





UNICEF's Digital Health Vision

A digitally-enabled health system where countries effectively adopt technology solutions that prioritize **reaching** the most marginalized and vulnerable children, adolescents and families with **information and services**.

In doing so we strengthen the ability of health systems to collect, analyze, and use health data to continually improve the reach and quality of services.



Gavi Digital Health Information Priority Areas

SYSTEMATICALLY



Identification and reach of zero-dose and under-immunised children with geospatial applications, smart maps, digital micro-plans, satellite identification of settlements and community e-registry



Digital supply chain information systems with timely data visibility, triangulation and use at service delivery points and national/sub-national levels



Real-time planning and monitoring of immunisation campaigns with timely reporting, insightful dashboard, coordination and communication

OPPORTUNITY BASED



Effective sub-national data use with improved data triangulation, dashboards, visualisation, mechanisms to aid decision-making and systems interoperability



Electronic VPD surveillance data exchange for targeted vaccination and outbreak response with timely data capture, sharing, analysis, visualisation linked to decentralised testing data



Digital interventions supporting vaccine confidence and demand for immunisation to help build trust and enhance engagement in support of children, their caregivers, communities, health workers and health systems

UNICEF DHIS areas of work

- Identification and reach of zero-dose & underimmunised children Effective Sub-national Data Use Real Time Planning and **Monitoring of Campaigns Digital Supply Chain** Information System **Digital Interventions** Supporting Vaccine Confidence and Demand for Immunisation Electronic VPD Surveillance **Data Exchange for Targeted** Vaccinat® & Outbreak Response **Cross Cutting**
- Geospatial population estimates
- Satellite identification of settlements
- GIS-based and digital microplanning
- Triangulation of Electronic Immunization Registries (EIR) and Birth registration for identification
- Zero dose sensitive digital health community platforms
- Predictive analysis to prevent stock outs
- Integrating RTM data into or aligned with national HMIS indicators
- Improve the effectiveness and quality of VPD campaigns through technical guidance for use of RTM approaches
- Logistics Management Information Systems
- Cold Chain Real-time Monitoring
- Global TRVST Network
- Use of digital platforms for demand generation / increasing vaccine confidence / handling misinformation

- National Digital Health Information Costed Country Roadmap
- Building institutional capacity and enabling environment for GIS ("Geo-enabling the HIS")
- Health workforce registries
- Geolocated Health facility and vaccination sites master List
- Digital Public Goods and Smart Guidelines / Target Software Standards

Geospatial population estimates

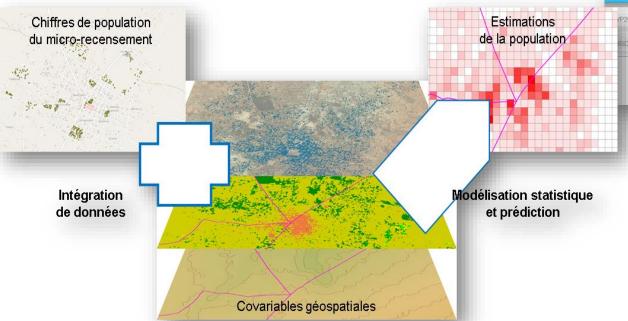
Approach

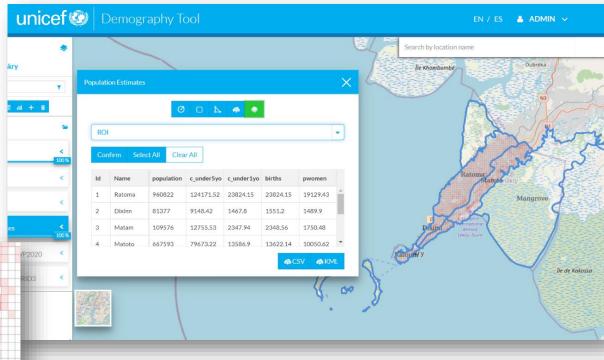
Internal

- Field work planning and micro-census
- Geospatial covariates generation and analysis
- Geostatistical modelling and population estimates

Direct Country Technical Assistance (2024)

Cameroon, Côte d'Ivoire, Guinea, Mali, Chad, and Nigeria





GIS-based and digital microplanning

Country-level implementation

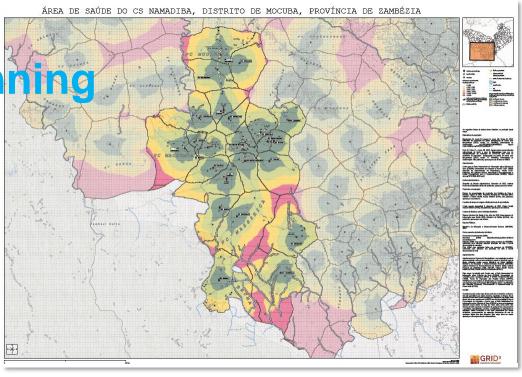
- Satellite based identification of settlements and geospatial population estimates
- Geographic accessibility mapping
- Travel time-based catchment areas definition
- Engage local level health staff for definition of local geography
- Build govt's capacity for sustained GIS management and oversight

Direct Country Technical Assistance (2024)

 Madagascar, Mongolia, Mozambique, South Sudan, Uganda, Zambia, Malawi, Cambodia

Global Activities

- Development of guidance and toolkits (<u>Geo-enabled</u> microplanning handbook, costing tool- under development)
- Identification of Standards and requirements (Digital Adaptation Kit, Health facility Registries requirements – under development)
- Shaping global GIS agenda through global and regional partnerships (GHFD, WHO GIS center, MORU Tropical Health Network)







GIS-microplanning for integrated COVID-19 adolescent campaigns and routine immunization (Mozambique)

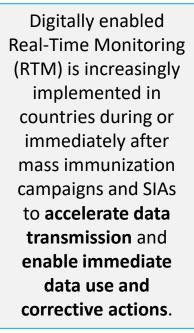
Real Time Monitoring

WE KNOW THAT

Supplementary
Immunization
Activities (SIAs) allow
for the raising of
broad population
immunity and
reducing/interrupting
VPD transmission.

HOWEVER

A paper-based system makes it difficult to undertake a course of action during a short time frame for vaccination campaigns.



EVIDENCE

Quick actions during time-bound SIAs can help identify gaps (poorly vaccinated communities, supply stockouts, insufficient outreach, etc.), with data driving corrective actions that can result in improved accountability and quality of vaccination campaigns.

THE BROAD PICTURE

Integration with the HMIS platform is crucial to getting the data into the national repository and triangulating with other information.

1 Planning phase

- Stakeholder consultation, national leadership
- Tools development/adaptation (testing, training)
- Micro plan (vaccination site, target population, vaccinator, volunteer)

During campaign

- Monitoring of progress vis-à-vis daily target
- Monitoring of missed children
- Monitoring of supplies
- Corrective actions

3 After campaign

- Rapid Convenience Monitoring (RCM)
- Funds disbursement monitoring
- Evaluation of campaign coverage

Real Time Monitoring

Countries will be able to rapidly address needs and gaps during campaigns through better planning, implementation and monitoring to improve campaigns coverage.

USE OF REALTIME MONITORING (RTM) APPROACHES FOR VACCINATION CAMPAIGNS

Theory of Change

OUTCOMES IMPACTS VISION

Reduction in childhood disability and mortality due to vaccine preventable diseases

> 95% targeted children vaccinated through more cost-efficient campaign in all administrative areas

> 80% of districts have improved, effective, equitable and cost-efficient routine immunization coverage based on real-time data from campaigns that prioritizes vulnerable and at-risk populations

Campaign targets achived equitably through improved planning and implementation Refined outreach strategies and plans through RTM combined with GIS mapping in security compromised areas and hard-to-reach communities Campaign and immunization resources used and distributed optimally

Improved service delivery by rapid corrective actions during campaign through timely, complete and efficient real time data Security compromised & high-risk communities better reached

Vaccine safety improved with more timely Adverse Events Following Immunization (AEFI) detection and investigation Vaccine hesitancy reduced, trust and demand increased by timely actions to misconceptions and community fears

Reduced misuse of funds and improved timely distribution of incentives to Health Workers

Pre-campaign/Planning

- Informed planning by using data from precampaign readiness assessment
- Timely validation of quality & digital microplans
- Timely monitoring of quality and attendance of trainings
- Supplies stocks, logistics and cold chain issues addressed in real-time

During campaign/Implementation

- Faster collection of quality coverage data and its integration with other digital solutions, over paper- based approaches and minimizing manual calculation errors
- Improved accountability by tracking vaccination progress in real time to reach the settlements to be covered
- Adherence of standard operating procedures by vaccination teams monitored in real time
- Rapid response to AEFIs through real-time information
- Improved service delivery through timely and better monitoring and supervision of teams
- Increased identification of un- and under-immunized communities via use of GIS during the campaign

Post-campaign/Evaluation

- Timely coverage surveys and validation of administrative coverage
- Real time monitoring of disbursement of funds to Health Workers and improved fiduciary controls
- Problems identified in a timely manner and effective course correction taken using two-way communication during all phases of campaign
- Timely monitoring ensures that community opinion, perceptions and rumours are responded to before they escalate
- Data quality improved by reducing manual, multiple data entries
- Reduced costly and time-consuming printing of M&E tools

INPUTS

OUTPUTS

Campaign action plan with RTM component and M&E framework defined

RTM set up for pre-campaign readiness assessment Minimum package and plan for connectivity for effective use of RTM in all phases of campaign based on geographical network connectivity and technical capacity of users Social media, vaccine hesitancy and rumors monitoring and addressing mechanisms in realtime established Curriculum and training materials on RTM use developed & trainings conducted Contracting with software developers, mobile network operators as soon as campaign planning starts Exact and timely distribution mechanism of incentives to HWs through banking sector established Specific Hardware (tablets/ phones, etc) arranged

ENABLING ENVIRONMENT

Leadership and governance: Government ownership and accountability in the design, implementation, and sustainability

Human resources: proficient in and accountable for using digital technology

Infrastructure, connectivity applications: Appropriate technology including network services at all geographical areas

Standards and interoperability: With existing national digital health systems and structures

Funding: financial resources to ensure the effective planning

Strategy and investment: vision, strategy and plans aligned with existing national systems and digital Health policies

RTM use cases



Bangladesh 2020

- ✓ MR
- ✓ DHIS2 for RTM and RCM

Indonesia 2017-18

- ✓ MR
- ✓ RapidPro,WhatsApp

Malawi 2022

- ✓ Polio / Cholera
- ✓ RapidPro and DHIS2

The Philippines 2023

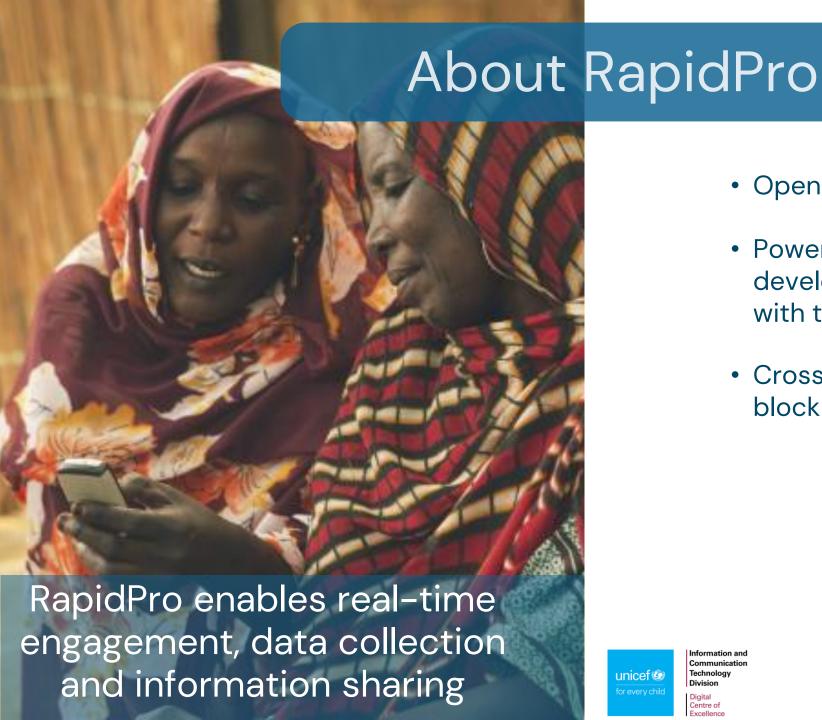
- ✓ MR, Polio
- ✓ RT-VaMA

Pakistan 2018-19

- ✓ Measles / Typhoid
- ✓ Pre: Kobo
- ✓ Intra: RapidPro
- ✓ Post: WhatsApp

Rwanda 2022

- ✓ COVID-19
- ✓ DHIS2

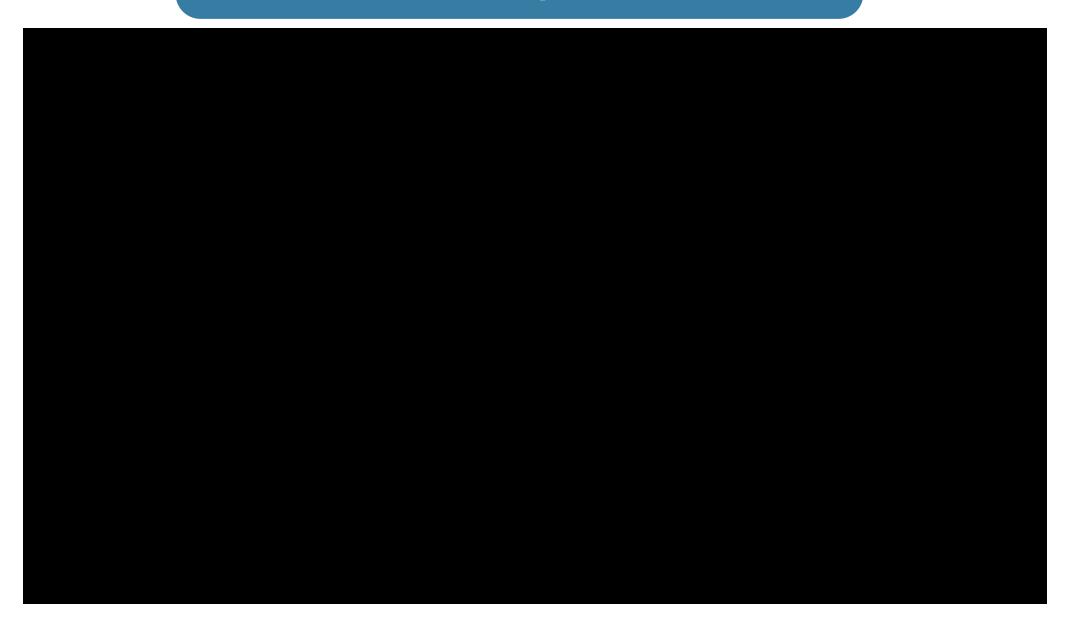


- Open-source software platform
- Powers the way governments and development partners connect with their communities.
- Cross-sectoral digital building block





About RapidPro

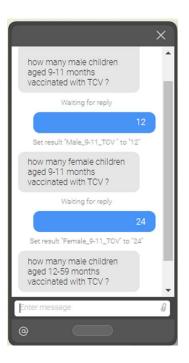


Real Time Monitoring: from pilots to scale

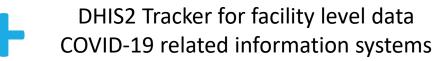
Approach

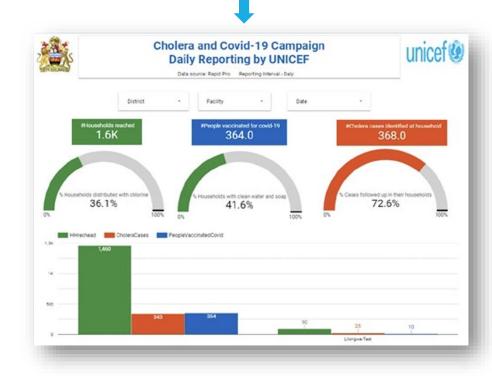
- RapidPro for RTM during national VPD campaigns in 20+ countries:
 - Child Registration
 - Vaccination Monitoring
 - Outreach Coordination
 - Vaccine Stock Monitoring
 - Client Feedback/Assessment

Malawi, 2022



RapidPro-based SMS dialogue for vaccinators to report aggregate campaign data daily





Integrating RTM data into national HMIS

Approach

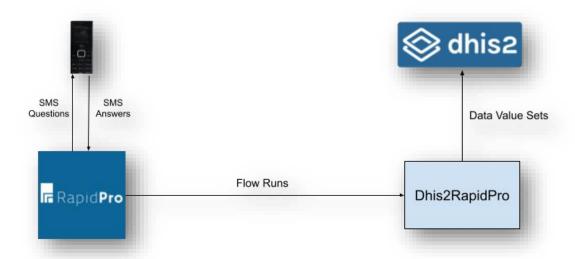
Development of a RapidPro - DHIS2 connector for aggregated data

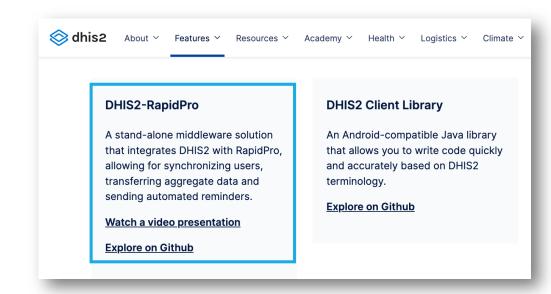
Direct Country Technical Assistance

Zimbabwe

Supporting Global Activities

• Individual-level data for RapidPro - DHIS2 connector?





Improve the effectiveness and quality of campaigns through technical guidance for use of RTM approaches

Approach

- Identify campaign commonalities (VPD inc. C19, malaria and NTDs, and others)
- Define a common set of campaign indicators
- Development of DHIS2 metadata package
- Build govt's capacity for sustained RTM management and use

Direct Country Technical Assistance (2024)

• DRC, Ethiopia, Mozambique, Nigeria, Rwanda, Uganda

Supporting Global Activities

- Campaign digitalization package:
 - Package content and workflows
 - Guidance on tools
 - Course materials
 - o Geo-enabled RTM guidance



Planning and Implementing Real-time Monitoring Approaches to Strengthen Vaccination Campaigns Guidance for country partners





Pulling it all together: Campaign Digitalization

What elements of the campaign needed improvement during the last rounds (i.e., microplanning, training, logistics, supervision, payment, etc.)?

What information would be useful in identifying when corrective action is needed?

Were there missed opportunities to use pre- and postimplementation data? What are they?

What parts of the campaign are the most challenging and time-consuming to implement and oversee?

Is the broader programme prepared to support the additional corrective actions that RTM approaches may detect?

How might RTM make these processes easier?

Shared vision

Participatory process

Digital ecosystem

Mapping (and automating?) decision-making processes



Thank you!

Nwabundo Dike

ICT Specialist
Digital Centre of Excellence
ndike@unicef.org

Cristina Lussiana

Health Specialist
Digital Health and Information Systems
clussiana@unicef.org

