

SUMMARY

Proposal for inclusion of oxygen as a medical gas on the World Health Organization Model List of Essential Medicines

Oxygen is included on the World Health Organization (WHO) Model List of Essential Medicines (EML) and List of Essential Medicines for Children (EMLc) because of its proven lifesaving properties, safety, and cost-effectiveness. Oxygen is currently listed in the anesthetics section of the WHO EML and EMLc. Oxygen is a well-established medical gas also frequently used for the management of hypoxemia, a common complication of serious illnesses and conditions affecting newborns, children, and adults globally. Some examples of medical conditions for which oxygen might be needed for the management of hypoxemia include respiratory complications of premature birth (such as neonatal respiratory distress syndrome and birth asphyxia), severe infection, acute respiratory infections (such as pneumonia, bronchiolitis, and disease pandemics), chronic respiratory diseases (such as asthma and chronic obstructive pulmonary disorder), and emergency care (such as obstetric emergencies and trauma).

Despite the inherent risks of hypoxemia and the effectiveness of oxygen therapy, oxygen remains a scarce resource in low- and middle-income countries (LMIC). Each year lack of access to oxygen supplies contributes to thousands of deaths; for example, an estimated 122,000 child deaths from pneumonia could be averted globally if oxygen systems were strengthened.ⁱ Critical deficiencies in oxygen availability for patient care in LMICⁱⁱ has prompted review of the listing of oxygen on the WHO EML and EMLc to ensure that it aligns with, complements, and underscores efforts to improve global access to oxygen therapy as an essential medicine.

In order to satisfy global public health needs, we propose the additional inclusion of oxygen as a medical gas to clarify its importance as a medicine that should be made widely available, at all times, in adequate amounts, and at a price that is affordable for its broader clinical indications. Based on discussions with technical focal points at the WHO, consensus was achieved to propose an additional listing for oxygen under a new section for medical gases to support its broader indications outside settings of anesthesia use. This additional listing of oxygen will reinforce its use

for the management of hypoxemia and achieve harmonization with standard treatment guidelines and international monographs. Subsequently, this addition to the EML and EMLc may stimulate increased coverage of oxygen therapy in LMIC where it is most urgently needed.

The expected benefits of the proposed additional listing for oxygen on the WHO EML and EMLc include:

- Increased recognition among national-level policymakers and health care providers about the important use of oxygen as a therapeutic medical gas for hypoxemia.
- Improved selection and utilization of oxygen in health facilities in LMIC, enhancing quality of care.
- Reinforcement of standardized processes and clinical guidelines to improve safe administration of oxygen.

Proposed additional inclusion of oxygen as a medical gas on the WHO EML and EMLc (new text highlighted):

1. Anaesthetics	
1.1 General anaesthetics and oxygen	
1.1.1 Inhalational medicines	
halothane	Inhalation.
isoflurane	Inhalation.
nitrous oxide	Inhalation.
oxygen	Inhalation (medicinal gas).
X. Medical gases	
oxygen*	Inhalation (medicinal gas). Use for the management of hypoxemia. *No more than 30% oxygen should be used during resuscitation of neonates ≤32 weeks of gestation.

For more information, please contact Bonnie Keith bkeith@path.org or Darin Zehrung dzehrung@path.org.

i Catto AG, Zgaga L, Theodoratou E, Huda T, Nair H, El Arifeen S, Rudan I, Duke T, Campbell H. An evaluation of oxygen systems for treatment of childhood pneumonia. *BMC Public Health*. 2011;11(Suppl 3):S28.

ii Vo D, Cherian MN, Bianchi S, et al. Anesthesia capacity in 22 low and middle income countries. *Journal of Anesthesia & Clinical Research*. 2012;3(4):207.