# GHSC - PSM Mozambique: Mobile Health Logistics Data System (SIGLUS)

## Overview

The USAID Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) project works to transform and optimize global and national supply chains for health commodities. The project integrates supply chains for multiple health areas into one efficient supply chain that serves many of the world's most vulnerable and difficult-to-reach communities. Operating in more than 55 countries, the project is designed to meet today's critical global health challenges — eliminating HIV and AIDS, providing universal malaria coverage, helping women meet their family planning and reproductive health needs, combatting Zika, and improving maternal and child health.

The USAID Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) project in Mozambique provides technical and operational assistance to the Ministry of Health (MOH) Central Medical Stores (CMAM), Central Laboratory Department, and Provincial Warehouses to manage the country's supply chain. Historically, the MOH has faced a host of challenges, including limited capacity due to poor storage infrastructure, deficient management information systems, a lack of trained logistics professionals, low staff motivation due to poor wages and working conditions, lack of options for transporting goods, poor implementation of supply chain procedures, lack of involvement of clinical staff in managing medicines, and lack of inventory management at the health facility level.

The project's long-term strategic goals are twofold: (1) forecast, plan supply of, and import U.S. government-funded health commodities donated to the Mozambican government and (2) continue to provide technical and operational assistance to the Mozambican government to build and manage – directly and through contractors – a strong country supply chain.

## The Challenge

Through its 2014 Strategic Plan for Pharmacy, the Mozambique Ministry of Health sought to close the gap of data visibility in the last mile using innovative electronic systems to address the challenges faced by frontline health workers in over 1500 rural health facilities nation-wide. These health facilities represent over 98% of the health supply chain commodity storage and distribution points in Mozambique, but rely on a paper-based system to catalogue stocks and request replenishments from district level warehouses. A lack of last-mile data visibility for decision-makers at the provincial, district, and national levels coupled with calculation errors for requisitions have become large burdens on pharmacists.

Through the Global Health Supply Chain Program – Procurement and Supply Management (GHSC-PSM) project, USAID, the President's Emergency Plan for AIDS Relief, and the U.S. President's Malaria Initiative procures more than $60 million in health commodities, plus an additional $19 million of consumables, such as lab reagents from vendors based in country. In 2015, the Clinton Health Access Initiative partnered with the Ministry of Health's Central Medical Stores (CMAM) to pilot a system called "eSMS". Using OpenLMIS, an open-source logistics management system, eSMS allowed health workers in 9 health facilities in Maputo province to use tablet computers and 2G internet from local cellular service providers to track commodity consumption, receive stock level alerts, generate reports, and make commodity requisitions to district and provincial levels. In 2016, CHAI, UNFPA, and GHSC-PSM added an additional 25 health centers. And in early 2017, support of the pilot program transitioned from CHAI to USAID GHSC-PSM. The transition came with two changes: a new name to capture its capability and an expansion of the pilot to 115 additional health facilities across four additional provinces. GHSC-PSM also provided small solar panels to health centers that lacked electricity to ensure tablets remain charged and usable.

**The Solution**

Most countries have visibility into about two percent of their entire supply chain in real time because the data reflect only national warehousing, omitting regional and local information. This can impede insights and timely action on crucial management issues like stock levels and upcoming expiries. Electronic logistics management information systems (eLMIS), like the one rolled out by GHSC-PSM in Mozambique, help close this data gap, allowing for more strategic decisions that inform better care and services. By marrying the capacities of the existing OpenLMIS in Mozambique with 2G internet, solar panels, and 7-inch tablets, SIGLUS (Sistema de Informação e Gestão de Logistica para Unidades Sanitarias) unifies and modernizes a series of tools to digitize stock and commodity management systems which had previously existed on paper and required manual updating and submission. SIGLUS is tablet-based and can operate on any Android device making it accessible to regional and even rural communities. The electronic versions of stock cards and requisition forms mirror the paper forms to allow for rapid training and minimize confusion among health workers. SIGLUS automatically produces alerts for overstocks, expiring products, low stock, and stock outs. All the data introduced in the system syncs into a web-based portal that feeds up to district, provincial, and national databases.

- SIGLUS allows for the following:
    - Electronic inventory management and live data capture at health facilities;
    - Allows pharmacists to make electronic requisitions of new stock;

    - Automatic calculations of requisitions, including suggestions for order quantities;
    - Automated alerts for impending stock expiration, stock outs, or overstocks.
- The system is tablet-based and operates on any Android device.
    - SIGLUS replaces a current paper-based system of reporting up through the supply chain
    - The application closes a massive data gap as it provides visibility into 98% of the in-country supply chain.
        - In the past, there was only data visibility for the central, provincial, and district warehouses.
- All data links to a web portal that CMAM can assess to review inventory and requisitions by facility, aggregate data by district or region, and export data into Excel.

**User engagement**

A vital aspect of the SIGLUS scale-up process is the training of health center workers who are the primary sources of information at the health facility level. GHSC-PSM and CMAM worked with local partners to select pilot sites, develop training and support plans, and hold training workshops for pharmacists at health facilities. SIGLUS is being utilized wherever patients are receiving service – from central hospitals to local clinics. This also provides an improved sustainability model because there is local ownership and use at all levels of the project.

**Sustainability**

The nature of OpenLMIS's open-source software is such that the product is replicable and modifiable in other countries to meet their unique health data logistics management needs. In fact, GHSC-PSM in Panama and Suriname have also requested to use SIGLUS, leading to cost-sharing and shared benefits. This is just the beginning of SIGLUS's ability to scale not just within Mozambique, but to other countries as well.

OpenLMIS is also interoperable with other health-related systems such as DHIS2 (District Health Information System), which is currently used in 47 countries, and OpenMRS (Open Medical Record System). This provides ease of use, less strain on health workers, and greater efficiency in the technological solutions that are meant to improve work and health outcomes. SIGLUS is currently in use at over 300 health facilities in Mozambique with excellent feedback and success to date. Given the positive experiences thus far, the Ministry of Health plans to expand this program to 700 health facilities, more than 40 percent of the total, by the end of 2018 and to all 1,578 health facilities in Mozambique

by 2020. By expanding the use of SIGLUS into more communities, GHSC- PSM Mozambique can continue to affect positive change on a large scale to reach the greatest number of individuals in need.

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