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IMMUNIZATION, DATA AND HEALTH: LESSONS FROM UGANDA

A crucial component of UHC is equitable access to vaccines. In Uganda unreliable vaccine data has hindered immunization efforts, limiting access to essential vaccines for vulnerable populations. To address this gap, a targeted project was launched in Karamoja to enhance vaccine data reliability. We discover the lessons learned with Dr. Joseph Katetemera, Technical Advisor at Doctors with Africa CUAMM.

INTERVIEW BY / JESSICA MARZARO INTERVIEWS DR.JOSEPH KATETEMERA / DOCTORS WITH AFRICA CUAMM

Reliable vaccine data is essential for effective immunization programs and achieving Universal Health Coverage (UHC). However, Uganda faces persistent challenges in vaccine data quality, particularly in Southern Karamoja, where records are often incomplete, untimely, and inaccurate.

To address these gaps, Doctors with Africa CUAMM, in collaboration with the Ministry of Health and Co.Lab, launched the *Improving Vaccine Data Quality and Usability across Three Districts in Southern Karamoja* project. This initiative, part of the Vaccine Data CoLab and funded by the UK Foreign and Commonwealth Development Office (FCDO/UK-AID), aimed to **enhance vaccine data reliability**, improve reporting systems, and strengthen decision-making processes.

Dr. Jospeh Katetemera, what is the problem regarding data inaccuracy?

"Our assessment, conducted in 30 of 38 high-volume health facilities, highlighted major gaps in vaccine data management. Health workers needed more training in data handling and Continuous Quality Improvement (CQI), as well as better tools for data capture and archiving. Even when equipment was available, challenges such as security, equipment maintenance, and power supply hindered effective data collection. The most persistent issue was inconsistencies across reporting tools—Registers, Tally Sheets, Reports, and the DHIS2 system. These discrepancies compromised data accuracy, **delayed decision-making**, and affected vaccine distribution, making it harder to reach under-immunized populations in Amudat, Moroto, and Nabilatuk."

What strategies were implemented to address these challenges?

"First, we trained mentors in vaccine data management using the Ministry of Health's Immunization in Practice guidelines. They then supported frontline health workers through a cascade mentorship model, ensuring widespread skill transfer. We also strengthened Continuous Quality Improvement (CQI) by focusing on accurate recording, reporting, archiving, and data analysis. In Moroto, 17 health facilities adopted Smart Paper Technology (SPT), paired with solar power installations, laptops, and scanners to mitigate power shortages. This digital solution improved data accuracy while addressing infrastructure barriers. To further enhance reporting systems, we distributed updated National Health Management Informatic System (HMIS) forms, archiving cabinets, and vaccine data monitoring tools. Additionally, we established facility-led Quality Improvement (QI) initiatives, allowing health centers to identify and resolve gaps in data completeness and timeliness. Through CQI collaboratives and learning sessions, health workers shared **best practices**, reinforcing a culture of data-driven decision-making."

What have we learn with this project?

"This project revealed several critical lessons that highlight both challenges and opportunities for improving vaccine data quality. At the national level, limited investment in vaccine data systems and delays in distributing updated HMIS tools have historically hindered data quality improvements. Additionally, restrictions on cloud-based data storage complicated national immunization coverage reporting.

At the district level, widespread inconsistencies in reporting chains emphasized the need for comprehensive last-mile digitization, addressing power supply, computer literacy, and equipment maintenance.

At the health facility level, we initially found vaccine data to be more unreliable than expected, but through targeted training, mentorship, and provision of essential tools, we saw significant improvements. However, CQI remains underutilized, as many health workers are not yet accustomed to applying these methods. To sustain these improvements, we must strengthen the **data culture** within health facilities, ensuring that accurate vaccine data supports decision-making and contributes to UHC.

The experience in Southern Karamoja underscores that investing in data management – alongside technical and human resources – is fundamental to immunization programs. Strengthening vaccine data systems is not just a technical necessity but a critical step toward ensuring equitable access to life-saving vaccines and advancing Universal Health Coverage (UHC).