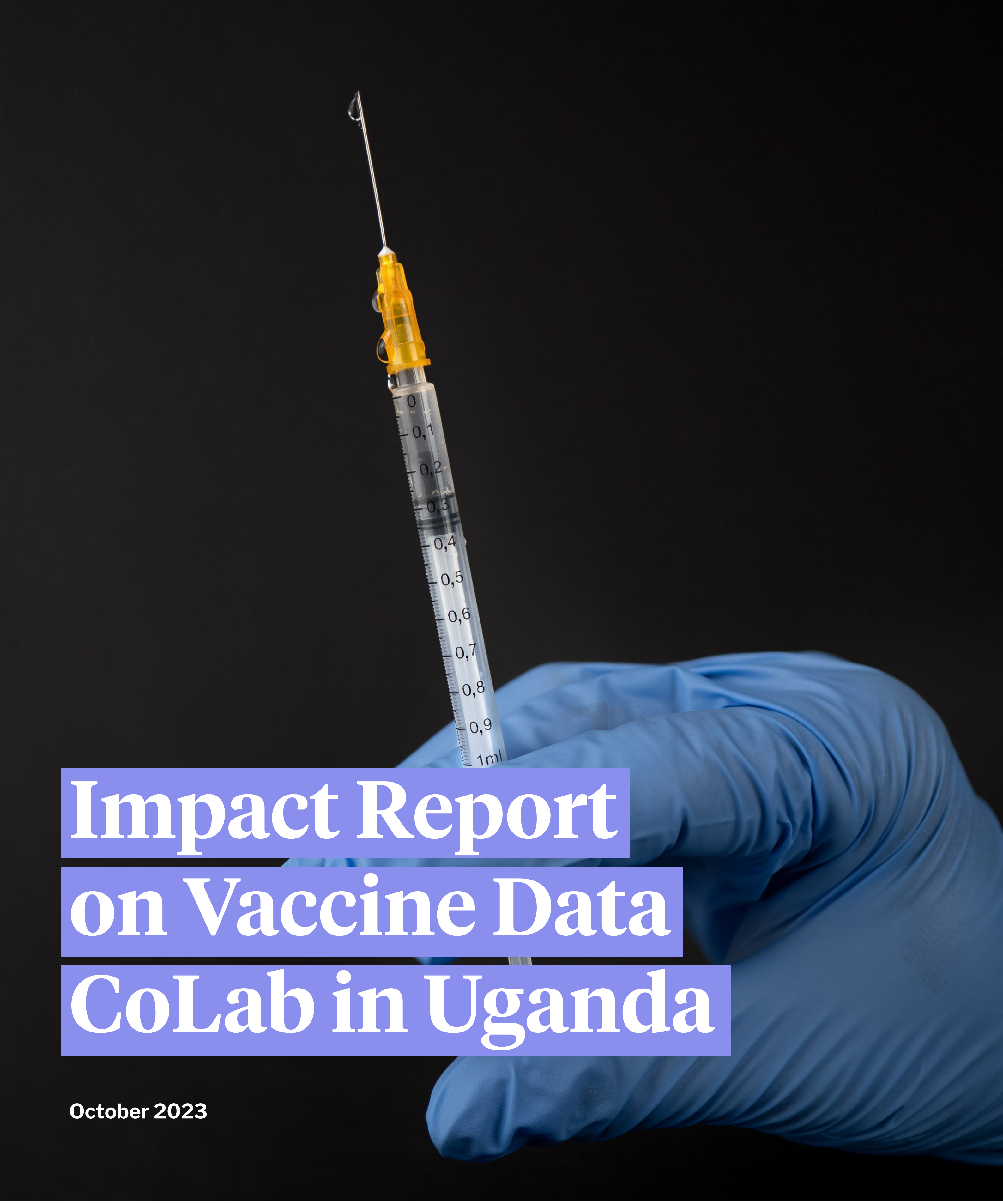

Impact Report on Vaccine Data CoLab in Uganda

October 2023

Better Futures CoLab. Vaccine Data

DT Global

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Makerere University | IDI Infectious Diseases Institute

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Vaccine Data CoLab: Uganda Project Report

About the Colab

The Vaccine Data CoLab, a UK Aid funded programme, is supporting Uganda's vision to prevent morbidity and mortality due to vaccine-preventable diseases by strengthening the role of hyperlocal health data systems in driving decision-makers to use data to design and deliver more targeted vaccine programmes.

Vaccine Data CoLab has taken the lessons learned from the COVID-19 pandemic and focused on country-led systems strengthening with a vision to reinforce hyperlocal data systems that avail data for decision making.

Through a grant portfolio approach, the CoLab has brought on the expertise of three different organisations in Uganda to implement three complementary approaches to increase data visibility, improve data quality and enable data sharing.

Objectives of the CoLab

Our aim is to bring together partners and funders to create a long-term vision on country vaccine data & health systems strengthening.

We are:

1. Building Building, local, national and globalcoalitions with a shared vision for change
2. Actioning ideas through a portfolio of catalytic grants
3. Providing behavioural innovation and data expertise
4. Sharing our learning with local and global networks

Investment Priorities in Uganda

Vaccine Data Accessibility How can we design and create the policies and systems to allow access to vaccine and health data for those who need it?

More reliable data How can we improve the quality and useability of data so that it is actionable for implementers and policymakers?

Making vaccine data valued within the system How can we shift mindsets and create incentives so that high quality data is highly valued and in-demand at all stages of the data value chain?

Alignment to the outcomes of Uganda's National Immunisation Strategy

Identify Zero dose, under immunised children and missed communities.

Monitor and measure outcomes in real time

Use evidence to make a case for political attention and resources

The Vision for Change

Health data system leaders are discussing the need for better data sharing and use, and are advocating for better data sharing policies, infrastructure and capability to enable this

Health decision makers are actively advocating the testing and investment in a data dashboard and related training to ensure better vaccination implementation

VDCL Grant Portfolio

ABBRS: Develop a policy brief will help us address gaps and bottlenecks that hinder efficient data sharing among stakeholders at national, subnational and institutional levels in immunisation programming.

HISP: A consolidated vaccine data visualisation dash board at national level is integrated into national systems, with a clear future plan.

Medici con l'Africa (CUAMM): Districts in Karamoja (Moroto, Amudat and Nabilatuk) will be able to handle vaccination data along the vaccine data chain.

We understand whether and how a combination of training, Smart Paper technology, mentoring, and facilitated conversations about quality, improves capability.

The Approach

Our approach focuses on working closely with multi-sector national and sub-national stakeholders to understand the existing vaccine data landscape, agree priorities, surface local solutions and talent, and connect actors and contexts facing similar challenges through learning networks.

Assess local data needs and gaps

Understand the existing vaccine data landscape and work with key national and sub-national stakeholders to imagine a better future and identify gaps and prioritise opportunity areas.

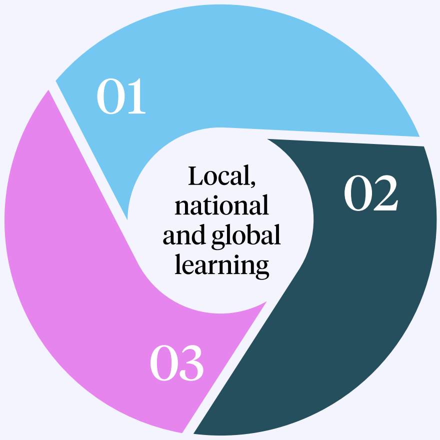
Targeted actions

Implementers, govts and partners are addressing gaps in the health data system and testing targeted interventions to drive the uptake of data for vaccine decision-making.

Learn together on common challenges and what works

Bring together actors facing similar challenges to learn together. Measure impact and performance of targeted interventions to iterate, improve, and share learnings.

Working as a CoLab: Collaboratively (Co) and Experimentally (Lab)



The Co: Local and National
A diverse group of local and national implementers, policy-makers, funders and researchers working to strengthen data systems for vaccine decision making

The Lab
Grant funding a diverse portfolio of interventions across country priorities

The Co: Global
Championing country learning into global spaces, such as WHO

Key lessons at a glance

Going from 'accessible' to 'accessed' to 'used'

When expanding interventions that improve data collection and data access at a local level, localities need a mix of equipment, consumables, comprehensive training and sustainable maintenance programmes.

- A major barrier to data use is tech and data literacy
- Communities need more than just data to achieve desired vaccination outcomes, participatory decision-making helps

Align ideals with local and national realities

Policies don't always align with the lived reality of data governance and immunisation practices, nor the available digital infrastructure.

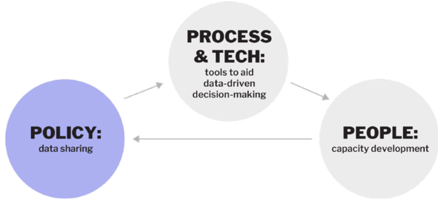
- Data systems strengthening goes hand in hand with ICT infrastructure strengthening.
- Data quality at a national level also depends on what local health workers value.

Learning together

Strong government coordination both internally and with international partners will support scaling. International partners need to focus on scalability rather than novelty.

- The onus is on government to 'join the dots': shared learning goals may help reduce the burden
- Interdisciplinary fragmentation affects scalability of interventions
- Ambiguity in standards and priorities means less data sharing

ABBRS: Identifying policy opportunities to increase access to data



Ambiguous Policies	Obscure procedures	Accountability	Privacy and trust	Limited resources
Ambiguity in the laws that govern data sharing may lead agencies not to limit or delay data sharing.	Obscurity in the processes of data sharing creates power imbalances that limit favourable data sharing.	Health data sharing should be purpose-driven data, uphold responsible use of data while maintaining the rights of people who share the data.	There is need to protect the privacy of the data subjects. Proper accountability builds trust thus enabling health data sharing	Limited resources to develop and implement laws, regulations and policies.

Background

A lot of health data is generated everyday by different institutions in Uganda. To maximise the benefit from these data, data needs to be collected and processed efficiently, stored safely, shared easily and resourcefully among the different stakeholders without compromising its quality, the privacy and consent of the patients.

Health data sharing needs to be guided by effective national laws and institutional policies. Misalignment of data management policies is a hindrance to efficient data sharing among institutions thus negatively impacting health research, innovation, and service delivery.

The aim of the project was to analyse data protection policies at three levels namely: national, local government and institutional levels to identify gaps and bottlenecks that hinder efficient health data sharing among stakeholders. We also interviewed key stakeholders to identify knowledge, attitudes, and practices. The study was guided by the health policy framework, developed by Walt and Gilson, 1994.

The framework consists of four elements: context (why this policy is needed), content (what is the policy mainly about), process (how was the policy brought forward and implemented) and actors (who participates in and influences formulation and implementation of the policy).

Benefits of Sharing Immunisation Data

- Efficient data sharing fosters improved service delivery and increases uptake of immunization services
- Sharing data contributes to strengthening of partnerships and innovations to ensure good health for all such as routine vaccine
- Health data sharing ensures targeted treatment and focuses resources where they are most needed, preventing health problems, and shrinking health disparities
- Data from the health sector also enables tracking of policy effects on health outcomes, providing feedback and strengthening trust in policymakers

Key recommendations

These are the key recommendations for aligned data sharing laws in Uganda.

- Review policies for consistency
- Clarify data sharing procedures
- Allocate human and financial resources
- Build trust

Clear laws and policies

Inconsistencies in the legal and policy framework

Efficient and secure sharing of health-related data is crucial for driving better clinical practice, research, innovations, and implementation of precise public health programmes like mass vaccinations. Analysis of data sharing laws, regulations and policies showed ambiguity in the practical ways in which data sharing for example data holding agencies may misuse the privacy and national security clauses to deny data access to bonafide stakeholders.

Recommendations

Strengthening the legal and policy framework to increase clarity on the freedoms and limitations to data access in the context of data privacy, consent, ownership, and data sharing agreements between institutions and other interested parties.

Investing in efficient data-sharing systems and platforms that are interoperable to allow seamless sharing of health data among different stakeholders.

Enacting policies to guide and promote collaboration among different stakeholders, including government agencies, healthcare providers, researchers, and industry partners.

Accountability Mechanisms

Rights-based data sharing

The project showed that one of the key foundations for effective data sharing policies is accountability, yet the health data sharing policies are not strong on fostering accountability in the data sharing ecosystem. For data sharing policies to be effective, they need to be responsive to emerging strategic priorities and the different ways institutions function such as day-to-day operations, patient needs and rights, and funder requirements.

Recommendations

Health data stakeholders should consider strengthening mechanisms for evaluation, feedback and learning as part of policy implementation processes.

Additionally, stakeholders should invest in building trust among each other to facilitate data sharing.

Stakeholders should also develop data sharing public campaigns to ensure that the public understands what their data are being used for and to reassure them that data will be used for the public good.

Comprehensive Procedures

Systematic data sharing

The procedures of accessing and sharing data differ greatly among institutions. Even in circumstances where the laws give citizens the right to access data, there are complicated procedures that often differ from what is stipulated in the laws.

This highly divergent structure of procedures makes it difficult to access and integrate data from different institutions.

Recommendations

Develop standard operating procedures

Engage the right people at the right time from across different departments and disciplines in policy development

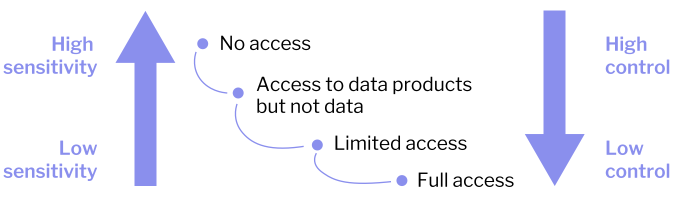


Illustration of the health data sensitivity-access-control dynamics

Resource Allocations

Human and Financial Investments

Human resources play a significant role in ensuring the quality, findability, accessibility, and reusability of data. Financial resources enable the recruitment of staff as well as investments in infrastructure and systems that enable data interoperabley. Understaffing significantly compromises data sharing in many ways notably through slowing the data sharing process or denying access because data controllers may be unavailable to give timely authorisation.

Recommendations

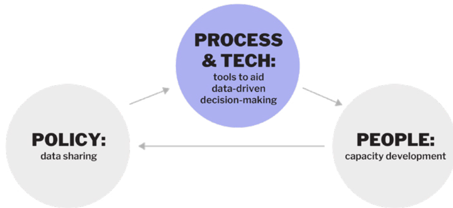
Develop cost implementation plans for all policies.

Invest in capacity development across the data sharing continuum

Stakeholder validation workshop

Read the full learning & recommendations here:
makingbetterfutures.org/learningjourney

HISP: Developing a vaccine data dashboard



Key features of the dashboard

Push analytics
Users are able to regularly receive reports on key indicators

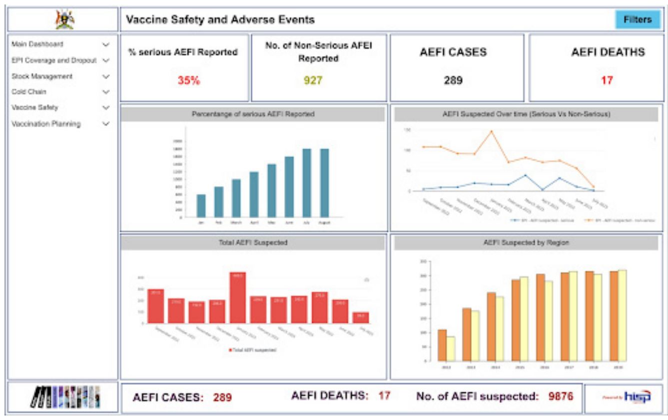
Pulls data from various sources
Unifying data from various sources on to one platform

Real time data reporting
Broad public access to data outside DHIS2

Enhanced useability
Intuitive, customisable dashboard with diverse visualisation types

What we achieved

- Centralised integration of data from multiple systems.
- Vaccine Dashboard development with diverse categories.
- Enabled real-time analytics dispatch via email.
- Completed User Acceptance Testing with positive outcomes.
- Developed clear documentation, ensuring user-friendly experience.



Key lessons learned

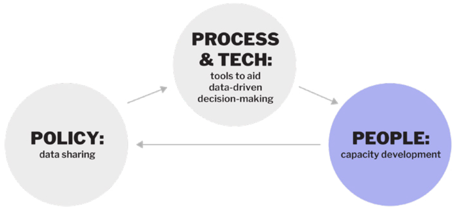
- **Policy gaps:** Existing frameworks lack comprehensiveness on data sharing, necessitating policy revisions for seamless data integration.
- **Capacity concerns:** On-ground staff require consistent training to adeptly handle evolving data tools.
- **Reality vs. assumption:** Our belief that immediate acceptance and useability would follow post-integration was challenged. Ground realities indicate the need for extended user familiarisation.
- **The unexpected:** Always anticipate unforeseen challenges; our expectations on data synchronisation speed and accuracy differed in practice.
- **Collaboration is key:** Our most effective tool was open dialogue with all stakeholders, promoting collaboration over instruction.

Recommendations

- **Revisit & revise:** Consider iterative policy reviews to address real-world challenges.
- **Reinforce training:** Continuous capacity-building ensures system sustainability.
- **Encourage collaborative approach:** Foster environments where feedback is sought and acted upon.
- **Leverage ground-level insights:** Utilise the invaluable feedback from those directly involved to ensure our future planning is rooted in reality, leading to more effective and impactful outcomes.

Read the full learning & recommendations here:
makingbetterfutures.org/learningjourney

CUAMM: Improving the reliability of vaccine data in Moroto, Nabilatuk and Amudat Districts in Karamoja, Uganda



18 District based Mentors trained on Vaccine data Management competences in Recording, Reporting, Archiving, and data use based on Immunisation In Practice guidelines-2022

30 Baseline and Harvest Vaccine Data Quality Assessment (VDQA) conducted in the domains of Recording, Reporting, Archiving, data charting and display, and data use, disseminated results

243 Frontline Health workers trained and mentored on Vaccine Data Management competencies

26 facility-specific, facility-lead CQI projects initiated and tracked to close gaps in completeness, timeliness and accuracy of Vaccine data

17 Health Facilities in Moroto supported with complete digitisation of Vaccine data processes Last mile installation of Smart Paper Technology equipment and tools)

30 Health Facilities provided with Vaccine data capture tools, job aides and archiving cabinets

Background

At the primary level, inadequate training, lack of confidence, and low motivation among health facility workers lead to incomplete and unreliable data in HMIS and DHIS2 systems. The insufficient motivation further hampers data collection efforts at the primary level.

This lack of reliable data impedes real-time decision-making, hindering targeted immunisation initiatives and equitable resource distribution.

Guided by UNEPI's Immunization In Practice Guidelines-2022, the strategy revolved around training, equipping, supervising, and motivating health workers in Amudat, Moroto, and Nabilatuk districts and last mile digitization of vaccine data via Smart Paper Technology.

By enhancing skills and providing necessary tools, the CoLab aimed to transform data generation, collection, storage, analysis, and reporting.

Through this intervention, the programmes aspired to establish a robust and hyperlocal vaccine data system, fostering effective demand, improving vaccine uptake, and facilitating more targeted immunisation programs within vulnerable populations of the supported districts.

Key results at a glance

HMIS 105: Reporting Completeness		
District	Baseline July 23	Harvest September 23
Amudat	100%	100%
Moroto	75%	100%
Nabilatuk	100%	100%
Overall	90%	100%

HMIS 105: Reporting Timeliness		
District	Baseline	Harvest
Amudat	97%	100%
Moroto	75%	100%
Nabilatuk	100%	100%
Overall	89%	100%

District	Penta3 Variance hard copy =dhis2		PCV3 Variance hard copy =dhis2		MR1 Variance hard copy =dhis2	
	Baseline July 23	Harvest September 23	Baseline July 23	Harvest September 23	Baseline July 23	Harvest September 23
Amudat	-0.2%	0.3%	-1%	0%	0%	-1%
Moroto	-73.7%	-4.0%	-60%	-3%	26%	-7%
Nabilatuk	-48.4%	-0.4%	-48%	0%	-59%	4%
Overall	-30.2%	-1.0%	-28%	-1%	-2%	-1%

Project objectives

Contribute to making Vaccine data **complete**

Contribute to making vaccine data **timely**

Contribute to making vaccine data **accurate** ***(consistent)***

To improve the reliability of vaccine data in Moroto, Amudat and Nabilatuk

Investment areas

To contribute to the achievement of the project objectives above, the project invested in five key areas

- Training of District Based Mentors & Cascade Mentorships of Health workers
- Data Quality Assessments
- Last Mile Roll out of Smart Paper Technology in Moroto
- Continuous Quality Improvement Collaborative
- Data-driven distribution and dissemination of Vaccine Data HMIS tools, and Archiving materials

Lessons learnt

- The vaccine data in some health facilities is unreliable: inconsistency of vaccine data across the data chain was the commonest form of data inaccuracy.
- Revised MOH-approved vaccine HMIS tools, such as the HMIS 105B addendum, took longer-than-reasonable-time, to reach last mile health facilities.
- Last mile digitisation of vaccine data requires comprehensive assessments of needs: From power, to computer literacy, to Smart Paper, to Scanners and equipment protection.
- Continuous quality improvement approaches to improve data quality of vaccine data are still under-appreciated and under-utilised by frontline health workers.
- Training in vaccine data management, targeted mentorship to frontline line health workers, tooling, provision archiving assets, Continuous quality Improvement approaches and regular data quality assessments improved the reliability of vaccine data.
- There is history of low investment and low attention from stakeholders towards making vaccine data of desirable quality.
- Digitisation of Vaccine data with Smart Paper Technology needs intentional, regular and targeted user mentorships.

"In my 22 years of working in immunisation here in Karamoja, no one has ever mentored me on how to know if the data I am generating is of good quality or not. Thank you for mentoring me. We shall do better!! ....Eesh, in fact make sure every health worker knows this information"

- Health worker in Lokales HC II, Amudat District

National implementation to scale data strengthening interventions	Governance and policies	Vision	Write and launch an investment case for actors to prioritise investment in improving the quality of vaccine data.
		Effective decentralisation	Include village level population targets in the DHIS2 per facility's catchment area, to trigger health facilities to reach every community/child.
Local implementation to scale data strengthening interventions	**Learning:** Cross-local learning and learning to scale		Write and launch an investment case for actors to prioritise investment in improving the quality of vaccine data.
	Capacity and mindset: Training, mentorship and modelling		Include village level population targets in the DHIS2 per facility's catchment area, to trigger health facilities to reach every community/child.
	Partnerships: coordination incentives		Dedicate and invest resources to improving the quality of vaccine data in the domains of recording, reporting, archiving, data analysis, data use and digitisation.

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Part of the commitment of the UK Government to support health systems strengthening and national & local data ecosystems to improve decision-making.

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