DEPLOYING AN ELECTRONIC LMIS: MAKING THE RIGHT CHOICE

Introducing Field Supply LMIS software and services

X

15:00 CET, September 30, 2021
INTRODUCTION
We are helping governments and businesses make good on the promise of healthcare in the fastest growing parts of the world.
**Stock reports**

**Stock reporting for all programs**

- **Malaria**
  - Next report due: Fri 15 Jan
  - Nov-Dec 2020
  - 88% complete
  - 18,196 of 20,630 locations complete

- **Family planning**
  - Next report due: Fri 15 Jan
  - Nov-Dec 2020
  - 85% complete
  - 13,031 of 15,417 locations complete

- **HIV/AIDS**
  - Next report due: Fri 15 Jan
  - Nov-Dec 2020
  - 82% complete
  - 2,723 of 3,316 locations complete

- **Tuberculosis**
  - Next report due: Fri 15 Jan
  - Oct-Dec 2020
  - 69% complete
  - 7,525 of 10,995 locations complete

- **MNCH**
  - Next report due: Fri 15 Jan
  - Nov-Dec 2020
  - 91% complete
  - 882 of 970 locations complete

**Data collected**

1M+ batch-level transaction records for over 34,000 facilities across the country over 5 years
- **Accessibility (BYOD, instant-install, always up-to-date)** Removes the massive burden of enterprise deployments across a whole country

- **Offline First** Complete offline functionality allows sites to work offline for weeks - and still share data when able to opportunistically connect and sync to the network.
Forecasting methods tailored for each program

Purpose build planning Simplified tools to make national-scale rules- or consumption-based forecast and planning flexible and understandable

40,470 product-location-specific supply plans implemented according to national policy
Tracking shipments from zonal to state warehouses

- Track shipment progress & statuses
- Shipment information gets updated on all related indicators in analytics as well as bin cards for each product
- Generate & manage shipments with orders from different suppliers
- Keep track of fill rate
Vaccine Vial Monitor (VVM) Status

Functionality designed to enforce VVM sampling for batches that arrived at any point in the supply chain from national warehouses to state stores, down to health facilities.
Batch-level, transactional visibility Real-time stock movements, recalls, pharmacovigilance, audits, and wastage control without overly complicated record keeping.
DHIS-2 Integration - Calculated wastage against Target

**Doses given against plan** timeline

**Products shown:**
- BCG
- bOPV
- HeP B
- IPV
- MSL
- PCV
- Penta
- Td
- YF

**Live wastage analysis from external triangulated data**

<table>
<thead>
<tr>
<th>Product</th>
<th>Distribution</th>
<th>Doses given</th>
<th>Target wastage</th>
<th>Calculated wastage</th>
<th>Distance from target</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSL</td>
<td>2,923,490</td>
<td>505,232</td>
<td>30%</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>BCG</td>
<td>2,252,860</td>
<td>540,736</td>
<td>50%</td>
<td>76%</td>
<td></td>
</tr>
<tr>
<td>YF</td>
<td>1,830,260</td>
<td>494,308</td>
<td>30%</td>
<td>73%</td>
<td></td>
</tr>
<tr>
<td>bOPV</td>
<td>4,212,740</td>
<td>2,082,357</td>
<td>25%</td>
<td>51%</td>
<td></td>
</tr>
</tbody>
</table>
Visibility into months of stock

- Each indicator has the complete package of process, thresholds (red/yellow/green), interpretation guides so that management team can follow up
- Natural UX to identify root causes
- Exports for further analysis
- Integration with external BI (Kibana, Superset), a leading data visualization layer for ad hoc queries and system monitoring
$568,000 of near-expiry commodities identified for expedited delivery, with a further $627,258 identified at risk to date.
### Inventory Risk Dashboard

<table>
<thead>
<tr>
<th>Product name</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDF</td>
<td>3TC</td>
<td>DTG (300/300/50mg) (90 tabs)</td>
</tr>
<tr>
<td>TDF</td>
<td>3TC</td>
<td>DTG (300/300/50mg) (30 tabs)</td>
</tr>
<tr>
<td>Lopinavir/Ritonavir (200/50mg)</td>
<td>[Needs Reorder]</td>
<td></td>
</tr>
<tr>
<td>TDF/3TC/EFV (300/300/600mg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flucconazole 50mg (7 caps)</td>
<td>[Needs Reorder]</td>
<td></td>
</tr>
<tr>
<td>AZT/3TC/NVP (60/30/50mg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COBAS AmpliPrep/COBAS TaqMan K-Test</td>
<td>[Needs Reorder]</td>
<td></td>
</tr>
</tbody>
</table>

**Includes all information to predict one year worth of stock**

- Off-trend average monthly consumption
- Custom Thresholds for Programs
Reorder and write-offs alerts

- Quantity to order prompt with administrative & ordering lead times
- Track expiring batches through all national warehouses
Ordering and Rationing - Direct delivery

- Accelerate national order preparation and execution

- Aggregates all locations all together

- Tools for multi-level order preparation, rationing, product substitution

- Enterprise integration with warehouses via ONE Network

- Multiple pack size solution

- Funder specific bulk allocations

Orders > HIV/AIDS > Products > GHSC-AID1018

Glucose Selectra Jr Kits

All locations

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>LGA</th>
<th>STATE</th>
<th>ORIGINAL QTY ORDERED</th>
<th>DIFFERENCE</th>
<th>ADJUSTED QTY TO ORDER</th>
<th>ROUNDED QTY TO ORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abubakar Tafawa Balewa University Teaching Hospital (Atбуд) Bauchi</td>
<td>bauchi</td>
<td>bauchi</td>
<td>0</td>
<td>+40</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Adamawa Hospital Yola</td>
<td>yola-north</td>
<td>adamawa</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ahmadu Bello University教学 Hospital Kano</td>
<td>nasarawa</td>
<td>kano</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Aliyu Memorial Hospital Madabi (Hub)</td>
<td>madi</td>
<td>madi</td>
<td>0</td>
<td>+20</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Akiko - Madi Memorial Clinic And Maternity</td>
<td>aikko</td>
<td>gombe</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Al-Nonuri Specialist Hospital Kano</td>
<td>tarsu</td>
<td>kano</td>
<td>0</td>
<td>+40</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Aminu Kano Teaching Hospital Kano</td>
<td>tarsu</td>
<td>kano</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Apple Clinic Bauchi</td>
<td>bauchi</td>
<td>bauchi</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Subtotals: Original qty ordered 66
Diference 66
Adjusted qty to order 0
Available stock

The following is a summary of the order for 251 facilities

Glucose Selectra Jr

<table>
<thead>
<tr>
<th>Original qty ordered</th>
<th>Available stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>0</td>
</tr>
</tbody>
</table>

Available stock is less than adjusted qty to order.

Reset to original qty ordered

Confirm

Close
Locations
- More than 34,000
- Decentralized implementation - key to scale
- Keep even federated systems in sync
- Add/edit services, donors, contract information
- Keep program-specific location ids

Products
- More than 2,000
- Mappings to external ids (e.g. ONE, ARTMIS, GS1)
Field Supply has private sector clients like **shelf life**

- Vendor management inventory for last mile
- Private sector source of financing that helps insure the financial sustainability of FS

### Confirm quantities to be delivered

<table>
<thead>
<tr>
<th>Product</th>
<th>Closing</th>
<th>Delivered</th>
<th>Balance</th>
<th>Sep Unit price</th>
<th>Balance value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tab Coartem 80/480mg x6</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>1.236</td>
<td>3.708</td>
</tr>
<tr>
<td>Tab Lonart DS 80/480 x6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1.113</td>
<td>0</td>
</tr>
<tr>
<td>Tab Artequick 62.5/375mg x4</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>743</td>
<td>2,972</td>
</tr>
<tr>
<td>Tab Augmentin 1g x10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3.391</td>
<td>0</td>
</tr>
<tr>
<td>Tab Augmentin 625mg</td>
<td>0</td>
<td>13</td>
<td>13</td>
<td>2.934</td>
<td>38,142</td>
</tr>
<tr>
<td>Tab Paracetemol 500mg (Emzor)</td>
<td>0</td>
<td>7</td>
<td>7</td>
<td>287</td>
<td>2,009</td>
</tr>
<tr>
<td>Cap Amoxil 500mg (Unbranded)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,009</td>
<td>0</td>
</tr>
<tr>
<td>Alabukun</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,304</td>
<td>0</td>
</tr>
<tr>
<td>3G Cream 20g</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>344</td>
<td>0</td>
</tr>
</tbody>
</table>

Please confirm delivery and acknowledge receipt of the products listed above from Field Technology Development Partners LTD by signing on behalf of the company here below:

![Signature]
Thank you for the support
The Nigerian supply chain was filled with many complex challenges across multiple dimensions including:

- Fragmented supply chain
- Multiple data systems
- Poor data quality
- Lack of aggregate visibility
- Poor government ownership
- Limited performance management
- Suboptimal stock management
- High system costs

To address these challenges, Nigeria set out to create sustainable E2E visibility into the supply chain across 5 health programs – HIV, Malaria, Family Planning, Tuberculosis and Maternal, Newborn & Child Health.
Goals of NHLMIS

- Improve cost savings for data collection and lower inventory and transportation costs
- Reduce amount of redundancy and overlap in the warehousing and distribution systems
- Significantly reduce the occurrence of stock out situations at facilities
- Minimize wastage within the system
- Significantly lower time to respond to low stock or stock-out situation ultimately avoiding stockouts
- Entrench ownership and accountability into the supply chain particularly at government/state LMCUs
Key Modifications made to the Nigerian Supply Chain

❖ One central Data Repository: To help improve access to datasets at all levels of the supply chain
❖ Timely Visibility into warehouse data: To reduce stock out rates and provides more accurate and timely LMD plans based on available stock
❖ Dashboard Visibility across all levels to support state and national programs with key data points to improve decision making.
❖ Unified data, ordering and distribution flow across programs
## Key Features of NHLMIS

<table>
<thead>
<tr>
<th>NHLMIS Feature</th>
<th>Goal</th>
<th>Impact Area</th>
</tr>
</thead>
</table>
| **Interoperability** | APIs for integration with Warehouse, e-POD and DHIS 2 systems created | ❖ NHLMIS can send available data sets and receive batch specific warehouse inventory levels and proof of delivery data  
❖ Reduce write-offs                             |
| Orders and Rationing | LMD feature has simplified the ordering process, reducing time to place orders by 4 weeks | ❖ Real time data for order processing  
❖ Better integration between warehouse and regional managers  
❖ Increased visibility on commodity pipeline |
| QC Alerts            | Customised Alerts for different programs based on specific business rules that apply to programs | ❖ Improves Data Quality  
❖ Data and processes to aid addressing of stockouts, data quality and reporting issues |
### Key Features of NHLMIS

<table>
<thead>
<tr>
<th>Analytics Dashboard</th>
<th>Cross Program centralised visibility into supply chain performance, and effective supply chain services.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Key Indicators Include:</td>
</tr>
<tr>
<td></td>
<td>❖ Stock Reporting Rate</td>
</tr>
<tr>
<td></td>
<td>❖ Flagged reports</td>
</tr>
<tr>
<td></td>
<td>❖ Stock Out Rate</td>
</tr>
<tr>
<td></td>
<td>❖ Months of Stock</td>
</tr>
<tr>
<td></td>
<td>❖ Mos Cover</td>
</tr>
<tr>
<td></td>
<td>❖ Mos+orders:</td>
</tr>
<tr>
<td></td>
<td>❖ Expiry Indicator</td>
</tr>
<tr>
<td></td>
<td>❖ Average Monthly Consumption</td>
</tr>
<tr>
<td></td>
<td>❖ Improves performance management</td>
</tr>
<tr>
<td></td>
<td>❖ Improves stock-management efficiency</td>
</tr>
<tr>
<td></td>
<td>❖ Lowers Cost of managing commodities especially with expiry indicator and Batch level Visibility</td>
</tr>
<tr>
<td></td>
<td>❖ Significantly reduce the occurrence of stock out situations at facilities</td>
</tr>
<tr>
<td></td>
<td>❖ Minimize wastage within the system</td>
</tr>
<tr>
<td></td>
<td>❖ Significantly lower time to respond to low stock or stock-out situation ultimately</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Master Data Management</th>
<th>Master data interface created Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>❖ Admin users can manage the database of facilities and other users on the NHLMIS interface</td>
</tr>
</tbody>
</table>
The LMIS has now enabled over 193 million pharmaceutical interventions (measured by consumption) since 2016.

Tuberculosis reporting scaled up nationally.

### Pharmaceutical Interventions Enabled | Q4 2019 to Q1 2021

- **Public Health Programs now onboarded and reporting nationwide on NHLMIS**
  - Family Planning: 17,684
  - Malaria: 110,564
  - HIV-AIDS: 157
  - Maternal & Newborn Child Health: 246,619
  - Tuberculosis: 118,061

- **30k facilities reporting on NHLMIS**
- **12,746 users on NHLMIS**
CONCLUSION