No shortage in future: India unveils blueprint for a national medical oxygen grid

Blueprint for the oxygen grid was unveiled in Bengaluru; pilot projects to be carried out in Karnataka, Uttar Pradesh.

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In mid-2021, at the peak of Covid-19, India lost tens of thousands of lives due to a shortage of medical oxygen. To ensure that no one dies ever again due to a similar shortage, the country on Wednesday, 19 October, unveiled the blueprint for a National Medical Oxygen Grid (NMOG).

The oxygen grid would entail central generation (liquid medical oxygen), transmission (tankers and cylinders), storage (liquid and gaseous), and oxygen concentrators.

The blueprint for the grid was launched by D Randeep, Commissioner, Health and Family Welfare, Karnataka in Bengaluru.

What is the oxygen grid?

To support the goals of the Oxygen-for-India campaign, USAID-RISE, the Bill & Melinda Gates Foundation, the Swasth Alliance,

and the One Health Trust (OHT) joined hands to develop the national oxygen grid.

“The NMOG would work much like the electricity grid, with both centralised production units (Air Separation Units, or ASUs) with their own storage and transmission systems, and decentralised production (Pressure Swing Adsorption, PSA, and oxygen concentrators) to meet the current and future needs of medical oxygen in the country,” said Dr Ramanan Laxminarayan, founder and president of OHT, at the launch.

Why a grid?

The Union government, during the second wave of the pandemic, saw that the usual production capacity of 10,000 to 11,000 metric tonnes per day (MTPD) of oxygen, which was sufficient to meet both industrial and medical requirements in normal times, was not insufficient for the 35 percent surge in medical demand.

“During the second wave, the peak medical oxygen sales, of 9,000 MTPD, was unable to meet the 17,000 MTPD need. The production capacity was also not uniformly distributed, with regional variations in supply and demand patterns,” explained a release from the Health Department.

“The absolute production capacity is now estimated to be 18,000 to 19,000 MTPD of oxygen nationwide, although there is significant (regional) variation,” it added.

Since then, several oxygen production and supply initiatives have been adopted in India at both the national and state levels under

the PM Cares Fund to prepare the country for possible future health emergencies.

These have included short- and long-term policy measures, such as installing oxygen production plants, increasing production capacity in existing plants, and developing technology-enabled supply-demand management systems.

Hence the organisations came up with the concept of NMOG. Their report found that there was lack of utilisation of medical oxygen, especially outside of major metros. This means there was both a lack of supply as well as lack of personnel trained to use medical oxygen.

“It is vital to fix the problem and ensure wide availability and use in the farthest corners of the country during normal times so that the country’s infrastructure is ready for any future crisis,” the release said.

How will the oxygen grid help?

This grid will ensure the timely availability of medical oxygen, which can save lives, including those of children suffering from respiratory ailments, pregnant women, patients with severe malaria, cardiovascular disease and traumatic injuries.

Speaking at the launch Randeep said, “The report presents a comprehensive assessment of the current and future needs of India and the design and implementation of the NMOG.”

“The report also recommends the drawing of new clinical protocols and training mechanisms for doctors and other health professionals for optimal usage of this,” the release stated.

The grid will…

- Ensure that oxygen is always available everywhere and, during any spurt in demand, divert from production to consumption points while keeping the other points completely untouched.
- Forecast changes in demand based on patterns of consumption so that it can alter the production or initiate supply procedure and ensure availability as soon as demand is made.
- Ensure that the majority of fluctuations in demand can be met through the existing production volume of medical oxygen and a storage reserve. Dependence on industrial oxygen should be rare.

Pilot projects to be implemented

Meanwhile, the government has also proposed pilot project in some states like Karnataka and Uttar Pradesh, as a collaborative effort between different government departments, refillers, hospitals, experts, IT professionals, and funding agencies.

The NMOG would also include improved oxygen production capacities to meet predicted and unforeseen demand scenarios.

In order to enhance reliability, purity, and economy of the medical oxygen supply, robust and extensive logistics systems would be created to ensure efficient supply to the most remote areas.

The NMOG design would also incorporate modern telecommunication technologies for effective oxygen flow from source to destination.

Expert opinion on the oxygen grid

“The despair of April-May 2021 is rapidly being forgotten. This comprehensive report from the One Health Trust is a valuable tool that reviews potential demand, productive capacity, and distribution mechanisms in order to ensure that data to inform strategy for a National Oxygen Grid are readily available to policymakers”, said Dr Gagandeep Kang, Professor, Christian Medical College, Vellore.