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## Oxygen supplies and COVID-19 mortality in Africa



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Medical oxygen is becoming a critical need as the second wave of COVID-19 unfolds in Africa and health-care systems become overwhelmed with patients, the Africa Centres for Disease Control and Prevention (CDC) said.

As of Feb 4, 2021, African Union member states reported 3 608 487 cases, accounting for 3.5% of total cases reported globally. 93 071 deaths have been recorded in the region, giving a case fatality rate of 2.6% versus the global average of 2.2%, and accounting for 4% of global deaths, according to the Africa CDC.

“We need huge supplies of oxygen to support the management of cases of COVID-19 across the continent. The health systems are overwhelmed”, Dr John Nkengasong, head of Africa CDC, told reporters. “We should join forces to improve access to oxygen across all member states because that is a key element that can be a game-changer in managing a patient with COVID-19”, said Nkengasong. “We need all support and partnerships across the world to work with us to deliver oxygen rapidly to patients in Africa as part of our strategy to respond to the second wave. This is critical.”

WHO Africa attributes the need for more oxygen on the continent to an almost 39% increase in cases over the past month, making the demand for treatment higher than it was in the first wave. However, the regional body admits that there is much higher oxygen production and an increased supply of oxygen concentrators than at the beginning of the pandemic—but the rapid increase in cases has caused a widening gap between oxygen supply and demand.

The issue with oxygen supply in Africa is more to do with delayed delivery and limited storage capabilities (mostly stored in cylinders) rather than issues with manufacturing. In fact, almost all African countries have oxygen manufacturing plants or can source it from private sector providers.

At the beginning of the pandemic, there were 68 oxygen generating plants, which has now increased to 119 across the continent. There were also 2600 oxygen concentrators and now there are 6100, says WHO Africa. “The problem is financing the purchase of oxygen in the public health sector, and the delivery and storage system”, said Dr Githinji Gitahi, Group Chief Executive Officer at Amref Health Africa. Oxygen is not a recurrent expenditure, but an issue of underfunding and inefficiency of the health sector—if you have a cylinder that needs to be filled, and you need to write a local purchase order via your central district, by the time you get the money, the patient would have died, he explained. “So, the most important thing is to look at these systematic institutionalised issues.”

To address the problems with oxygen distribution, WHO Africa has procured 2500 additional oxygen concentrators for countries in the region. “We are also supporting increased oxygen production by helping countries to assess needs and capacities, supporting the procurement process, and identifying companies that produce oxygen”, said Dr Matshidiso Moeti, WHO regional director for Africa.

Gitahi explains that while some countries or health facilities have tried to invest in their own manufacturing plants or bulk tanks, maintenance costs remain very high and remain a big problem. Poor plant or bulk tank maintenance means the production capacity of plants to produce medical grade oxygen (90% oxygen) decreases, and in some cases oxygen quality is less than 70% oxygen. “It is better to have a single private sector supplier with a good financing system and a good storage and delivery system”, says Gitahi. Stakeholders believe oxygen infrastructure will be better in Africa after COVID-19. Many African governments and non-governmental organisations have built oxygen infrastructure, including piping into

intensive care units (ICUs), and more ICUs have been built.

The WHO, UNICEF, and other UN agencies have partnered to provide financial support to countries that require more oxygen, such as Guinea Bissau, Chad, Niger, Nigeria, Uganda, Eswatini, Ghana, and Mozambique. As of Nov 11, 2020, UNICEF delivered 15 188 oxygen concentrators to 93 countries. Bulk tanks have also been built at referral hospitals—a benefit for patients with COVID-19 and also other patients who might require oxygen.

In Kenya, Amref partnered with the Rockefeller Foundation and assessed oxygen needs across the country during the first and second wave of infections. The partnership has assisted several hospitals, providing access to oxygen in ICUs and newborn units, and to treat patients with COVID-19.

“Health systems overall in Africa will be better than they were before pandemic; the pandemic further exposed a fragile and inefficient health-care system and oxygen supply, and in response African governments have increased investment budgets for health care and have recruited more health-care workers”, says Gitahi. “Africa shall have a better oxygen delivery system after COVID-19.”

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