



eLMIS: Closing Balance					
	eLMIS: Female Condom Closing Balance	eLMIS: Injuria Closing Balance	eLMIS: Magnesium Sulfate Closing Balance	eLMIS: ORS Closing Balance	eLMIS: Progressive Only Pills Closing Balance
Arusha Region		355	217 785	55 523	111
Dar Es Salaam Region	246	2 187	197 300	40 267	10
Kagera Region		255	182 270	15 841	2
Katavi Region		731	67 069	11 978	6
Kigoma Region		1 044	78 200	9 523	3
Morogoro Region	435	502	74 500	12 388	1
Mtwara Region		227	92 051	4 489	9
Njombe Region		646	221 935	18 552	4
Pwani Region			48 000	3 805	2

Integrated RMNCH Dashboards

Linking HMIS and LMIS data to improve supply chain performance for reproductive, maternal, newborn and child health (RMNCH)

Project Overview

There is growing interest within public health supply chains to incorporate integration of logistics management information system (LMIS) data and health management information system (HMIS) data to improve supply chain performance and service delivery. In many countries, these data sets are analyzed annually to determine national forecasts but are not routinely compared throughout the year. Adding complexity, LMIS and HMIS datasets are often managed by different departments within ministries of health. As a result, decision makers do not have easy access to all the data they need to effectively monitor and plan health system performance.

In 2014, the Supply Chain Technical Resource Team (TRT) of the [UN Commission on Life-Saving Commodities for Women and Children](#) initiated research to document potential benefits of linking HMIS and LMIS data and was not able to identify any case studies where HMIS and LMIS data were routinely and automatically linked. In order to test the technical feasibility and usefulness of HMIS/LMIS linkages, the Supply Chain TRT launched HMIS/LMIS dashboards in Tanzania and Senegal. The project was the first of its kind to assess routine and automatic integration of HMIS/LMIS data sets to support evidence-based decision-making.



In Senegal, LMIS data are pulled from [CommCare Supply](#) and displayed in DHIS2. The dashboard was officially launched in July 2016 and will be piloted in four districts.



In Tanzania, LMIS data are pulled from eLMIS (the Tanzania implementation of [OpenLMIS](#)) and displayed in Tanzania's HMIS system, [DHIS2](#). The dashboard was officially launched in May 2016 and is available nationally.

A more in-depth analysis including detailed case studies of each integration is documented in the [whitepaper Utilizing People, Processes & Technology to Enable Successful HMIS/LMIS Integrations](#) available at: www.lifesavingcommodities.org



Life Saving Commodities
Improving access, saving lives

Why integrate?

HMIS and LMIS integration has the potential to improve supply chain performance and health service delivery by:

- ✓ **Improving functionality of the logistics system** by linking, correlating, and analyzing service delivery and disease incidence data with LMIS data.
- ✓ **Improving service delivery** by making actionable, combined LMIS and HMIS data available to managers.
- ✓ **Improving data quality** by allowing for cross-validation of data in both systems to identify and address data errors.
- ✓ **Reducing the data collection burden** and minimizing collection of duplicate data by eliminating the need to collect the same data points in multiple systems.
- ✓ **Enhancing communication** between service delivery program managers and supply chain managers.

Creating an Enabling Environment for Integration: Technology, People & Processes

HMIS/LMIS integration is not a simple, one-time process. It requires adequate resources dedicated to well-designed technology as well as to the people and processes that support that technology—a worthwhile investment when considering a long-term strategy for supply chain improvement and use of data for decision-making. The projects in Tanzania and Senegal provided key insights into the feasibility of routine and automated integration of HMIS and LMIS systems.

Key Challenges

Technology



- **Data Integration:** Mapping and syncing data between systems are inherent challenges. In both Tanzania & Senegal, the list of health facilities in the HMIS had to be mapped to the list of health facilities in the LMIS. If facilities are added or removed, the mapping would need to be updated. This can be an ongoing challenge without a “master” facility list and related processes to maintain synchronization between each system and that master list.
- **Updates & Customization:** Software updates and feature customization may be necessary for HMIS and LMIS systems to interoperate. Customization helps ensure that the integration meets all the specific requirements of a particular use case. However, it can be expensive and difficult to maintain.

People



- **Stakeholder Engagement:** Developing and managing an HMIS/LMIS integration requires inputs and oversight by a diverse team of people. These critical players, however, often operate silos with no overarching view or owner of the entire system.
- **Human Resources for Analytics:** Relationships between RMCH commodities consumed (from the LMIS) and the associated condition treated or service given (from the HMIS) are complex and difficult to interpret. Determining how to use data requires analysts who can organize, interpret and present data in meaningful and useful ways.

Recommendations – Processes to Address Challenges

Assessing and establishing essential processes in the beginning of the integration saves time, money and other resources. The following are examples of essential processes to consider when allocating resources for technology and human resources to support integration:

- 1 **Create a strategy to build interoperable systems** and keep them in sync. Consider initiatives such as developing a national eHealth strategy, creating and maintaining master lists and naming conventions for health facilities, commodities, and other shared lists, and using interoperability layers (such as OpenHIE or MOTECH) .
- 2 **Establish a coordination strategy for data integration**, including ongoing technology maintenance for software upgrades and other system disruptions and stakeholder communication.
- 3 **Launch integration process with a stakeholder meeting**, continue follow-up meetings with key players on a regular schedule. Having clear agreement about goals and objectives of the integration from all stakeholders upfront will inform the design and analytics of the dashboard.
- 4 **Engage stakeholders with diverse expertise**—consider clinical health practitioners, statisticians, logisticians, etc. representing all levels of the health system.

The integrated dashboards developed in Tanzania and Senegal are a good starting point to understanding the potential of seeing supply chain and service delivery data together but will require further use and user input to maximize their potential in improving data quality and supporting routine decision making.



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