

Digital Square Webinar: Global Good COVID-19 Adaptations Part III (OpenLMIS and OpenELIS)

October 28, 2020

Agenda

- Welcome and Opening Bianca Poll (5 min)
- OpenLMIS Gaurav Bhattacharya and Nobel Cubahiro (20 min)
- OpenELIS Casey liams-Hauser (20 min)
- Questions & Closing (15 min)



Gaurav Bhattacharya & Nobel Cubahiro

Overview

- Heightened need for close management and visibility of supply chains: limited supplies, inform global allocation and procurement, limited resources
- Number of countries using excel or paper-based systems or unable to quickly adapt electronic systems to incorporate COVID-19 commodities
- OpenLMIS adapted for managing COVID-19 commodities and tracking equipment
- Offered as a cloud-based solution for quick deployments and virtual trainings
- Limited configurations to certain standard options and pushing customizations to later stages to enable efficient use of resources and rapid and replicable deployment

OpenLMIS COVID-19 Edition

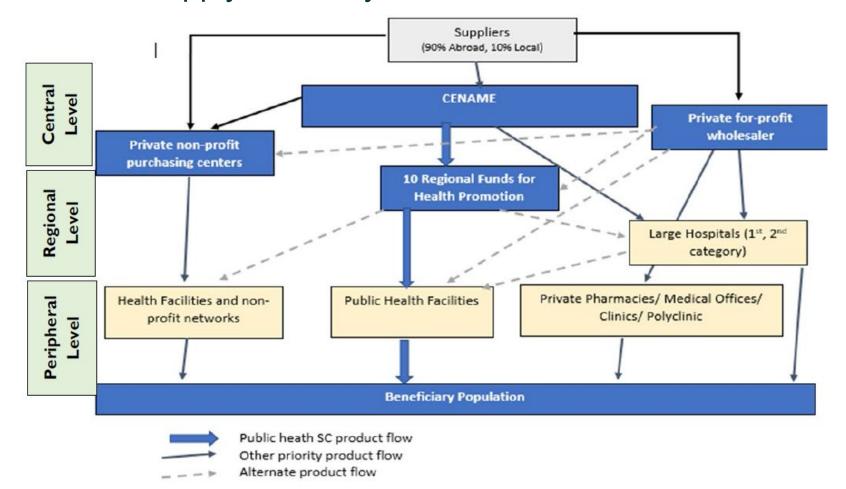
- Partnership between CHAI, VillageReach and SolDevelo
- OpenLMIS for COVID features:
 - Stock management at all levels of the supply chain
 - Creation, submission and approval of requisitions and replenishments
 - Proof of delivery to track shipments and order fulfilment
 - Monitoring and reporting the location and operational status of Ventilators and other equipment
 - Dashboards and reports to track consumption, understand demand and manage the program, and
 - Product catalog management to create and update/manage product list through an integration with PCMT

OpenLMIS COVID-19 Edition

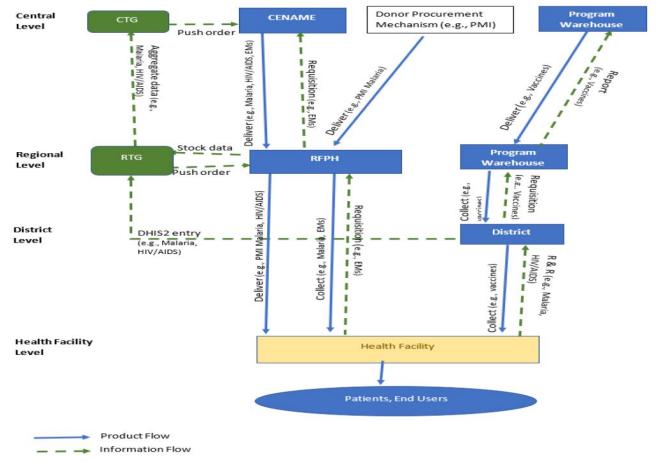
- Localization and Deployment Accelerators
 - Master data collection templates
 - Reference audio-visual training materials, training needs and guides
 - Deployment guide
 - Reference project team and governance structures

- Build local capacity
 - To manage majority of support needs
 - To handover system to local stakeholders

Cameroon Supply Chain System: Product Flow



Cameroon Supply Chain System: Information Flow



Cameroon Supply Chain Information Systems – Before COVID-19

System	Supported Supply Chain Functionality	System	Supported Supply Chain Functionality
SAGE	Procurement	DHIS 2	Quantification
	Warehousing and Inventory Management		Order Management
	Distribution		Reporting
	Reporting	VinData	Ordering
Pentaho	Reporting and Analytics		Receiving
			Inventory Control
			Dispensing
		SMS4Life	Reporting (ordering)

System	Supported Supply Chain Functionality	Level Supported
SAGE	Procurement	CENAME
	Warehousing and Inventory Management	CENAME, Regional
	Distribution - Picking	CENAME
	Reporting	CENAME Regional
Pentaho	Reporting and Analytics (being developed)	Central (MOH, DPML)
DHIS 2	Quantification	Central (MOH)
	Order Management (for HIV/AIDS)	District, Central
	Reporting	District, Central
VinData	Ordering	Health Facility (select)
	Receiving	Health Facility (select)
	Inventory Control	Health Facility (select)
	Dispensing	Health Facility (select)
SMS4Life	Reporting (ordering) (malaria)	Health Facility (select)
Program-specific	Quantification	Central (MOH)
tools	Donations Management	Central (MOH)
Manual systems	Procurement – Purchasing, Inbound	CENAME
	Ordering	Health Facility (most health centers)
	Receiving	Health Facility (most health centers)
	Inventory Management	Regional
	Inventory Control	Health Facility (most health centers)
	Distribution - Transport	CENAME
	Reporting	Health Facility (most health centers)
Other - Stock	Reporting (vaccines only)	Regional
Management Tool *		
Other - GPS	Transport	CENAME

OpenLMIS COVID-19 Edition: Cameroon Deployment

Preconfiguration

Customization

Testing

Deployment

March-June 20

June-July 20

July-August 20

August-Present 20

- OpenLMIS latest version
- Allow easy and rapid deployment
- Master data collection

- Cameroon
 COVID supply
 chain
- Two programs: COVID commodities & Labs
- Remote virtual training of trainers

- Adjustment on the OpenLMIS training instance
- Migrating to the production instance

Target 300 sites

- 13 Central and regional Warehouses
- 190 districts
- 100 treatment and testing sites

Current achievements:

60 sites

Digital Square | connecting the world for better health

Impact of OpenLMIS Implementation

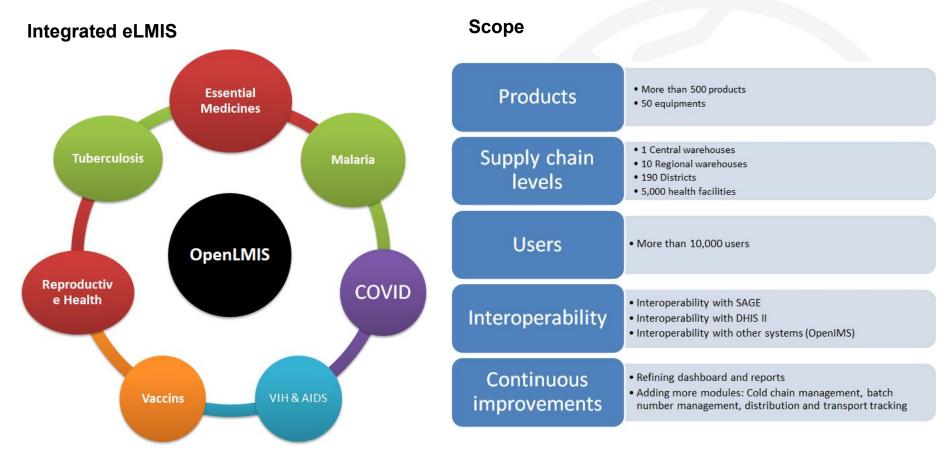
Before OpenLMIS Implementation

- Supply chain for COVID commodities not well defined
 - Product flow
 - Information flow
- Frequent stock-outs at all levels
- Requisition system not well defined
- Lack of visibility of COVID stock at all levels of the supply chain tiers
- Lack of visibility into COVID equipments

After OpenLMIS Implementation

- Supply chain well defined
- MOH and CHAI estimate 50% reduction in stock-outs rate in facilities where OpenLMIS is deployed
- Requisition system well defined and done with OpenLMIS
- Real time visibility of COVID commodities stock, which allowed decision-making
- COVID equipments inventory and mapping

Cameroon Future State



Digital Square | connecting the world for better health

OpenLMIS COVID-19 Edition: Detailed Information

- OpenLMIS COVID-19 Edition: https://openlmis.org/covid-19-edition/
- Cameroon Instance Demo: https://bit.ly/3dWMmcB
- OpenLMIS COVID-19 Edition Wiki: https://bit.ly/35wjKDm
- PCMT (https://bit.ly/2HDHtsF
- Webinar on OpenLMIS COVID-19 Edition: https://bit.ly/3dYDeEh

Gaurav Bhattacharya Director, Information Systems, CHAI gbhattacharya@clintonhealthaccess.org Nobel Cubahiro
Program Manager, Supply Chain, COVID
& Emergencies, CHAI Cameroon
ncubahiro@clintonhealthaccess.org



Casey liams-Hauser















An open source Enterprise Laboratory Information System for Global Health

Casey liams-Hauser, MIA

What Is OpenELIS?



The OpenELIS Global software is an open enterprise-level laboratory information system built on open source web-based technologies that has been tailored for low-and-middle income country public health laboratories.

The software serves as both an effective laboratory software solution and business process framework. It supports the effective functioning of public health laboratories for best laboratory practice and accreditation.

Designed to support
quality laboratory
services and test results
from high volume clinical
and reference
laboratories

Enhanced Laboratory Workflow







Sample Collection and Registration

PRE-ANALYTICAL



Quality Assurance

Results Reporting and Laboratory

Service

Reports



POST-ANALYTICAL

ANALYTICAL



Testing



Biological/Manual Validation



Technical validation



Lab Analyzer Test Import And Results capture

Geographic Coverage





Core Technologies: Open Source

















v16.04 LTS

Key Features

- FHIR R4 & HL7 2.5.1 Interoperability with OpenMRS
- Analyzer Interface Plug-In Library
- Viral Load Scaleup
- Multilingual English and French
- Customizable workflow
- Viral Load Dashboard Cote d'Ivoire
- COVID testing workflows









COVID19 Adaptations - Requirements

- A way to ensure that key public health data was captured from every person entering Mauritius
 - The people had to be uniquely identified
 - Had to collect enough information to allow contact tracing
 - Had to create a COVID19 test for each arriving passenger
 - Had to communicate the results of the test quickly to both the passenger and the Ministry of Health and Wellness
 - Needed a paperless workflow as much as possible (e-signatures, analyzer interfaces, interoperability with existing systems)

Workflow

We designed a web form for passengers to enter in the key information, which emails a

We designed a web form for passengers to enter in the key information, which emails a barcode with a unique ID and submits an order via FHIR to the Airport Lab



1. Passengers fill the online portal, either before leaving or from a mobile device and receive a barcode

2. An official at the health desk looks up the lab order in OE, associates it with a preprinted barcode on the specimen bag

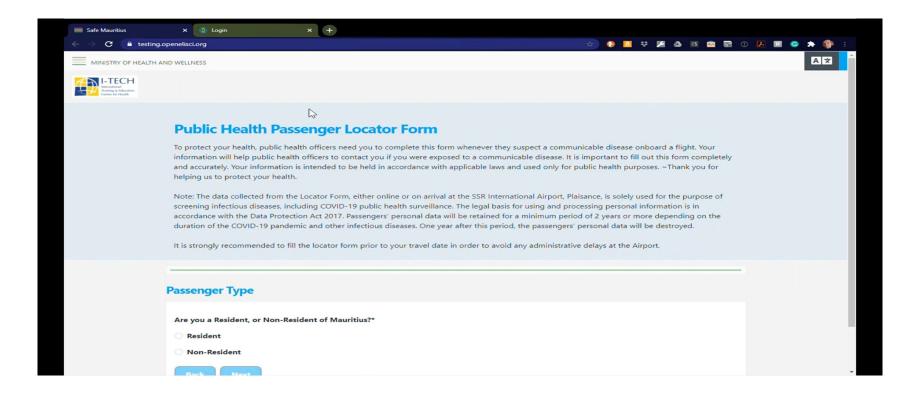




3. Swab is taken and the passenger departs

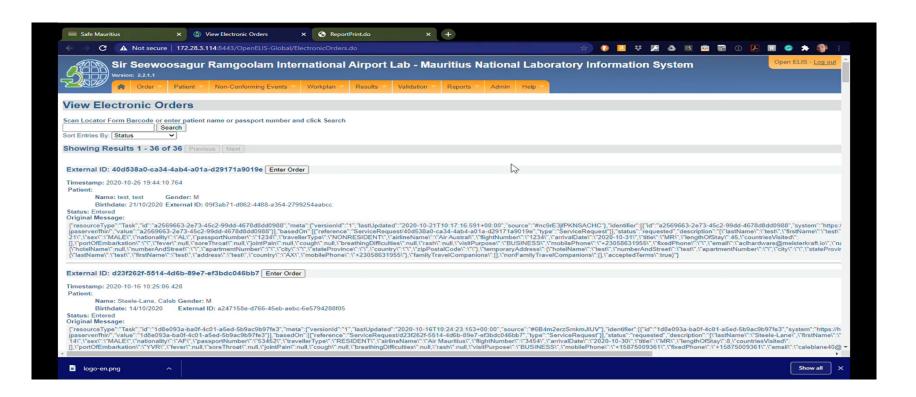
Public Health Form





OpenELIS Workflow





The post result actions



After the test has been validated, the result is sent to the passenger via SMS and email

From: <ahl-lab@safemauritius.govmu.org>
Date: Tue., Oct. 27, 2020, 16:42
Subject: SARS-CoV-2 (COVID-19) RNA Testing Results
To:

SARS-CoV-2 (COVID-19) RNA testing results have been finalized. If you are not awaiting test results please call XXXXXXXXXXX and delete this notice.

Caleb S: Negative

For privacy, only the first name and last initial of the person who the result is for is displayed.

MOH personnel follow up for the remaining testing protocol or to advise on next steps

What's Next For OpenELIS Global?



- Version 2.1 Released
- FHIR R4 API
- FHIR based consolidated server for lab records
- SMS and email results
- Test Request and Result Exchange with OpenMRS
- E-Signatures for patient reports
- WHO SLIPTA compliant for accreditation
- Version 2.2 (Imminent release) Accession Numbers overhaul



- Version 2.3 (Q1 2021)
 - STAT orders
 - FHIR based Client Registry and SHR built on OpenCR
 - Links to the SORMAS disease surveillance system
- Referral orders supported over API
- One scan reception, improvement for high volume workflows
- Overhaul of alerts and Electronic orders display



- Data Analysis plugins for Consolidated Server
- Updates to core technology (EG: Ubuntu 20 LTS)
- User defined test algorithms
- Microbiology enhancements
- Aliquotting Support

Complete Road Map: roadmap.openelisci.org

Thank you!

- Thank you to our whole team at Digital Initiatives Group at I-TECH, University of Washington (DIGI) who worked many nights and weekends to get this all done
- A huge thank you to the team at Mauritius Ministry of Health and Wellness
- Thank you to all of you for your time

More information at OpenELIS-global.org, by emailing DIGI at digit@uw.edu or me, Casey liams-Hauser at caseyi@uw.edu



Questions?

Thank you!



Digital Square is supported by:



BILL & MELINDA GATES foundation



Digital Square is a PATH-led initiative funded and designed by the United States Agency for International Development, the Bill & Melinda Gates Foundation, and a consortium of other donors.

This presentation was made possible by the generous support of the American people through the United States Agency for International Development. The contents are the responsibility of PATH and do not necessarily reflect the views of USAID or the United States Government.