open LMIS™

OPEN SOURCE SOFTWARE FOR MANAGING HEALTH SUPPLY CHAINS

SUPPLY CHAIN CHALLENGES

Public health supply chains need accurate, timely logistics data from health facilities to make decisions about procurement and supply. Too often this information is inaccurate or simply not available. As a result, health systems in many countries continue to experience stock-outs of essential medicines, leaving people vulnerable to treatable illness and diseases.

In low and middle income countries the distribution of medicines relies on a fragmented mix of information systems that often focus on isolated parts of the supply chain or on a single health program. Less emphasis has been placed on ensuring that all programs and all facilities are supported, and that information flows between supply chain layers from the national warehouse to the service delivery point.

In many cases, countries have had to build and support their own custom logistics management information system solutions, or rely on costly commercial systems. Globally, this approach is expensive, inefficient, and often results in inadequate solutions that become increasingly difficult to maintain over time. Countries are not able to leverage the work already done by their neighbors, and instead have to "reinvent the wheel" when new features are needed. Inadequate resources for ongoing country-level maintenance have led to information systems that are outdated and unable to effectively handle the growing number of health programs and products.

INTRODUCING OpenLMIS

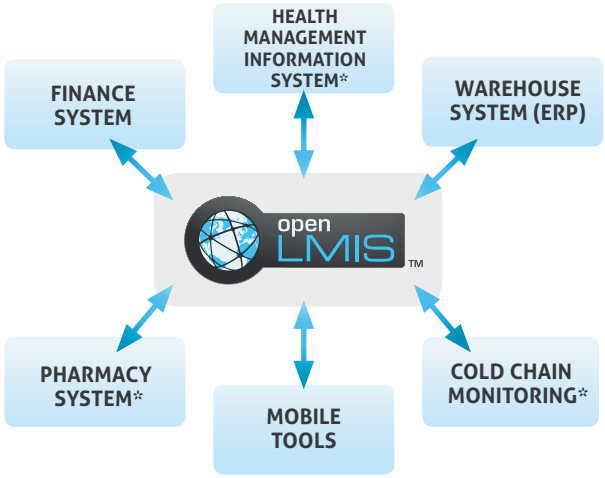
OpenLMIS is a global initiative to support the development of shareable, interoperable, open-source software for electronic logistics management information systems (eLMIS). Key aspects of the OpenLMIS vision are:

1. Shared Investment / Shared Benefit

OpenLMIS was designed by a community of countries and international stakeholders who believe in working together to solve common challenges. Countries and donors have pooled resources to create a non-proprietary product that is built on shared user requirements across countries. The end result is a more flexible and powerful information system than what any one country or organization could create individually. As an **open source project**, the software is available free of charge, and enhancements made by individual countries are contributed back to the community for others to use.

2. Interoperable with other Medical Information Systems

OpenLMIS is designed to be interoperable with other key health information systems. Current system integrations include Enterprise Resource Planning (ERP) systems, accounting/financial management systems, and mobile tools (such as CommTrack). Additional integrations are currently under development.



** Future Integrations*

3. Adaptable to the Unique Requirements of Programs and Countries

OpenLMIS is designed to be highly flexible and adaptable to the unique needs of any health supply chain. In Tanzania and Zambia, OpenLMIS has been implemented nationally for multiple programs, whereas in Mozambique OpenLMIS has been implemented for vaccines in select provinces.

KEY BENEFITS OF OpenLMIS

Automate the Requisition Lifecycle: Support for requisitioning, approving, packing, shipping, and delivery confirmation, and **automated notifications** for each step.

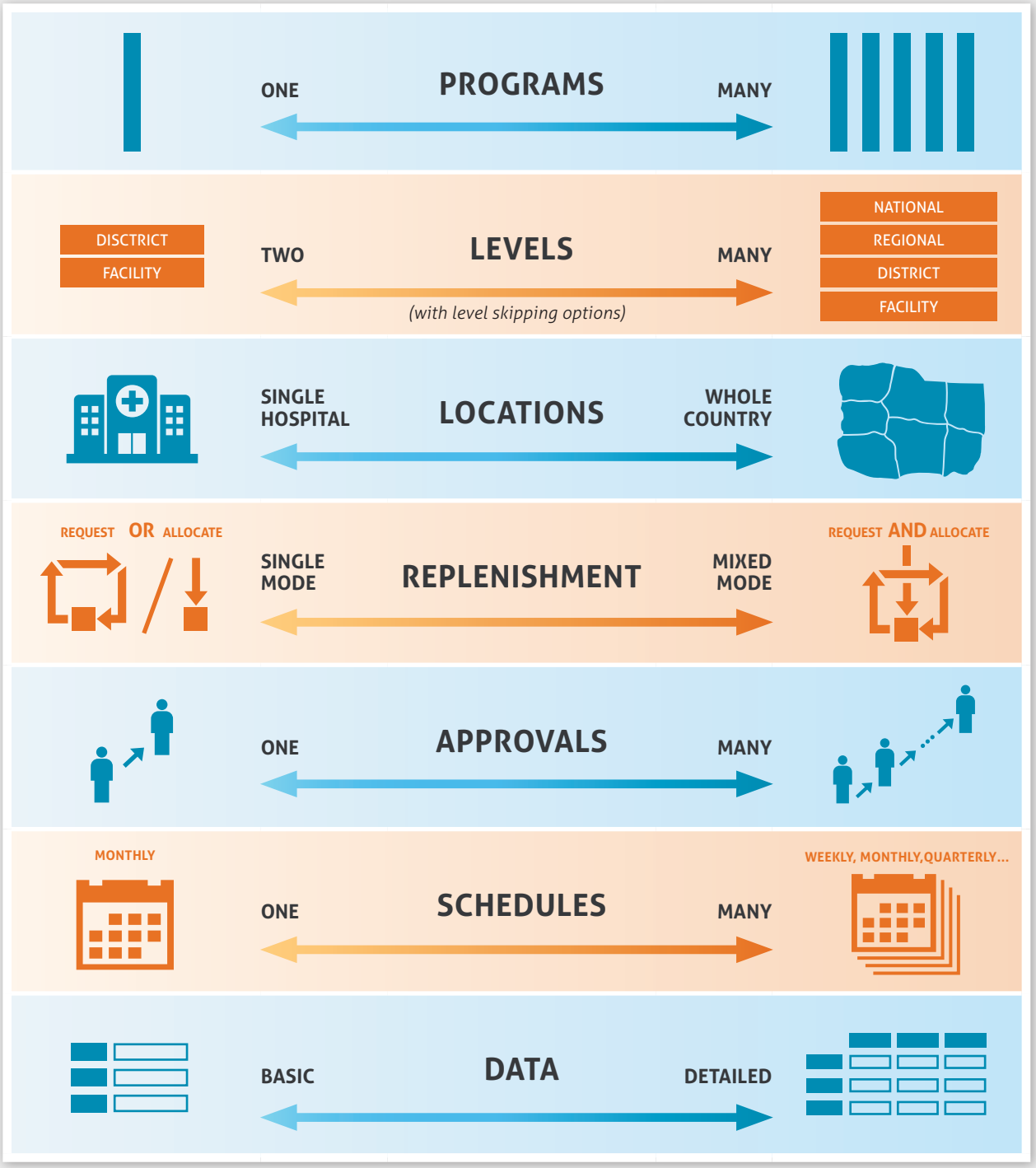
Centralize reporting across all levels and programs: Supports decision making with easy access to accurate **system-wide data** on stock on-hand, requisitions, orders, and deliveries.

Reduce Support Costs: **Web-based system** eliminates the need to install and maintain desktop applications. The only requirement is a basic internet connection.

Improve Data Accuracy: Eliminates time consuming manual calculations with **automatically calculated replenishment quantities**.

OpenLMIS: FLEXIBLE & CONFIGURABLE

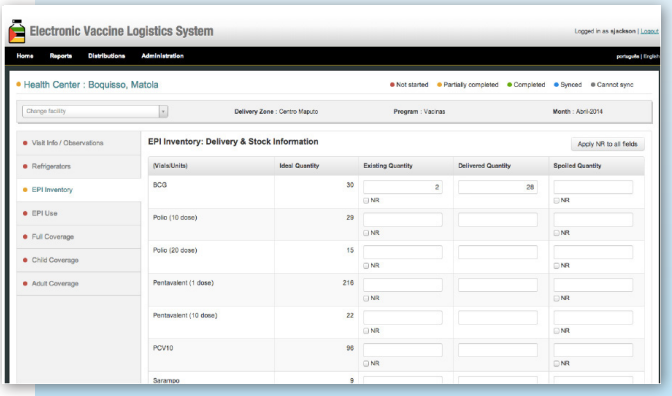
OpenLMIS is designed to be configurable to meet the unique needs of any health supply chain. The system can be easily configured across multiple dimensions—a partial list appears below. Each option can be customized for individual programs and for any group of facilities.



ADDITIONAL OpenLMIS BENEFITS

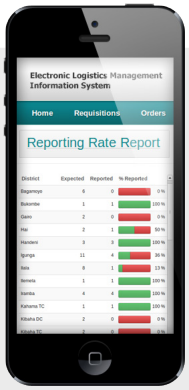
Easy to Use

Save time training users with the straight-forward, intuitive user interface.



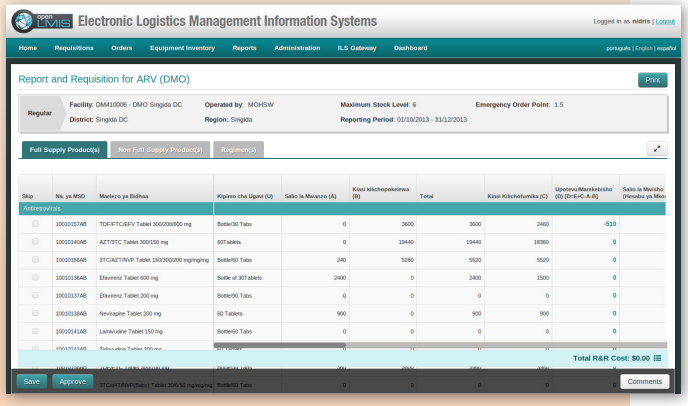
Reach Remote Facilities with Mobile Tools

Users can generate orders from mobile phones via CommTrack integration, or use OpenLMIS on tablets.



Adapt to Changing Program and Reporting Requirements

Revise forms using a simple drag and drop interface, and easily add new reports



Operate in Low Infrastructure Environments

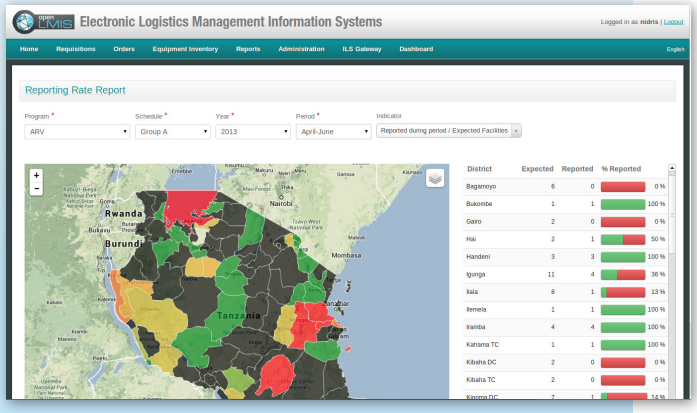
Optimized for low bandwidth environments with offline entry for select data

Multi-Language Support

Translate to one or multiple languages via a simple configuration file.

Increase Supply Chain Efficiency

Track waste, leakage, and reporting rates.



OpenLMIS V1.0 GLOBAL FEATURE LIST

REPLENISHMENT CYCLE

Basic Capabilities and Configurability

- One or more programs (e.g., Tuberculosis, Anti-Retroviral Treatment, Expanded Program on Immunization, Malaria, Reproductive Health, etc.)
- Hierarchy of geographic zones can be defined with arbitrary depth
- Facilities (with 30 facility-specific attributes), plus programs supported by each facility
- Products (with 45 product-specific attributes)
- Products assignable to one or more programs
- Products assignable to one or more facility types
- Multiple customizable operating schedules (e.g., monthly, quarterly, interleaved quarters, schedules with non-uniform periods, etc.)
- Group facility per common programs, schedules, approval hierarchies, supplying depots, and delivery points.
- Multi-tier requisition/order/fulfillment loops, including mixed requisition- and allocation-based fulfillment process
- Level skipping for both requisition and allocation fulfillment processes

Requisition-Based Replenishment ("pull" process)

- Customizable requisition form for each program
- Products grouped on requisition form by product category (anesthetics, antibiotics, etc) – assignable and sortable by Program
- Arithmetic validation of user-entered data
- Optional automatic calculation of dependent values (an alternative to validation)
- Configurable work flow for review and approval of Requisitions, with one or more review steps
- Automatic notifications of pending work for all users involved in the reorder workflow
- Shipment/receivals data from previous cycle is automatically populated on new Requisition
- Emergency requisitioning, with optional customized format
- Optimized to minimize bandwidth - only changed data is submitted back to the server
- HMIS data collection tool (configurable forms to collect summary patient data, e.g. for ART or TB regimens)

Informed-Allocation Fulfillment ("push" process)

- Facilities grouped into delivery zones, independent of geographic location
- Manage product distributions per delivery zone and program
- Define ideal stock amounts per WHO formulas, with optional enhancements, plus exceptions for individual facilities
- Calculate quantities to take on delivery run
- Forms to capture field observations, inventory data, usage data, cold chain status, plus coverage data for immunization program
- Data collection forms are compatible with browers on both computers and tablets
- Status indicators highlight fields and forms where mandatory data is missing
- Data can be entered while online or offline
- Data entered while offline can be uploaded whenever users reconnects on the internet

Order Process

- Approved requisitions are released as orders
- Generate order export files for an ERP system, per individual Requisition (transferred via FTP in CSV format)
- Format of order export files is customizable
- Orders and associated export files can be manually reviewed

Shipment Process

- Import shipment file from ERP system (ftp'd CSV files)
- Generate and print "Proof of Delivery" (POD) document / packing list)

Receiving Process

- Update delivery records after POD is completed including substitute products and mis-delivered products
- View updated PODs returned from the field

Facility Budgets

- Receive budget allocations from a finance/accounting system, assignable per facility per program per period (based on customizable CSV file format)
- Records spending by program and period and flags overspending

Forecasting

- Forecasting supported through data extracts for Quantimed and Pipeline

OpenLMIS V1.0 GLOBAL FEATURE LIST

REPORTING

- Integrated with Jasper Reporting Server
- Standard Reports are in HTML, PDF and Excel formats
- Can be configured to report from the production database server, or from dedicated reporting database server, with automatic propagation of data

Standard Operations Reports

- Non-reporting facilities
- Adjustment summary by product
- Aggregate stock movement by level
- Average consumption by product
- Quantity ordered discrepancy summary report (quantity requested, approved, issued/supplied, received)
- Quantity dispensed to user
- Facilities stocked out, by product
- Report & requisition feedback
- Stock imbalances
- Summary district consumption comparison by product
- Supply status by facility
- Supply status by product, and by facility group
- Stock status of warehouse (central/zonal, etc.)
- Order fill rate
- Vaccine-specific reports (available through Tableau reporting module; viewable online and offline)

Administrator Reports

- Reports to verify the consistency and completeness of the system configuration to ensure all facilities are fully served, and all workflow is complete

SYSTEM DEPLOYMENT AND ADMINISTRATION

Basics

- Role-based security for all operational responsibilities (requisitioning, approvals, etc.)
- Role-based security for all administrative responsibilities
- Password recovery/reset

System Administration

- Users and roles/rights management of Graphic User Interface (GUIs)
- Geographic zones and facilities management GUIs
- Programs and products management GUIs
- Schedules management GUI
- Approval workflow, supply lines and delivery options management GUIs

System Deployment

- Template scripts for programs, geographic zones types, facility types, etc
- Bulk upload for geographic zone and facilities
- Bulk upload for facility groupings, work flow and supply lines
- Bulk upload for delivery zones
- Bulk upload for products, plus stocking metrics and costs
- Bulk upload for users; automatic notification for new users to set their password
- Bulk updates for any of the above objects
- Multiple language customization for all user interface elements (supports multiple simultaneous languages)

Integration with External System (e.g., CommTrack)

- Secure API to register users
- Secure API to submit reports or complete requisitions
- Secure API to review and approve requisitions
- Atom feed for facility updates
- Atom feed for requisition status updates
- Atom feed for product updates

OpenLMIS Community funders and participants include:

Bill & Melinda Gates foundation · PATH A catalyst for global health · USAID FROM THE AMERICAN PEOPLE | DELIVER PROJECT · Life Saving Commodities Improving access, saving lives

ThoughtWorks® · The Rockefeller Foundation · SCMS · PEPFAR · VillageReach Starting at the Last Mile...