

Strengthening systems for medical device access



Access to medical devices is critical to effective health care delivery

Medical devices are a critical but often overlooked component of effective facility-based care, such as medical oxygen therapy. Medical devices have unique characteristics that make them difficult to manage, particularly in low-resource settings. For instance, devices can serve multiple clinical uses across different health areas, complicating ownership and funding responsibilities. They also often require extensive training, ongoing preventive maintenance, and a reliable supply of specialized parts and accessories.

Recent [PATH studies](#) highlighted the extent of current gaps in durable medical device access. In an inventory of over 800 health facilities across four countries,¹ PATH found that critical maternal and newborn health devices like those for x-ray, ultrasound, and infusion were available in less than half of eligible facilities, with even fewer (less than 20 percent) having enough to meet anticipated patient needs. Almost a quarter of observed devices were also nonfunctional. Lastly, supply was often fragmented across 20+ manufacturers per device in each country, complicating training, maintenance, and procurement efforts. These barriers echo those identified for other devices like cold chain equipment, respiratory care equipment, and laboratory diagnostic devices.



A lecturer at Evelyn Hone College in Zambia demonstrates to biomedical engineering students how to connect a breathing circuit to respiratory care equipment. Photo: PATH.

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This work continues PATH's long-standing focus on improving access to respiratory care and broader medical devices—building on previous research and initiatives under the [Market Dynamics for Medical Devices \(MD4MD\)](#), [Scaling Access to Lifesaving Equipment \(SCALE\)](#), and [Strengthening Oxygen Utilization and Respiratory Care Ecosystems \(SOURCE\)](#) projects with support from the Gates Foundation. With a vision that patients should have reliable access to device-related health services, this initiative seeks to ensure medical devices are available and functional in sufficient quantities across health facilities. Building on this extensive foundation, PATH will explore and scale innovative business and operating models, while strengthening underlying data systems for managing medical devices and equipment.

Project snapshot

Goal: To accelerate best practices in medical device management and improve access to the health care services they support.

Key outcomes:

1. **Reliable medical device access**, as improved data and analytics enable better management and maintenance.
2. **Improved device service delivery**, as improved spare parts access and more cost-effective maintenance models enable higher device uptime and utilization by patients in need of device services.
3. **Better targeted donor/government resources**, as improved data help decision-makers identify geographies and populations with critically low medical device access.

Together these outcomes will help improve reliability and quality of facility-based care, and help provide faster and clearer pathways to market and scale for emerging medical device technologies

Key focus areas:

1. Strengthening existing medical device data systems by improving quality, analytics, and decision-making.

¹ Burkina Faso, Indonesia, Kenya, and Malawi.

2. Expanding GIS-based methods for optimizing medical device resource allocation.
3. Scaling successful spare parts procurement pilot.
4. Scoping and testing innovative maintenance models.

Focus countries: Kenya, Malawi, and Tanzania.

Duration: January 2026 through December 2027.

Key activities and focus areas

Strengthening country data system analytics and data quality

Strong data is key to sustainably improving procurement, maintenance, and spare parts management across many different medical devices. To improve this, PATH will build on [its existing support](#) to the ministries of health in Kenya, Malawi, and Tanzania to strengthen nascent medical device data systems, ensuring high-quality data, improved analytics, and optimal decision-making parameters. Key project activities include:

- Supporting Ministry of Health (MOH) staff in designing secondary analyses or dashboards to prioritize maintenance activities and optimize engineer workflow, monitor basic device performance for procurement decisions, and track usage of parts and consumables for demand planning.
- Co-designing and integrating data quality auditing methods into MOH device management processes.
- Organizing peer-to-peer learning exchanges across focus countries to share best practices and insights.
- Integrating medical device data systems into broader government digital health platforms for sustainability.

Optimizing medical device resource allocation through GIS-based methods

Strong data must go beyond inventory of medical devices, spare parts, and other consumables. It is also critical to connect the data to information on population numbers, road availability, and mobile service access. Linking these data together can allow countries to identify access “deserts,” make more informed decisions, and thereby optimize budgeting, procurement, and resource allocation. PATH will adapt existing methods to a medical device context to help MOH leaders efficiently identify and address access gaps.

Scaling successful spare parts procurement pilot

Under the SOURCE project, PATH piloted a [centralized procurement mechanism for oxygen compressor service kits](#).

The pilot resulted in a 26 percent reduction in procurement and transaction costs, and up to six months of reduced lead times, while increasing availability of parts to 14 countries. PATH—in partnership with the [INNOVATE project](#)—aims to replicate this model by partnering with manufacturers and regional distributors to consolidate spare parts ordering across participating ministries of health for more efficient production and distribution. Key project activities include:

- Engaging with ministries of health and distributors to identify spare parts to be included.
- Supporting ministries of health in demand consolidation and ordering, leveraging existing data systems where feasible.
- Liaising with distributors to track production and delivery of the ordered spare parts.
- Integrating these steps into ongoing MOH budgeting and procurement processes.

Scoping and testing innovative maintenance models

Inadequate maintenance is a major driver of suboptimal device performance, and often, countries do not have sufficient internal capacity for maintenance across numerous medical devices. One solution to this challenge is to outsource maintenance to external vendors.

PATH will support focus countries to identify priority medical devices and models that can be included in pilots for outsourced maintenance models. The aim would be to design and run these pilots and then compare cost and device uptime with current maintenance models. By evaluating and disseminating the pilot results, countries can better understand if this model can ultimately improve the effectiveness and cost of long-term device maintenance.

PATH’s Market Dynamics program:

<https://www.path.org/programs/market-dynamics/>



PATH is a global nonprofit organization dedicated to achieving health equity. With more than 40 years of experience forging multisector partnerships, and with expertise in science, economics, technology, advocacy, and dozens of other specialties, PATH develops and scales up innovative solutions to the world’s most pressing health challenges.

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