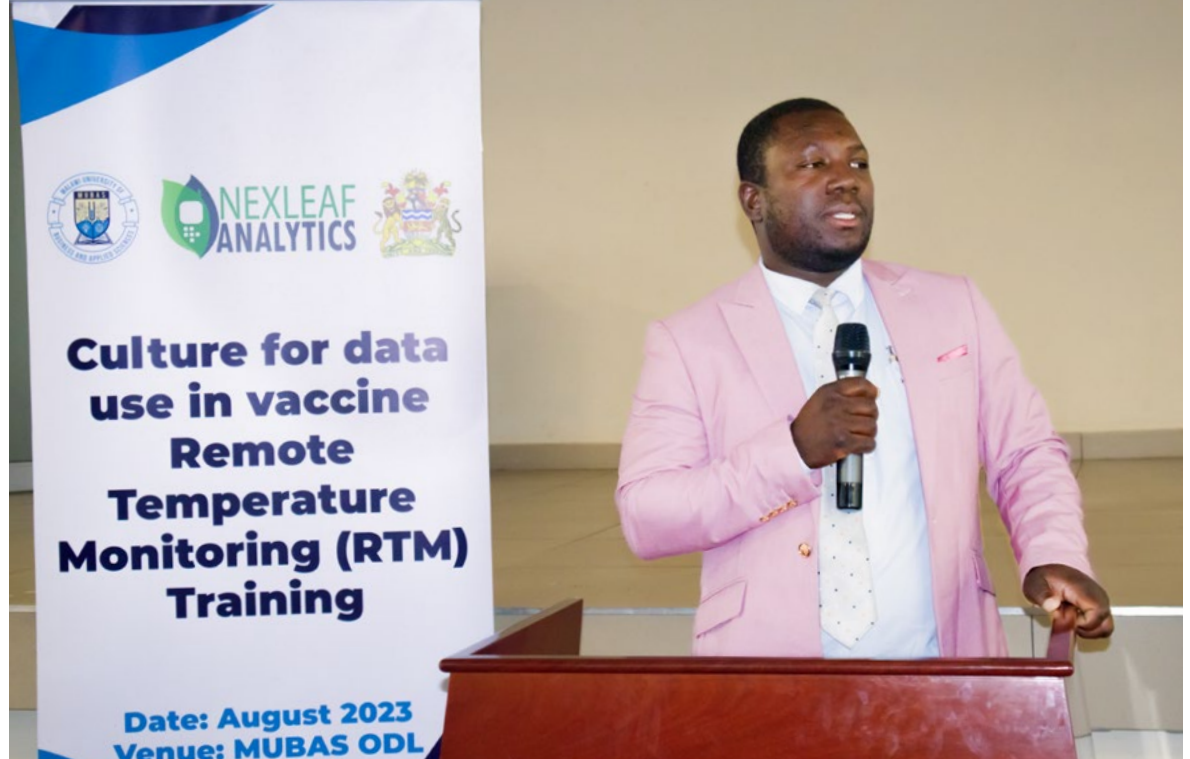


Building a Culture of Data in Malawi

by Patience Mfuné,
Senior Project Manager



Adopting technology requires changes in behavior, beliefs, skills, processes, and systems.

Otherwise, despite the promise and opportunity of a new technology, it will just gather dust on the shelf.

In December 2021, Malawi's Ministry of Health Expanded Program on Immunization (EPI) recognized the need for a remote management solution for its vaccine cold chain. Malawi wanted better inventory tracking and assurance that its fridges and freezers were keeping vaccines safe at every distribution level, even on weekends and holidays. In response, UNICEF and Nexleaf partnered with EPI to deliver and install 850 ColdTrace remote

temperature monitoring (RTM) devices across Malawi to mobilize real-time data from cold chain equipment.

However, experience has taught us that technology on its own is not enough to achieve impact. Adopting technology requires changes in behavior, beliefs, skills, processes, and systems. Otherwise, despite the promise and opportunity of a new technology, it will just gather dust on the shelf. With support from the Patrick J. McGovern Foundation, we collaboratively designed a project with the MoH to drive the adoption of ColdTrace RTM by building a culture of data in Malawi.

In February 2022, I joined Nexleaf as Project Manager to provide continuous support and advice to stakeholders at all levels of the MoH. From the beginning of the project, I helped Malawi EPI develop its own structures and practices for monitoring RTM devices and using RTM data during weekly meetings to discuss data, issues, and opportunities.

Creating Data Use Practices: A Collaborative Approach

Early on, we engaged frontline RTM users in health facilities and conducted an in-person baseline assessment to understand their skills, behaviors, and beliefs. We learned that:

- Cold chain data is generally accessed and shared informally. The most frequently cited sources of information about

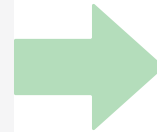
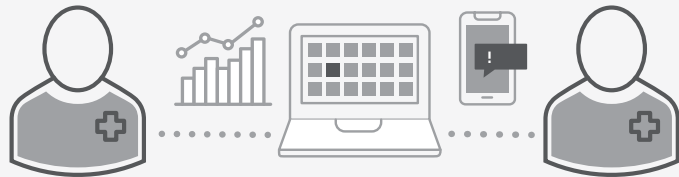
cold chain data were fellow health workers, via phone calls, WhatsApp groups, and direct messages.

- Health workers were responding to SMS and RTM device alerts, but they were not yet able to access and use cold chain data in a systematic way to optimize fridge management.

We held two trainings for a total of 120 district EPI coordinators and cold chain technicians from all 28 districts of Malawi. The sessions were **highly interactive and practical**, covering the basics of RTM devices and troubleshooting, as well as how to access and use data from ColdTrace.

Throughout the project period, we accompanied EPI's national and regional staff on supportive supervision visits to health facilities to observe how RTM data use was helping EPI personnel protect vaccines. We also identified Data Champions who were using RTM effectively, shared their stories, and connected them to other users. In addition to strengthening the culture of data in Malawi, these activities helped Nexleaf improve our services. User feedback from Malawi helped us develop support guides and improve our ColdTrace product for all customer countries. **This type of two-way communication and collaboration is unique to how Nexleaf works; we are continually supporting and learning from our partners.**

When Health Workers Use Data, Vaccine Protection Improves



I use RTM devices



I use the ColdTrace data dashboard



I review cold chain data at least once a week



I share cold chain data at least once a week



Nexleaf conducted two trainings for 120 district EPI coordinators and cold chain technicians from all 28 districts of Malawi in May and August of 2022. Baseline (May 2022) and endline (August 2023) survey data from training participants summarized above showed that health workers improved how they access and use RTM data.

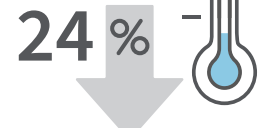
Total time spent in safe temperature range



Equipment sending data



WHO Cold Alarms



WHO Warm Alarms



Nexleaf compared cold chain equipment performance data at the beginning of the project (February/March 2022) with performance at the end of the project (August/September 2023) for 889 equipment units in all 28 districts of Malawi. The metrics above reflect WHO standards for the definition of cold alarm, warm alarm, and safe temperature range (2 °C to 8 °C).

Digital Transformation Requires Commitment and Trust

Through the Culture of Data project, Nexleaf has made tremendous progress building trust in RTM data to transform Malawi's MoH EPI from a completely analog, paper-based system to a modern, digital system.

This work helped us build and test a sustainable and cost-effective model for supporting human-centered information technology adoption within a health system. Ensuring local MoH leadership of the project activities is critical, especially for sustainability in the long term. Nexleaf and the MoH developed an adaptive and trusting relationship to achieve results together. The design and implementation of the project ensured that the MoH retained leadership and ownership of project activities. **In 2024, Nexleaf's Rapid Response & Repair (R3) initiative will scale this dynamic, highly collaborative approach to serve more countries in their quest to achieve data-driven health systems.**

"Through ColdTrace we know how to interpret data from RTM devices and we are able to come up with informed decisions to ensure that vaccines are managed."

– Gray Phiri, EPI National Cold Chain Manager for Malawi



Launching a University Course on Using Data to Manage Vaccine Equipment

Our collaboration scaling remote temperature monitoring (RTM) to drive the digital transformation of vaccine system management in Malawi showed us that health workers are eager to upskill their use of technology and data to do their jobs better. To meet this demand, Nexleaf partnered with the Malawi University of Business and Applied Sciences (MUBAS) to develop and deliver a first-of-its-kind university course focused on how to use RTM data to manage vaccine cold chain equipment.

In September 2023, 115 participants took the course in person at MUBAS. The university enrolled an additional 95 participants in an online version. In addition to Expanded Program on Immunization (EPI) coordinators and other vaccine officers who work at the Ministry of Health, **the course enrolled staff from USAID, UNICEF, Chemonics, VillageReach, and Jhpiego** working on immunization initiatives in the country.

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The mix of participants demonstrates strong demand for this type of curriculum and delivery style co-designed by Nexleaf and MUBAS.

According to **Dr. Save Kumwenda**, head of the Department of Environmental Health, the faculty who facilitated the sessions found this innovative course structure very useful. **The Culture of Data project has sparked new and creative thinking around the course offerings for Malawi's health workers overall.**

The course will continue to be offered through MUBAS's Department of

Environmental Health, and as a stand-alone course for EPI and other immunization partners. The Malawi Ministry of Health is currently considering how to integrate the data-use modules into the existing country-wide EPI curriculum. Both Nexleaf and our partners are excited to see the course continue into the future.

