



Integrating a digital community health intervention into the national health information system

Lessons learnt from Mozambique

Key learning

- Successful digital health integration requires more than technology — it must be grounded in institutional ownership, operational reliability and human-centred engagement.
- Adaptive management is essential for navigating shifting national priorities, while sustained functionality at the community level relies on timely logistical support and device maintenance.
- Participatory design and effective supervision are key to ensuring adoption, data quality and motivation among community health workers.

Background

Community health workers (CHWs) — known locally as *agentes polyvalentes de saúde* — play a pivotal role in extending access to essential health services across Mozambique’s remote and under-served areas. To enhance CHWs’ capacity and improve the quality of service delivery, the Ministry of Health, Malaria Consortium and UNICEF jointly developed upSCALE, a community-based mobile health intervention that is now embedded within the national electronic Community Health Information System (eCHIS).

Malaria Consortium first introduced the inSCALE mobile health application to Mozambique in 2016.^[1] Building on its success, the intervention was expanded and scaled up in 2017 to form upSCALE, a digital health platform designed to strengthen the quality and coverage of community-level health services.^[2] By 2024, a total of 3,654 CHWs and 1,000 supervisors had used upSCALE to support community health interactions with 600,000 households across seven provinces.

How upSCALE works

upSCALE comprises a smartphone application that guides CHWs through patient registration, diagnosis, treatment of malaria, pneumonia and diarrhoea, and referral processes for cases requiring advanced care. A nutrition module supports registration for nutrition sessions including counselling, vitamin supplementation and deworming. Alongside this, a tablet-based application enables supervisors to monitor CHW performance and track stock levels of essential commodities in near real time. By generating real-time data, upSCALE supports supervision and evidence-based decision-making at district, provincial and national levels.

Analysis of retrospective data from 2023 to 2024 demonstrates measurable improvements in patient registration, referrals, health promotion and treatment outcomes. This illustrates how digitalisation has enhanced adaptability, inclusion and resilience within Mozambique’s community health system.

Lessons drawn from our experience can inform global dialogue on using digital innovation to strengthen health system resilience, particularly in resource-limited contexts.

Project activities

Between 2023 and 2024, Mozambique’s Ministry of Health collaborated with Malaria Consortium to implement a range of activities. These focused on embedding the use of upSCALE at all levels (national, provincial, district and community) to improve quality case management and disease surveillance, and on sustaining the high level of coverage across seven provinces. Data discussion meetings were held to promote the use of data and a culture of translating data to action for the main health indicators.

Mobile devices were distributed to widen access to upSCALE. Malaria Consortium supported training and supervision of CHWs, their supervisors and government stakeholders at the central, provincial and district levels on using upSCALE. Technical support supervisions were carried out to evaluate CHWs’ use of upSCALE within their communities.

Malaria Consortium strengthened the nutrition module on the upSCALE platform and contributed to the development of new content through a comprehensive content review and consultations with key partners, including UNICEF and the Department of Nutrition. Technical assistance was provided to develop new workflows and content.

Results

The implementation of upSCALE between January 2023 and September 2024 revealed strong system-wide results:

- 8,218 home visits made by CHWs to monitor the completion of the referrals made to the health facility (98 percent of target)
- 17,578 individuals reached via community health promotion sessions (161 percent of target)
- 14,147 children treated for illnesses such as malaria, pneumonia and diarrhoea
- 10,959 children referred to health facilities, with 25 percent of these referred for malaria, 13 percent for pneumonia and 10 percent for malnutrition
- 62,595 new patients registered (76 percent of target)
- 4,654 CHWs and supervisors received monthly data bundles for real-time reporting
- 28 data discussion meetings promoted data use and a culture of data-to-action for key community health indicators
- 1,576 mobile devices distributed to widen access to upSCALE.



Agentes polivalentes de saúde take part in upSCALE refresher training after receiving their new mobile phones

Lessons learnt

Integrating upSCALE into the national health system and institutionalising its management

The integration of upSCALE into the national health information system (Sistema de Informação para Saúde de Monitoria e Avaliação — SISMA) has demonstrated the importance of strategic engagement with Ministry of Health (MoH) stakeholders to ensure legitimacy and effective coordination of health interventions, and their alignment with national policy. However, engagement alone has been insufficient to guarantee continuity. We found that shifts in national priorities, leadership changes and competing health agendas quickly affected implementation timelines and technical decisions.

An adaptive and flexible project management approach proved critical to navigating evolving government strategies and technical negotiations, allowing the project to remain on track despite contextual and institutional changes.

Sustaining upSCALE use for continued community service delivery and surveillance

Timely logistical and technical support is essential for sustaining upSCALE use at community level. Implementation delays were frequently linked to late submission of CHW and supervisor contact lists, which slowed renewals of mobile data bundles. When CHWs ran out of data, they were unable to submit reports, causing delays in data availability on the platform. Furthermore, some CHWs who had been trained on upSCALE did not have functional phones due to loss or damage, interrupting both data submission and the continuity of community health services.

In response, the project team introduced routine follow-up with districts, and centralised monthly updates of the contact database, which improved the predictability of data recharges and reduced interruptions in reporting. This approach proved effective when districts were responsive but remained vulnerable to delays in contexts with limited coordination capacity.

This experience demonstrated that digital health sustainability relies as much on administrative discipline and last-mile logistics as on platform functionality.

Developing a nutrition module to support the Department of Nutrition

Actively engaging CHWs and supervisors during the design and testing phases of the nutrition module helped to ensure that the tool is well aligned with actual use in community settings.

The cascade training model proved efficient and scalable for rapid rollout, although the initial exclusion of supervisors (due to budget limitations) constrained early feedback and technical support.

Subsequent inclusion of supervisors improved on-the-job support and reinforced adherence to workflows, demonstrating the critical role of supervisory capacity in digital module adoption.

Supervision and data quality through upSCALE

A blended supervision model combining in-person contact and remote support has been identified as a key determinant of success, contributing both to data quality and to CHW motivation and confidence in routine digital use.

Face-to-face supervision, although infrequent, had a strong motivational and technical impact on CHWs, reinforcing recognition of their work and improving practical performance. In parallel, remote technical support each month proved to be an efficient, sustainable and low-cost alternative, enabling timely problem-solving and continuous communication with users, even in resource-limited settings.

Role of upSCALE technicians within the provincial health directorates

The Ministry of Health has an internal department responsible for digital health. This department provides governance and technical coordination for digital health solutions and is represented across all provincial health directorates. Embedding dedicated upSCALE technicians within this department at the provincial health directorates, rather than working remotely, has been highly beneficial. Technicians provided direct operational and technical support, resolved issues promptly and strengthened the link between field teams and central management, improving both platform performance and communication flows.

Recommendations

Integrating upSCALE into the national health system and institutionalising its management

- Establish a formal and transparent decision-making mechanism involving MoH departments, technical partners and donors to align integration pathways and resolve technical or governance discrepancies.
- Embed contingency funds, adaptive timelines and mitigation plans in future project designs to accommodate institutional shifts without jeopardising delivery.

Sustaining upSCALE use for continued community service delivery and surveillance

- Implement monthly updates of the CHW and supervisor databases, with coordinators sharing combined lists promptly with the project team via a cascade process to facilitate regular mobile data renewals.
- Identify local service providers for device repair and replacement, supported by UNICEF funding.
- Maintain a buffer stock of mobile phones of 10–15 percent during procurement to ensure quick replacement in the event of loss or damage.

Strengthening the nutrition module to support the Department of Nutrition

- Schedule regular refresher training sessions and user acceptance tests to capture user feedback and integrate timely improvements.
- Include supervisors from the outset in future training strategies to strengthen on-the-job support and problem-solving capacity.
- Ensure adequate device procurement and distribution prior to large-scale rollouts to prevent delays in uptake.
- Expand dashboard-based supervision tools to promote routine data use and evidence-based decision-making at district and community levels.

Supervision and data quality through upSCALE

- Allocate dedicated budget lines and logistical resources to enable regular in-person supervision visits, including transport, per diem and supervision planning at district and provincial levels. Strengthening these operational enablers will improve CHW motivation, enhance data quality and reinforce accountability within the upSCALE system.
- Institutionalise regular remote technical support as a core and sustainable activity to maintain communication, problem resolution and user confidence.

Role of upSCALE technicians within the provincial health directorates

- Maintain and expand the placement of dedicated upSCALE technicians within provincial health directorates to ensure timely platform support and technical troubleshooting.
- Consolidate this model as a permanent component of the Ministry of Health's digital health support structure, reinforcing institutional capacity and long-term sustainability.

References

1. Malaria Consortium. Implementing mHealth solutions: To improve community health worker motivation and performance. Malaria Consortium; 2016. Available from: www.malariaconsortium.org/resources/implementing-mobile-health-solutions
2. Malaria Consortium. upSCALE: Strengthening mobile health in Mozambique: Improving disease surveillance and community-based maternal and child healthcare. Malaria Consortium; 2022. Available from: www.malariaconsortium.org/resources/upscale-strengthening-mobile-health-in-mozambique

© Malaria Consortium / February 2026



Unless indicated otherwise, this publication may be reproduced in whole or in part for non-profit or educational purposes without permission from the copyright holder. Please clearly acknowledge the source and send a copy or link of the reprinted material to Malaria Consortium. No images from this publication may be used without prior permission from Malaria Consortium.

UK Registered Charity No: 1099776

Contact: info@malariaconsortium.org

Cover image: *Agente Polivalente de Saúde* (APS) Provincial Coordinator in discussion with APs, Cabo Delgado, Mozambique

www.malariaconsortium.org

 **FightingMalaria**
 **MalariaConsortium**



**malaria
consortium**
disease control, better health