



IMPLEMENTING A WEB-BASED PHARMACEUTICAL INFORMATION PORTAL IN UGANDA

BACKGROUND

Public pharmaceutical-sector managers in Uganda previously relied on information gathered from multiple sources to effectively plan for and manage health supplies at the national, district, and facility levels. These sources were not easily accessible and were in multiple formats and of varying quality, requiring extensive effort to compile meaningful, factual, real-time evidence for decision making. Government budgets and human resources are limited, and managers must be able to assess medicines management performance and optimize the cost-effective use of limited resources. To improve access to and the availability of health supplies in the country, an innovative system that provides timely and reliable information on the public-sector health supply chain was necessary.

APPROACH

The Uganda Ministry of Health Pharmacy Department, in collaboration with the USAID-funded Uganda Health Supply Chain (UHSC) project, implemented by Management Sciences for Health (MSH), developed a web-based Pharmaceutical Information Portal (PIP) data warehouse and business intelligence (BI) system to provide insight into

the performance of the public-sector medicines supply chain. The system collects pharmaceutical-sector data from various sources and consolidates and processes these data into information that is easy to analyze and from which reports can be generated on demand. Built on Microsoft SharePoint and SQL Server Reporting and Integration services, the portal can be accessed at <https://pip.health.go.ug/>.

Data sources for the PIP include:

- SPARS (supervision, performance assessment, and recognition strategy) data on medicines management from all public and private not-for-profit health facilities in Uganda
- Health facility computerized inventory management data from RxSolution software in 270 high-level public and private not-for-profit health facilities across the country
- Central-level medical warehouse stock status and pipeline data for antiretroviral (ARV), TB, and malaria commodities for National Medical Stores, the Joint Medical Store, and Medical Access Limited
- Emergency supplies stock-on-hand and consumption data for public health emergencies at the national level from National Medical Stores, the Joint Medical Store, and development partner warehouses and at the sub-national level from districts and public health facilities

Figure 1: Data sources of the PIP

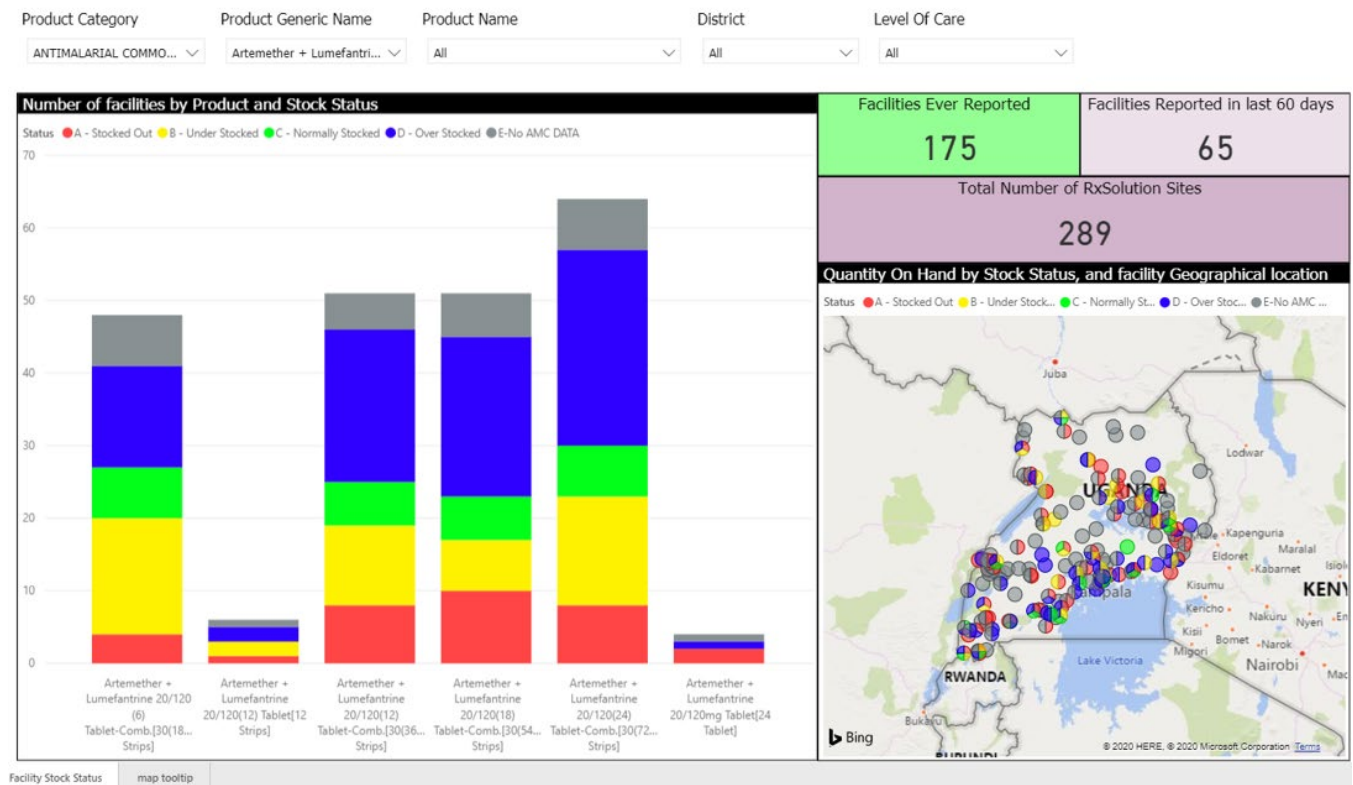


Figure 2: Health facility medicines management indicator performance report in the PIP

Health Facilities Performance Table with Indicators

Health Facilities				Dispensing Quality			Prescribing Quality			Stock Management			Storage Management			Ordering & Reporting			Total Score			
Facility	Ownership	Level	Current Visit	Baseline	Current	Progress	Baseline	Current	Progress	Baseline	Current	Progress	Baseline	Current	Progress	Baseline	Current	Progress	Baseline	Current	Progress	
Kagganda	Govt	HC2	1	3	4.5	5.0	0.5	0.9	2.3	1.4	2.0	2.1	0.1	3.9	4.2	0.3	5.0	4.1	-0.9	16.4	17.7	1.3
Kaladima	Govt	HC3	1	5	1.8	1.8	0.0	4.3	4.5	0.2	2.4	3.8	1.4	3.2	4.0	0.8	4.7	4.2	-0.5	16.4	18.3	1.9
Kamira	Govt	HC3	1	10	1.4	4.1	2.7	0.4	4.5	4.1	2.2	2.9	0.7	2.9	4.7	1.8	2.1	4.6	2.5	9.0	20.8	11.8
Kamuli	Govt	HC2	1	18	3.0	4.4	1.4	2.1	4.3	2.2	3.3	4.5	1.2	3.8	4.8	1.0	1.7	5.0	3.3	13.9	23.0	9.1
Kanara	Govt	HC2	2	11	2.9	4.1	1.2	1.1	5.0	3.9	1.6	4.0	2.4	3.5	4.7	1.2	2.8	5.0	2.2	11.9	22.8	10.9
Karera	Govt	HC2	1	5	2.1	3.8	1.7	1.7	4.8	3.1	3.6	2.7	-0.9	3.5	4.5	1.0	0.0	4.7	4.7	10.9	20.5	9.6
Karugorora	Govt	HC2	1	6	3.1	3.4	0.3	1.6	4.5	2.9	1.9	0.9	-1.0	3.1	3.2	0.1	0.0	4.7	4.7	9.7	16.6	6.9
Kasagama	Govt	HC3	1	15	1.9	3.3	1.4	0.2	5.0	4.8	2.4	3.2	0.8	1.9	4.7	2.8	0.8	5.0	4.2	7.2	21.1	13.9
Kasana East	Govt	HC2	1	7	2.9	4.0	1.1	1.5	5.0	3.5	1.5	3.3	1.8	3.7	4.6	0.9	0.0	4.8	4.8	9.6	21.8	12.2
Kashozi	Govt	HC2	1	3	3.3	4.1	0.8	5.0	4.5	-0.5	3.3	2.3	-1.0	3.9	4.5	0.6	5.0	4.8	-0.2	20.4	20.2	-0.2
Kasule	Govt	HC3	1	12	2.1	3.0	0.9	1.6	4.8	3.1	1.2	3.1	1.9	2.7	4.3	1.6	4.5	5.0	0.5	12.2	20.2	8.0
Katajula	Govt	HC2	1	23	2.7	3.0	0.3	1.2	4.3	3.2	2.9	3.8	0.9	1.5	3.3	1.8	3.3	4.0	0.7	11.6	18.3	6.7
Kataraka	Govt	HC4	1	9	2.0	3.6	1.6	0.9	4.2	3.3	2.4	3.7	1.3	3.0	4.7	1.7	1.9	3.8	1.9	10.2	19.9	9.7
Katooke	Govt	HC2	1	15	2.2	4.8	2.6	0.9	4.5	3.6	1.8	3.8	2.0	2.7	4.9	2.2	1.5	5.0	3.5	9.1	23.1	14.0
Kavaga	Govt	HC2	3	5	3.4	2.1	-1.3	0.8	2.7	1.9	2.5	0.7	-1.8	3.2	3.1	-0.1	3.0	3.3	0.3	12.9	11.8	-1.1
Kayanja	Govt	HC2	1	19	1.3	4.5	3.2	0.7	3.3	2.6	2.2	4.5	2.3	2.9	4.7	1.8	3.3	4.0	0.7	10.4	21.0	10.6
Kibaale Comm. Home	PNFP	HC2	1	12	2.9	2.8	-0.1	2.0	4.3	2.3	0.0	2.0	2.0	2.9	4.1	1.2	0.6	4.3	3.7	8.3	17.6	9.3
Kicucu	Govt	HC2	1	12	2.5	4.4	1.9	0.8	4.7	3.9	2.2	4.8	2.6	3.3	4.7	1.4	1.7	4.2	2.5	10.5	22.7	12.2
Kida	PNFP	Hospital	1	6	2.7	3.6	0.9	0.4	3.5	3.1	2.5	4.3	1.8	4.1	4.8	0.7	3.3	3.7	0.4	13.0	19.9	6.9
Kiguma	Govt	HC2	1	9	3.3	4.1	0.8	3.9	5.0	1.1	3.1	2.5	-0.6	4.6	4.4	-0.2	4.2	2.5	-1.7	19.1	18.5	-0.6
Kigwera	Govt	HC2	1	17	1.4	3.9	2.5	1.7	4.8	3.1	1.8	3.9	2.1	2.9	4.7	1.8	2.8	4.9	2.1	10.6	22.1	11.5

Figure 3: Health facility inventory stock status dashboard in the PIP



RESULTS AND ACHIEVEMENTS

As of December 2019, the PIP had a comprehensive database of more than 38,000 facility supervision visits on medicines management performance, which has allowed managers to identify consistently poorly performing health facilities in specific areas of medicines management and perform targeted supervision to these facilities for additional support and mentorship in areas of weak performance.

The system also provides real-time stock visibility into connected health facilities using RxSolution inventory management software. These facilities synchronize stock status data to the PIP every 30 minutes if they have updated data and a reliable internet connection. This helps to show overstocked and understocked facilities to inform commodity redistribution, which contributes to improving commodity security and reducing wastage due to expiry from overstock. It also provides consolidated national ARV and TB medicines stock status and pipeline information to support procurement planning at the national level, and provides an aggregate view of emergency supplies stock status to support preparedness and response to public health emergency outbreaks.

LESSONS LEARNED

- Data warehouses are complex and time-consuming projects that should be done in small, manageable phases that are quick to deliver and are based on reporting and analytics priorities.
- Continuous engagement of users is paramount during the implementation process to ensure that the system ably meets operational and strategic information requirements of users.
- Cultivating an information-use culture among intended system users is important for ensuring an optimal return on the data warehouse investment. Data dissemination approaches such as tailored reports, dashboards, and emailed reports help to increase the use of data in the system.
- Full government ownership of the system is critical for system sustainability.
- The data warehouse system provides visibility into public-sector health supply chain problems. Required corrective actions need to be implemented by managers in a timely manner to ensure optimal commodity availability up and down the supply chain.

NEXT STEPS

Strengthen the core capacity of the Uganda Ministry of Health to maintain the PIP system through training and on-job mentorship.

Authors

This technical highlight was written by Michael Kavuma and Sheila Mwebaze.

Additional information can be obtained from:

Neville Okuna Oteba
Commissioner Health Services, Pharmaceuticals and Natural Medicines
Ministry of Health Uganda
nokuna6@gmail.com
www.health.go.ug

Phillip Kamutenga
Chief of Party
USAID/Uganda Health Supply Chain (UHSC) project
Management Sciences for Health (MSH)
pkamutenga@msh.org
www.msh.org

This publication was made possible by the generous support of the American people through the President's Emergency Plan for AIDS Relief (PEPFAR) and the US Agency for International Development (USAID) under the terms of cooperative agreement number AID-617-A-14-00007. The contents are the responsibility of the authors and do not necessarily reflect the views of USAID or the US Government.

