

# AVAILABILITY AND DELIVERY CAPACITY OF MEDICAL OXYGEN IN EMERGENCY CARE SETTINGS IN 14 AFRICAN COUNTRIES PER SARA AND SPA REPORTS

Sarah J Ellsworth<sup>1</sup>, Corey Bills<sup>2</sup>, Haya Kaliounji<sup>3</sup>

<sup>1</sup>University of Colorado School of Medicine, <sup>2</sup>Department of Emergency Medicine, University of Colorado Hospital, <sup>3</sup>University of Colorado School of Medicine

## ABSTRACT:

**OBJECTIVE:** This study uses World Health Organization (WHO) and Demographic and Health Surveys (DHS) facilitated country-wide Service Availability and Readiness Assessment (SARA) and Service Provision Assessment (SPA) reports to determine the availability and capacity of healthcare facilities in African countries to provide medically therapeutic oxygen in an emergency care setting.

**METHOD:** Review and data extraction of currently publicly available SARA reports and SPA reports published by 14 African countries, including Kenya, Tanzania, Sierra Leone, Zambia, Somalia, Mozambique, Libya, Democratic Republic of the Congo, Benin, Mauritania, Burkina Faso, Niger, Senegal, and Malawi was performed.

**RESULTS:** Among the countries that were surveyed, oxygen availability was consistently found to be insufficient across healthcare facilities. No countries reported

adequate supply of oxygen-delivery equipment, including oxygen cylinders, ventilators, concentrators, cardiac monitors, or ambu bags, with most countries reporting only scant availability of these products. Many African countries did not collect or publish any data regarding oxygen availability within an emergency care setting.

**CONCLUSIONS:** Across the African countries reporting data, oxygen availability and delivery capacity is inadequate to meet the demands of a large and growing populace. This has been highlighted by the evolving COVID pandemic, which has illuminated the dire outcomes of oxygen shortages in low-and-middle-income countries. Furthermore, given the paucity of available data and published literature on oxygen availability specific to an emergency care setting, it is the authors' strong recommendation to the WHO that measures of emergency-specific service and readiness, including oxygen and oxygen delivery equipment, be included in service availability and readiness data collection tools in a standardized format in the future.