



WHO technical consultation on oxygen access scale-up for COVID-19



**World Health
Organization**



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Abbreviations

ACT-A	Access to COVID-19 Tools Accelerator
ARDS	acute respiratory distress syndrome
ASU	air separation unit
AVSU	area valve servicing unit
CSCS	COVID-19 Supply Chain System
EBC	Every Breath Counts
ESFT	Essential Supplies Forecasting Tool
GC	gas chromatography
HeRAMS	Health Resources and Services Availability Monitoring System
HIC	high-income countries
HMIS	health management information system
HPLC	high-pressure liquid chromatography
IP	International Pharmacopeia
LIC	low-income countries
LMIC	low- and middle-income countries
LMIS	logistics management information system
LVA	local valve assembly
MoH	Ministry of Health
NFPA	National Fire Protection Association (United States)
NGO	nongovernmental organization
OEM	original equipment manufacturer
Ph Eur	European Pharmacopoeia
PNFP	private-not-for-profit
PPE	personal protective equipment
PPM	planned preventive maintenance
PSA	pressure swing adsorption
QA	quality assurance
SARA	Service Availability and Readiness Assessment (tool)
SEIR	Susceptible-Exposed-Infected-Recovered
SLA	service level agreement
SPA	Service Provision Assessment (survey)
TA	technical assistance
UMIC	upper middle-income countries
UNICEF SD	United Nations Children's Fund Supply Division
USP	US Pharmacopeia
VIE	vacuum-insulated evaporator
VPSC	vacuum-pressure swing adsorption
VSA	vacuum swing adsorption
WHO	World Health Organization

Introduction

The World Health Organization (WHO) and other agencies and organizations are increasing their capacity to provide technical support to accelerate oxygen scale-up activities at country level, specifically in low- and middle-income countries (LMIC). To support this, WHO convened a consultation, held over four meetings, with groups that have proven experience implementing oxygen scale-up activities.

Oxygen is an essential medicine (1) used to care for patients at all levels of the health care system, including in surgery, trauma and maternal and child care. The COVID-19 pandemic has highlighted the need for and gaps in oxygen globally. At the launch of the consultation (16 October 2020), there were over 39 million confirmed cases and over 1 million deaths from COVID-19.¹ Severe pneumonia from COVID-19 has resulted in a surge in oxygen demand globally.

WHO recognizes the urgent need for a global effort to scale up the availability, accessibility and affordability of quality medical oxygen. Since the onset of the COVID-19 pandemic, the global COVID-19 Supply Chain System (CSCS) Biomedical Consortium has focused on responding to these needs through a comprehensive, multidisciplinary approach to forecasting, technical specifications, quality assurance (QA), procurement and distribution of oxygen supplies.

However, even before the COVID-19 pandemic, there were reports that in the majority of LMIC, there was a struggle to access reliable medical oxygen. For example, across sub-Saharan Africa 31% of facilities have interrupted oxygen availability, and 25% have no availability at all (2, 3). It was also reported that the availability of oxygen for medical use is the primary rate-limiting factor for treatment once a diagnosis has been made (4). Specific barriers to availability may include: high cost, lack of funding for long-term operations, lack of trained human resources, weak supply chains and non-continuous and unreliable power supply access (5). Medical oxygen has often been omitted in holistic planning efforts while strengthening health systems, and technical guidance related to installation and maintenance of oxygen systems is limited.

This consultation identified gaps and further actions to scale up access to medical oxygen. The consultation facilitated the understanding of the critical challenges of oxygen sources and distribution systems and highlighted the need for operational guidance to scale up, in an efficient, transparent and sustainable manner in the short term, for the COVID-19 surge, but with a long-term vision beyond the current emergency response.

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