

Strengthening access to respiratory care in West Africa



PATH/Gabe Bienczycki

Oxygen access has been a long-neglected element of health system planning, despite being essential in the treatment of a range of diseases. The COVID-19 pandemic has spotlighted the role of medical oxygen as a lifesaving therapy for patients struggling to breathe. However, in many health facilities across low- and middle-income countries, oxygen therapy—including diagnosis, generation, and delivery equipment—is not reliably available. The biggest barriers to oxygen access include supply and infrastructure challenges, funding and human resource constraints, and the inability to deploy resources rapidly in a way that ensures maximum impact while not overwhelming existing health systems.

PATH is working to improve oxygen delivery across [five key platforms](#):

- **Understand** the multifaceted challenges preventing reliable access.
- **Support** decision-makers in designing and implementing comprehensive solutions.
- **Innovate** technologies and processes to rapidly scale reliable access.
- **Advocate** for prioritization of oxygen delivery as one of the most effective ways to save lives.
- **Convene** stakeholders to share and prioritize approaches.

Senegal: Expanding procurement and maintenance of respiratory care equipment to address COVID-19

Understand the multifaceted challenges preventing reliable access

In 2019, in collaboration with the Ministry of Health's Department for Infrastructure, Equipment, and Maintenance (DIEM), PATH conducted a biomedical equipment inventory analysis across public health facilities to identify disparities in the distribution of medical equipment and inform decision-making for equipment management. Results were used by the government of Senegal to:

- Develop a health investment plan, which included building and/or rehabilitating hospitals.
- Scale a medical equipment management system, including the necessary components for delivering oxygen therapy.

In 2020, building on the initial 2019 analysis, PATH conducted a biomedical equipment survey in 29 designated COVID-19 treatment centers across 13 regions in Senegal. Analysis examined the availability of respiratory care equipment alongside modeled scenarios of oxygen need for COVID-19 to [revealing a significant scarcity of oxygen delivery equipment across Senegal](#). Results were used to reallocate and purchase new equipment to close the gap across facilities, strengthen advocacy to address budget shortfalls, further calculate human resource constraints for effective health care delivery, and estimate long-term national oxygen needs for respiratory care.



Medical oxygen is available to health facilities in multiple formats, including cylinders, concentrators, and central pipeline systems. Photo: PATH/Zachary Clemence.

Support decision-makers in designing and implementing comprehensive solutions

PATH is engaged in a number of initiatives to help strengthen national COVID-19 response: 1) management of the acquisition of various oxygen devices and supplies; 2) support with oxygen systems maintenance across oxygen plants in the Dakar medical region, which has the largest number of COVID-19 cases nationally; 3) in collaboration with Senegal's Health Emergency Operations Center, development and execution of training sessions for medical professionals and social workers on the standard operating procedures for COVID-19 response management. In addition, PATH is implementing a research study to understand, build evidence, and scale up pulse oximetry and clinical decision support algorithms for integrated management of childhood illness.

Innovate technologies and processes to rapidly scale reliable access

As part of the biomedical equipment inventory analysis, PATH assessed the pilot of online maintenance management software (GMAO) at 37 health facilities. Maintenance technicians of targeted health facilities, equipment suppliers, and the DIEM were surveyed to explore how staff were trained to use the

software, its benefits, and requirements for a national rollout. PATH is currently supporting the DIEM to develop a maintenance strategic plan for 2021–2025 to create a framework for the country to use to ensure the functionality and longevity of this vital equipment.

Burkina Faso: Initiating strategic planning for respiratory care

PATH is collaborating with the Ministry of Health and the General Directorate for Health Service Delivery to support strategic development and implementation of the respiratory care response for COVID-19.

Activities include the following:

- Developing a list of supplies and equipment needed by level of care for the management of respiratory diseases—including COVID-19—via engagement with various Ministry of Health departments, medical societies, and other relevant stakeholders.
- Evaluating gaps in access to needed supplies and equipment by conducting an inventory of currently available equipment in all secondary and tertiary health facilities across the country, and comparing current availability against the need for oxygen and respiratory care equipment based on COVID-19 cases and existing infrastructure.
- Diagnosing key barriers to access for respiratory care devices and identifying high-potential interventions by interviewing key stakeholders involved in medical device supply, procurement, financing, policy, maintenance, and service delivery.
- Organizing dissemination events and advocacy workshops with national-level partners to support treatment of respiratory illnesses, including COVID-19.
- Improving provision of oxygen services at two hospitals in Ouagadougou by upgrading key oxygen delivery infrastructure and training staff on the proper use of oxygen in managing COVID-19 and other respiratory illnesses.

The results of these activities will support evidence-based decision-making to fill the gaps in oxygen, supplies, and equipment for the management of respiratory illness in Burkina Faso—in order to increase access to oxygen for COVID-19 and beyond.

Moving forward

In West Africa and around the world, scaling up access to oxygen is one of the most effective, and critical, actions that decision-makers can take to improve health outcomes, particularly for vulnerable populations such as newborns, children, and pregnant women. The COVID-19 pandemic has further emphasized the vital role of respiratory care for patients struggling to breathe. Respiratory care requires investment in strengthening health care delivery systems, including supply management and provider training. Senegal's and Burkina Faso's efforts are a starting point for establishing a comprehensive and sustainable oxygen system to address respiratory care needs beyond COVID-19 and demonstrate the type of support PATH can provide in this process.

Additional resources

Increasing Access to Safe Oxygen web page: <https://www.path.org/programs/market-dynamics/increasing-access-safe-oxygen/>.

Biomedical equipment for COVID-19 case management: Senegal facility survey report: <https://www.path.org/resources/biomedical-equipment-covid-19-case-management-senegal-facility-survey-report/>.

For questions or additional information: oxygen@path.org.