Transport+ Filling)	Deficit (Current Stock – 6312)
10	4204	2760	35880	89700	83388
20	2102	1380	17940	44850	38538
30	1401	920	11960	29900	23588
40	1051	690	8970	22425	16113
50	841	552	7176	17940	11628
60	700	460	5980	14950	8638

If we have one patient with high-flow Oxygen, we need to have 13 filled Jumbo cylinders at the Hospital per day and another 13 filled and transported from the supplier. So, at least we need to have 30 cylinders to keep one patient. We need to change one cylinder every 2 hours. The Oxygen filling capacity is another factor which we have to consider and it currently remains at 10,710 Jumbo cylinders per day and this will increase to 28,468 Jumbo cylinders per day with proposed increased plant capacities.

It is worth mentioning that some government and private hospitals have big storage tanks for Oxygen. The current capacity is 269,536 Litres. With increased Oxygen storage capacity in hospitals, this can be further increased to 388,536 Litres.

Conclusion

Our daily production is nearly 68,700 liquid Oxygen Litres. That is not enough to fill all available large storage tanks. We may need to fill 5.5 day productions to fill the current storage tanks (Assumption – No Jumbo Cylinder is filled during that period)

To fill Jumbo Cylinders, we need nearly (6,312 x 8 L) 50,469 liquid Oxygen Litres.

Therefore, if we are to fill all Storage Tanks and Jumbo Cylinders in one day, we need nearly 439,032 liquid Oxygen Litres. (Including new proposed tanks). This is equal to 6.3 days of total Oxygen Production. (Assumption: All produced Oxygen is used to produce medical Oxygen)

Also, we need to develop Oxygen concentrators in Nuwaraeliya, Badulla, Bandarawela, Anuradhapura, Polonnaruwa

2. MEMBERS' CORNER

STEPS Survey, Sri Lanka (2020 – 2021)

Dr. Prasad Jayasundara & Dr. Ashoka Seneviratne, Registrars in Medical Administration, NCD Unit, Ministry of Health

The burden of Non-Communicable Diseases (NCD) in Sri Lanka has increased over the past few decades attributed to the changes in lifestyle. Reducing the incidence and prevalence of both behavioural and biological risk factors for NCD has been identified as a major strategy in prevention.

In 2012, NCDs have accounted for 68% of total deaths in the world and in Sri Lanka it was 75%, claiming the leading cause of death (WHO, 2014).

Hence, it is vital to study the status and trends of risk factors in the country for the purpose of planning, implementation, and evaluation of NCD prevention and control programs.

The STEPS survey is an initiative of WHO which was adopted by the Ministry of Health in Sri Lanka and other countries in identifying the prevalence of NCD risk factors.

The Non-Communicable Diseases Unit of the Ministry of Health spearheads the conduction of STEPS in year 2020-2021 with the collaboration of WHO and Department of Census and Statistics (DCS). WHO provides the technical and logistics support, while the development of tools, data collection, analysis and report writing is a combine activity of the Ministry of Health and the DCS.

National representative sample of 7,200 households were included in the survey and an individual from each household between the ages of 18 to 69 years was selected randomly. Data collection commenced in April 2021 observing safety precautions for COVID-19.

The survey consists of three steps. The first step is the interview of participants followed by obtaining anthropometric measurements and finally collection of blood and urine samples for biochemical analysis. This year for the first time in the world, we are using a 'Nicotine Strip' to monitor tobacco consumption of participants.

As Registrars in Medical Administration, we attended the monitoring of the survey in Wilgamuwa and Raththota areas in Matale district.



Way forward for Curative Care Management of COVID-19 patients in the 3rd wave

**Dr. G.H.S. Fernando, Senior Registrar in Medical Administration
Dr. Lal Panapitiya, Deputy Director General (Medical Services 1)
Dr. Dilantha Dharmagunawardene, Director (Medical Services)**

The 3rd wave of COVID-19 Pandemic started on 15/04/2021 and transmission and virulence of the new strain was very high in comparison to the 2nd wave. Hence, caseloads rapidly increased with more symptomatic patients and many of them were Oxygen dependent needing more ICU / HDU facilities. As the main responsible authority, the Deputy Director General Medical Services 1 (DDG MS1) with the approval of the DGHS, decided to prepare and develop hospitals all over the county to cope up with this burden of symptomatic patients with complications and increased demand for ICU / HDU facilities. All PDHSs and RDHSs were requested to urgently develop more COVID-19 Treatment Centres in Divisional Hospitals and select other suitable places in respective provinces to accommodate patients mainly as informed during the 2nd wave. The Armed Forces in Sri Lanka especially, the SL Army volunteered to develop many places as Intermediate Care Centres (ICCs) based on the decision taken at COVID-19 Prevention Task Force as well as political sector movements.

With the leadership of the Hon. Minister of Health, guidance of the Secretary/ Health and the direction of Additional Secretaries, DGHS and the Technical Committee for COVID-19, all DDGs, Directors and other relevant officials performed their duties to face the challenges. Meanwhile, political authority and higher authorities with the support of COVID-19 Prevention Task Force co-chaired by the DGHS and Commander of the SL Army were able to get the approval and guidance from HE. the President Gotabaya Rajapaksa for COVID-19 patient management modality.

The Coordinator of the COVID-19 management centres in DDG MS I Division, with his team has been doing a remarkable endeavour in managing Treatment Centres and mobilizing the patients. Contribution of all relevant DDGs, Directors and their teams in MSD, Laboratory Services, NCD, PHS, ET&R has become very much important in managing these Centres. MS II and Nursing / MS Divisions are to be highly appreciated for their tireless support. Also, the excellent coordination and guidance by the Additional Secretary (MS) should be emphasized.

All PDHSs and RDHSs have speeded up the process of development of new COVID-19 management centers in response to the 3rd wave. Up to 31/05/2021, 90,627 cases were reported in 3rd wave with more than 3,000 cases are presenting per day. COVID-19 management centers were increased by 72 Treatment Centers, 55 ICCs and also, 46 private hospitals. Nearly, 32,000 beds are available in 200 COVID-19 management centers and are managing an average of 28,243 patients per day. All the other hospitals also have allocated nearly 5,000 beds, 155 ICU beds and 426 HDU beds to manage COVID-19 positive patients. At present, it is in the process of adding new 28 ICCs (8,584 beds), 18 Treatment Centers (1,254 beds) to manage COVID-19 patients. Meanwhile, Hon. State Minister of Indigenous Medicine Promotion has agreed to convert all Ayurvedic Hospitals in the country as COVID-19 Treatment Centers. This will add another 50 COVID-19 Management Ayurvedic Centers with more than 3,500 beds within this month.

At present, with the strong support of the HE the President and the government, the entire health care team led by the Hon. Minister of Health with the assistance of two State Ministers as well as Secretary/ Health and DGHS and armed forces led by COVID-19 Prevention Task Force, donors and other non-governmental organizations, we are successfully managing the COVID-19 patient care services.



Health Promoting Settings: Workplace Health Promotion (WHP) – Part 2

Dr. P.D. Koggalage, Deputy Director, Health Promotion Bureau

Workplace Health Promotion (WHP) aims at establishing a healthy, safe and productive work force in Sri Lanka through development of health promoting work place setting.

In order to establish health promoting workplaces, it is important to implement a WHP Guideline in all workplaces in a stepwise manner. An appropriate mechanism should be developed for monitoring and evaluation of the project.

Based on the WHO WHP definition, there are four key main areas to be considered in the work place health promotion.

1. Health and safety concerns in the physical work environment
2. Health, safety and well-being concerns in the psychosocial work environment including organization of work and workplace culture
3. Personal health resources in the workplace
4. Ways of participating in the community to improve the health of workers, their families and other members of the community

The Health Promotion Bureau, as the national focal point is working towards establishing health promoting work setting in Sri Lanka. The Employers and Employees in all enterprises/ organizations are considered as primary target group in this programme. This WHP project is expected to be implemented through the existing public health infrastructure in Sri Lanka. The project targets to establish at least three new health promoting work settings per year in each Public Health Inspector (PHI) area.

The Medical Officer of Health (MOH) or the Additional MOH (AMOH) will act as the WHP Project Manager in the respective MOH area while the area PHI will be the Facilitator who will be the responsible person in developing healthy workplaces through advocacy, mediation and enabling to selected target population. The Health Education Officer (HEO) of the respective district will play the role of the Mediator of this project. The provincial and district Consultant Community Physicians (CCPs) play the role at the administrative level to guide and establish workplace health promotion setting with the collaboration with other administrative and supervisory staff in the provincial and the district level.



Mobile clinics in lockdown areas for NCDs, during COVID-19 pandemic.

Dr. Prasad Jayasundara & Dr. Ashoka Seneviratne, Registrars in Medical Administration, NCD Unit, Ministry of Health and

Dr. Udara Perera, Medical Officer, NCD Unit, Ministry of Health

A recent WHO survey shows that prevention and treatment services for Non-Communicable Diseases (NCDs) have been severely disrupted since the COVID-19 pandemic began (WHO 2020). Healthcare systems are unable to meet the health care needs for NCDs. The disruption of services for NCDs is likely to cause an upsurge in disabilities, deaths from NCDs in the long-term. This impact is global, and that low-income countries are the most affected. WHO found some of the reasons; reassignment of health staff and funds to the COVID-19 response, discontinuation or reduction of NCD services, postponement of planned NCD activities.

More than 90% of the Sri Lankan adults are estimated to have at least one of the NCD risk factors and NCDs

will potentially emerge as the biggest public health challenge in Sri Lanka (Ministry of Health, Sri Lanka 2015). The STEP's survey-2015 revealed that around 70% of the disease burden in Sri Lanka is due to NCDs. This quantifies the impact of service disruption.

Since March 2020 when the first COVID-19 positive patient was detected in the country, we are experiencing the same situation as found globally.

With the periodical travel restriction, isolation, and lockdown specially in the Western Province, Ministry of Health timely identified the need to establish alternative strategies for continuation of NCD care. Decision was taken by NCD Unit to inform PDHS to conduct clinics in lockdown areas during the 2nd and 3rd wave of COVID-19 and re-start the disrupted services up to certain extent.

The NCD Unit coordinates and organizes the clinics with the collaboration of PDHS Western Province, Lady Ridgeway Hospital, Colombo South Teaching Hospital and the National Hospital Sri Lanka providing staff and medicines. Field officers and the community should be appreciated for providing the needy services during this crisis period.

Clinic conducted in Palanwaththa, in Bokundara MOH Division on 11th May, 2021.



3. COVER STORY

The newly established Intensive Care Unit (ICU) – Colombo East Base Hospital (CEBH), Mulleriyawa

Dr. Priyantha Karunaratne, Director, CEBH & Dr. Muditha Perera, Deputy Director, CEBH

The Colombo East Base Hospital (CEBH) has been providing patient care as a type A base hospital with a bed capacity of 285 and deliver services for all major clinical specialties, with accompanying laboratory, imaging, outpatient and critical care services. The hospital catered to a daily patient load of 700-800 seen in the OPD and clinics, with a yearly admission number of around 25,000.

With the onset of the COVID-19 pandemic, CEBH was established as the 2nd hospital in the country to accept symptomatic COVID-19 patients, and the only hospital to accept maternal, paediatric and surgical patients. Since April 2020, we have successfully conducted around 250 deliveries of COVID-19 positive mothers, and provided specialized neonatal care to nearly 300 COVID-19 suspected neonates. However, challenges were faced in providing intensive care facilities within the existing ICU infrastructure, as its limited space hindered it from being converted to an ICU able to manage COVID-19 patients in adherence to optimum infection control and prevention guidelines.

Nonetheless, with the need of the hour in mind, we established a temporary ICU and HDU with the modification of the existing infrastructure. However, it soon became clear that the temporary ICU was not sufficient in size and capacity to cater to the growing demands of the pandemic, and thus came about the idea for this project.

The Seylan Bank joined hands with CEBH to develop the new ICU and the Sri Lanka Army Engineering Service Regiment under the guidance of the Army Commander carried out the construction with their technical expertise, which enabled the completion of the originally estimated 50 million rupee project at 13 million rupees.

The new ICU, currently equipped to provide high quality treatment to 4 patients, is spacious enough to accommodate 5-6 patients. This unit has been prepared with a specialized negative pressure system in view of minimizing spread of infection. Even after the end of this pandemic, the ICU will be able to safely and effectively facilitate the treatment of non-COVID-19 patients, and is thus a priceless addition not only to our hospital but also to the entire healthcare sector of the country.

The newly established ICU facility at CEBH



Please send your suggestions to,

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