Technology Solutions for Improved Lab Sample Transport

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INTRODUCTION

Polio, a crippling and potentially fatal infectious disease, remains a threat to global health. To accelerate polio eradication efforts, we are implementing customized programs in 15 countries considered at high risk for outbreaks. These programs aim to improve the **speed** and **quality** of polio sample transportation from communities and health facilities to national and international laboratories.

ASSESSMENTS

VillageReach conducted robust national assessments to determine why samples were taking many weeks to arrive at the relevant testing labs. Some key themes found across countries were:

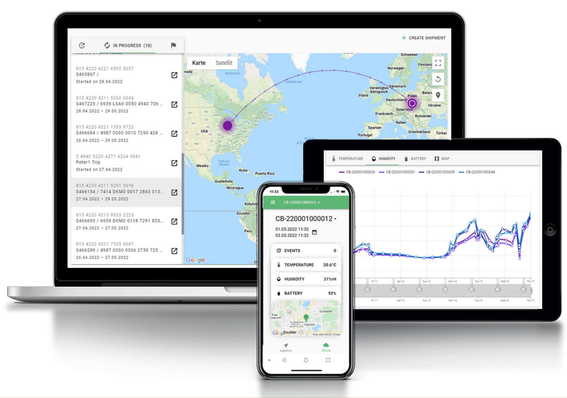
- Lack of real-time data and dashboards to address transportation bottlenecks
- No data on temperature excursions during transport, potentially threatening sample quality
- Lack of centralized sample notification system to ensure data visibility and transport coordination

DIGITAL SOLUTIONS

Sample Notification Systems

USSD notification system: Adapted by R4H for polio samples in Malawi – Health workers (HWs) send free SMS after 1st and 2nd AFP (polio) samples are collected from patients, and can request sample pickup from couriers; system assigns unique identifier to samples and provides daily updates.

AlôVida: The national health hotline in Mozambique was built upon for sample transport – HWs can call from health facilities countrywide, triggering on-demand transportation request.



Samples Trackers

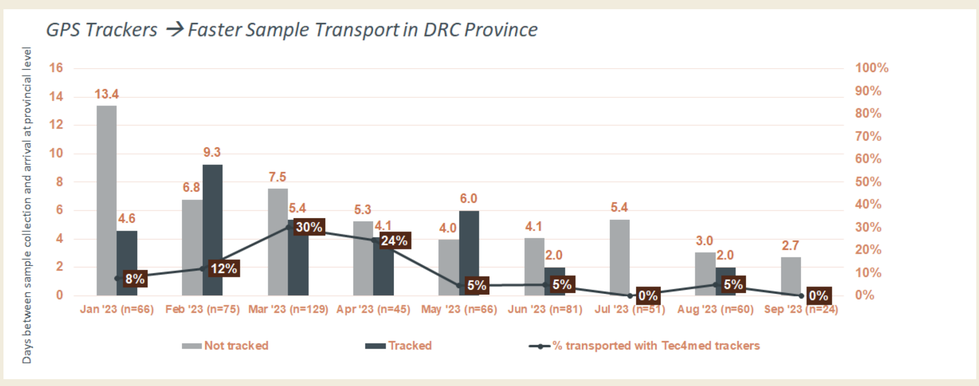
3,334 digital trackers were vetted and procured for 11 program countries; these trackers travel with the lab samples.

Trackers were chosen for each geography based on need/ability to **monitor real-time location and temperature** (dual-purpose devices include Tec4med and Accent Systems) or only temperature (U-TRIX, Parsyl), and upload to a database accessible at the national and international level.

RESULTS

Sample Timeliness

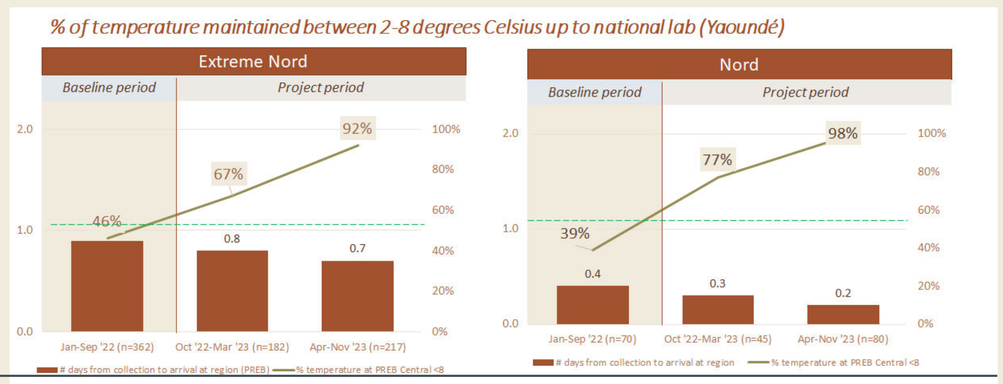
Ex: DRC



AFP samples that were tracked using Tec4Med devices in Haut Lomami province, DRC, averaged 5.4 days, which is 1 day faster than non-tracked samples.

Sample Temperature

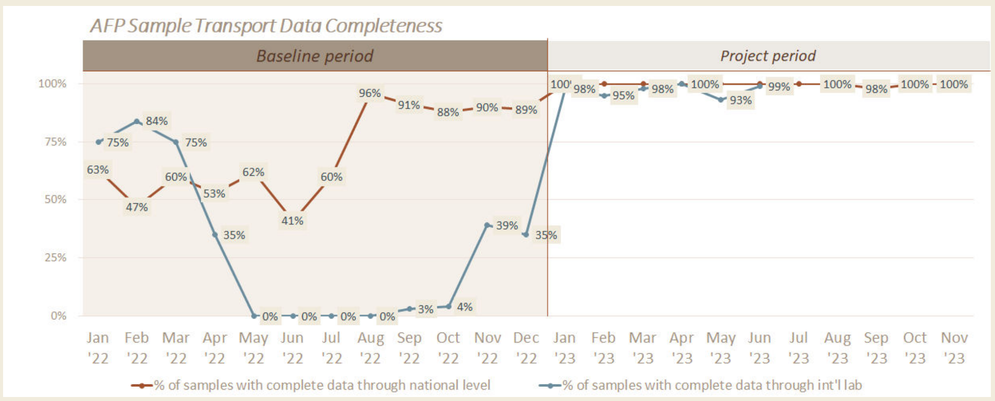
Ex: Cameroon



In the 2 project regions transport timeliness was maintained (targeting 1.0 day through the regional level), while improving temperature maintenance (the proxy indicator of condition the MoH monitors).

Data Completeness

Ex: Malawi



Through capacity building on the completion of case investigation forms (CIFs), data review meetings, and a data harmonization exercise, our project has contributed to consistent data availability to enable accurate monitoring.

OUTCOMES:

Faster case notification

Reduction in sample transportation times

Increased data availability

CHALLENGES:

Cost for ongoing subscriptions/ replacements

Device/data management

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