Leveraging OpenLMIS for COVID-19 Response
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Rebecca Alban  
OpenLMIS Community Mger, Spain

Josh Zamor  
OpenLMIS Architect, USA

Gaurav Bhattacharya  
Director, Information Systems  
CHAI, England

Carl Leitner  
Technical Director  
Digital Square, USA

Wes Brown  
OpenLMIS Product Manager  
Kenya

Christine Lenihan  
Director, Information Systems  
Villagereach, USA
OpenLMIS in the time of COVID

- Introduction:
  - Intro to OpenLMIS
  - Key principals for OpenLMIS COVID response

- New OpenLMIS COVID19 Tool!
  - Description
  - Software demo

- ‘Stronger together’: Use of standards for interoperability
  - OpenHIE COVID Task Force

- Malawi OpenLMIS adaptations for COVID

- Wrap up/Q&A
OpenLMIS: optimizing supply chain data

- Maintain essential health services
- Plan for & manage COVID-related supplies
Core principals for OpenLMIS emergency response

- **Link with national and global response efforts:** MoH takes lead in setting priorities; plug into global emergency supply chain

- **Build off existing systems:** OpenLMIS already proven to effectively engage users; no need for training and buy-in that would be needed with new solutions

- **Use of global standards for interoperability:** link with existing health data systems in the country for a more comprehensive coordinated response
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COVID19 Global Emergency Supply Chain

**Country Planning & Financing**
- Technical & planning guidance
- National authorities
- Implementing partners
- Donors

**Essential Supplies Online Catalogue**
- PPE
- Diagnostics
- Therapeutics
- Vaccines
- Oxygen
- Clinical Care

**Demand Management**
- Demand & supply forecasting
- Consolidation & validation of country requests
- Allocation principles by SC Task Force

**Control Tower**
- Allocation & request

**Warehousing and Distribution**
- UNICEF

**Purchasing and virtual stockpiles**
- World Health Organization
- UNICEF
- Gavi
- Unitaid

**Suppliers and Manufacturers**
- Global sourcing
- Price & volume negotiation
- Quality assurance & testing
- Long-term agreements

**Country Implementation**
- Receipt & local distribution
- Training & capacity building
- Monitoring & evaluation

**Information management**

**Technical strategy**

**Resource allocation, financing, risk**
Data for decision-making
Auto-Generated Reports

Total Adjusted Consumption per Facility

April 2017
- Khoscolo Health Centre: 92.1k
- Luwezi Health Centre: 79.3k
- Misse Health Centre: 40.8k

All-Time Reporting Timeliness
- On time: 78%
- Late: 5%
- Unscheduled: 43%

Closed Vial Wastage Reason by Week
- Expired
- Cold chain failure
- Lost
- Damage
- Stolen
- Passed open-vial time
- Overstock
- Facility return
- Consumed
- Balance

87.173%
In the countries you work in or support, what is the plan for managing inventory for COVID related supplies?

a. Excel
b. Existing eLMIS
c. Looking for new tool
d. Not sure yet
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COVID and Supply Chain

- Global shortage of COVID-specific commodities
- Countries need to have visibility into stock and consumption levels and the ability to closely manage limited stock
- Not all countries have the necessary tools
OpenLMIS for COVID

- Collaboration between CHAI, VillageReach and SolDevelo
- Stock management at all levels of the supply chain
- Creating, submitting and approving requisitions and replenishments
- Proof of delivery to track shipments and order fulfilment
- Ventilator and other equipment location, operational status monitoring and reporting
- Dashboard and reports for national, sub-national and facility level users
- Product catalogue management to create and update product list
Guiding Principles

Rapid Deployment

- Cloud-based, avoiding in-country infrastructure and technical HR requirements
- Standalone, so it does not interfere with existing tools used for routine programs

Faster to Train, Easy to Use

- Single program (COVID) and simpler workflows
- PCMT integration for simplified product management for system administrators
• Reference instance is ready. You may access the reference instance at https://bit.ly/2WDNHF

• Master data collection templates and other accelerator resources for deployment support are available

• Adding advanced reporting and dashboarding capabilities
Deployment and Transition 1

• **Timelines**
  - It will take about 4 weeks for the system to be operational once we receive a request from MOH. This timeline includes:
    - Master data gathering
    - Country Instance creation
    - Master trainer trainings

• **Infrastructure**
  - Computers and internet access

• **Covered Costs**
  - The tool is open source and offered for free
  - We will provide training sessions and training materials for system admins and master trainers
  - We will consider adding any new features and workflows to the reference instance if they benefit the COVID response and are requested by multiple countries
• **Costs to Countries**
  - Hosting costs ~$500 - $600 / month depending on scale of implementation
  - End User training
  - User support costs

• **Unsupported Costs**
  - Requests to change configurations
  - Customisations
  - Extension to add other programs like vaccines, HIV etc.

• **Transition**
  - Handover to countries in 4-6 months post-deployment
  - MOH takes over full ownership and maintenance of system
  - We will support countries in sourcing maintenance and support
  - OpenLMIS community resources will be accessible to countries as well
OpenLMIS supports OpenHIE based interoperability and can interface with DHIS2, OpenSRP and other OpenHIE standards compliant systems.

OpenLMIS is flexible/extensible and the COVID instance can be expanded to manage all programs, including vaccines.

Such an extension will be a separate project that we can take on on a case by case basis.
OpenLMIS COVID Software Demo
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Stronger together: using standards to link country data systems

OpenHIE Component Layer

Interoperability Services Layer

Point of Service

OpenLMIS
Bringing data together to act fast

Supply Chain Management

ERP
Central store
At the Regional, District, & high volume facilities

Health Service Delivery

OpenLMIS
Point of care, Facility & Community Level

dhis2
National & Program Level Visualisation

OpenSRP
Example OpenLMIS integration: PCMT

- Donor Catalog
  - id5423r
  - idf2451

- Supplier & Manufacturer Catalogs
  - P101
  - P102
  - P103

- Procurer Catalog
  - SKU ABC
  - SKU456
PCMT is an OpenHIE Product Catalog

Global Vision:
PCMT can link all product identification systems to allow OpenLMIS country data to map into global ordering platforms and control towers.

Learn more: ohie.org
OpenHIE COVID-19 Task Force Update

- Established April 2020
  - Co-Chairs: Garrett Mehl (WHO); Carl Leitner (Digital Square); Terry Cullen (Regenstrief)
  - Meetings
    - Mondays 11-12 Eastern Time
    - Subgroup meetings as needed

Values

- **Avoid the chaos** - platform for coordination across global goods deploying solutions, keep signal-to-noise ratio high
- **Utilize existing solutions** - looking at supporting and augmenting existing tools deployed in countries
- **Build towards digital health systems** - although not focused on humanitarian / emergency response, provide support so that these tools can integrate into national digital health infrastructures
- **Augment** - recommendations, guidance should be developed and implemented in ways that augment the short-term / humanitarian response needs as appropriate. It should not hinder these efforts
Current and potential work streams

Case reporting
- district
- regional
- national
- global
- *Self-reporting for patients - under quarantine*

Contact tracing
- cross-platform
- cross-jurisdiction
- line lists

Labs
- Specimen Order and tracking
- Specimen transport
- Results notification

Self-care

Facility Management
- Inventory (PPEs, beds, equipment, cold-chain present, x-rays, staff knowledge)
- Organizational Functional-readiness
- WHO SARA - augmented for

Supply Chain
- PPEs
- reagents / test kits

Care management
- at-risk populations
- Immunocompromised
- Outpatient
- Inpatient
- ICU
- OB

Health worker communication
- PPEs
- Updated clinical guidance
- Clinical care guidelines (e.g. computable)
- Staff knowledge

Telemedicine and Virtual Care
- Self-screening
- Self-reporting for HCWs - proactive symptom check
- Remote diagnosis & virtual health facility triage

Mortuary
- Reporting forms
- Mortuary Capacity (maybe in SARA)

Privacy
- current guidelines from different countries; how they are changing for pandemic
- Cross Border
- Security
- Confidentiality

One Health Agenda
- Zoonotic disease outbreak preparedness and response
- Animal
- Human
- Plant
OpenHIE COVID-19 related Resources

  - Includes LOINC, ICD, SNOMED, etc.
  - To-dos: add in CHT models, update DHIS2 w/ WHO mapping, ICD-ll, normalize when possible; add [https://www.healthit.gov/techlab/ipg/node/4/submission/3206](https://www.healthit.gov/techlab/ipg/node/4/submission/3206)
- FHIR Implementation Guide for health facility situational awareness [http://build.fhir.org/ig/AudaciousInquiry/saner-ig/](http://build.fhir.org/ig/AudaciousInquiry/saner-ig/)
  - Implementation Guides are a good way to package task force recommendations
- FHIR implementation guide for Initial Case Report [https://build.fhir.org/ig/HL7/case-reporting/](https://build.fhir.org/ig/HL7/case-reporting/)
  - US centric, structural basis for Covid-19 case report?
  - To-dos: map to global good data case report models
- FHIR implementation guide for Covid-19 demographics and vitals [https://covid-19-ig.logicahealth.org/](https://covid-19-ig.logicahealth.org/)
- FHIR synthetic data with Synthea [https://github.com/synthetichealth/synthea/issues/679](https://github.com/synthetichealth/synthea/issues/679)
  - Is the dataset feasible in LMICs? Should we look at a more constrained dataset matching the global good data?
- Synthetic Data Sets for Covid-19 (US Centric) [https://github.com/synthetichealth/synthea/pull/683](https://github.com/synthetichealth/synthea/pull/683)
OpenLMIS & COVID19 Response in Malawi

Background

• Malawi deployed OpenLMIS in 2017

• Used at national scale - 28 districts with 650+ health facilities

• Manages logistics data for 6 programs
Initial Phase:

• Addition of new COVID program to existing system
• Streamlined requisition form & approval process
• Frequently reporting - 2-3 times per week
• Use existing reports (filtered by program)

Future Consideration:

• Use of stock management for near real-time visibility of COVID commodities
• Development of new, COVID-specific dashboards
• Addition of equipment management service
Thank you! Contact us here:

info@openlmis.org
Rebecca.alban@openlmis.org