In Myanmar, UNICEF is supporting the Ministry of Health and Sports (MoHS) in their efforts to improve supply chain performance by strengthening the collection, sharing and use of supply chain data at all levels. This case study highlights the key steps that a country can take in deciding whether an electronic form of its LMIS will be a worthwhile investment in the short and long term, and how the specific needs of EPI are crucial when looking at a potential electronic supply chain software application.

### Situation Analysis

In 2015, Myanmar’s Ministry of Health and Sports (MoHS) began to increase its share of funding for vaccine procurement. To ensure that domestic funds were used as effectively as possible, the MoHS required efficient supply chain performance.

However, the EPI logistics management information system (LMIS) in Myanmar is entirely manual, except for an Excel spreadsheet to monitor stock at the central store. Although the system is carefully maintained at all levels of the supply chain with accurate and prompt paper-based reporting, information can take several days or more to be prepared and submitted. Consequently, it has hampered the ability of the Central EPI (CEPI) to respond to supply chain issues in a timely manner or accurately identify performance issues.

It was difficult to track stock movements across levels of the supply chain and time-consuming to know the stock situation at a given time at any level of the supply chain. There was also a lack of real-time monitoring of vaccine stock temperature and no automated alert system when there are temperature excursions.

Discussions about an electronic LMIS (eLMIS) for EPI began during
development of a Health Sector Strengthening (HSS) proposal to the GAVI Alliance in 2016. Key recommendations of the GAVI Joint Appraisal for 2014 and the June 2015 Effective Vaccine Management (EVM) assessment centered around ways to migrate from the present manual data management system to an electronic approach. eLMIS applications are not new to the MoHS. Various electronic and/or hybrid (electronic and paper-based) LMIS initiatives have been piloted in recent years through external donor support, as outlined in Annex 2.

Yet some of these pilot approaches are not being scaled-up, and some lack ongoing funding. Having so many different eLMIS approaches piloted in the health sector is a significant challenge for the MoHS, whose Planning Department is responsible for overall management of information technology (IT) solutions. At the same time, effective governance of IT is lacking with no policies, guidelines or procedures yet in place for the use of such IT interventions. Nor is there a comprehensive plan that outlines the overall objectives for the use of IT in the health sector and how various approaches should work together to support health service delivery in the country.

UNICEF began supporting CEPI to improve the use of data in the immunization supply chain in 2015. As a next step toward standardizing and streamlining data flow, UNICEF is also supporting the MoHS in selecting and implementing an appropriate eLMIS approach.

Data for Management intervention

To address the specific challenges faced by the program, CEPI worked with UNICEF on a multi-stage process to determine the prerequisites, existing landscape, objectives and functions for implementing an eLMIS. Throughout the process, UNICEF highlighted that the move toward an eLMIS solution required careful, long-term planning to ensure that longer-term efficiencies can be realized through the introduction of an eLMIS.

I. Determining prerequisites for an eLMIS

A key first step before embarking on an eLMIS is to ensure that data already exists at each level of the supply chain to be entered into an electronic system. It is important that the existing paper-based LMIS functions well and that data use is encouraged at each level of the supply chain.

UNICEF and CEPI spent nearly a year starting from mid-2016 to work on standardizing and simplifying data forms as well as data use processes and identifying Key Performance Indicators (KPIs). These were key prerequisites before Myanmar could consider implementing an eLMIS.

Other key eLMIS prerequisites include:

- Information/data governance structures within the Ministry of Health and/or EPI
- Identification of a technical partner to support identification and implementation of an eLMIS
- Sufficient start-up funding has been secured, including staff training costs. Additionally, the government must be committed to making its own budget available to pay for annual recurring costs incurred in operating...
budget available to pay for annual recurring costs incurred in operating the eLMIS
• A realistic eLMIS implementation plan of at least 5 years using a phased approach

II. Mapping existing systems
A UNICEF consultant, supported by a focal point from CEPI, undertook an assessment of the EPI LMIS and mapped eLMIS approaches being piloted in the health sector to identify what was already being done and what could potentially be expanded and integrated into a larger eLMIS.

A series of consultations with key stakeholders led to the identification of the main objectives of an eLMIS for EPI.

III. Defining the objectives and features of an eLMIS
In discussions with UNICEF over a period of six months, CEPI outlined a number of key objectives for an eLMIS:

• Improve the timely capture of data through reducing the administrative burden on health workers of time-consuming tasks
• Improve the visualization of data through dashboards for better forecasting and waste management
• Improve the link between immunization program coverage and iSC performance
• Provide CEPI with an overview of vaccine stock available in-country; the ability to monitor downtime of the Cold Chain Equipment (CCE) inventory, and temperature monitoring of vaccine stock

Identification of these key eLMIS objectives helped to inform the system requirements:

• A centralized, web-based, system accessible from CEPI, the Central Cold Store, Sub-Depots and Townships
• A system that is also available offline
• Possible integration with another eLMIS approach for electronic data collection and reporting in the community, such as CommCare already in use by midwives
• Availability of ongoing support to users of the eLMIS and technical assistance in maintaining the hardware and software

Discussions around the objectives with key stakeholders revealed that an existing eLMIS could not be adapted for vaccines, due to the specific needs of EPI. Existing systems did not include the function for real-time monitoring of CCE inventory, including alerts when CCE is not functioning, nor real-time temperature monitoring of vaccine stock.

Next steps
**Next steps**

As a result of this time-consuming review process, developing a new eLMIS approach for EPI was considered appropriate, which could be integrated with other systems.

A meeting in mid-July 2017 will review the eLMIS options available based on CEPI's requirements, together with the benefits and challenges of each option, and their initial as well as recurring costs. MoHS/CEPI will then decide which eLMIS approach to adopt for EPI from which an implementation plan can be developed that also takes into consideration the broader needs for a governance unit within MoHS.

**Lessons learned**

Although Myanmar has not yet established an operational eLMIS for EPI, a number of lessons have already been learned:

- Improve data use for management of the supply chain using existing paper-based systems, including identification of key performance indicators and use of data visualization through dashboards, before selecting a specific eLMIS approach.
- Funding should be secured to establish and maintain an eLMIS prior to adopting a specific system. Decision-makers must be made fully aware of the initial and recurring costs – software and maintenance, licensing and data security, and user support – as well as the benefits and challenges of each available eLMIS approach so that the system selected can be sustained in the longer term, including use of the Ministry of Health’s own budget.
- An IT governance structure and approach within the Ministry of Health should be established and supported to oversee the coordination and use of systems through the development and implementation of policies, guidelines and standard operating procedures.
- Complexities of real-time Cold Chain Equipment and vaccine stock temperature monitoring should be a prioritized by Ministry of Health decision-makers when selecting a suitable eLMIS approach.
- Dedicated human resources need to be focused on eLMIS for EPI for a significant period of time, possibly up to 5 years or more. This includes the relatively long timeframe needed to undertake a comprehensive assessment of prospective eLMIS approaches, time needed to secure agreement on the reports contained in the eLMIS, as well as the time required to deliver training to all relevant staff in use of the eLMIS throughout the country.

*Contact your UNICEF country or regional office, or the UNICEF Supply Division in Denmark, to begin the process of improving the performance of your immunization supply chain: data4management@unicef.org.*
Annex 1. Timeline for implementing eLMIS in Myanmar

Annex 2. Overview of existing eLMIS initiatives in Myanmar

Gavi
Bill & Melinda Gates Foundation
World Health Organization
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