Strengthening inventory management and stock visibility of HIV supply at the last mile: achievements, challenges, and lessons from Makueni County, Kenya

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Pharmacist
Background: Map of Makueni County

Key statistics
Population: 949,298 (KNBS, 2019)
Size: 8,000Km²
PLHIV: 24,176
AYP (15-24yrs): 179,381 (Account for 42% of new infections)
Adult HIV prevalence: 3.2%

Key Populations
- Female sex workers (FSW): 2,743
- MSM: 2177

No of health facilities: 236
ART Sites: 73 (KHIS, 2019)
Past challenges in supply chain management of ARVs and program items in Makueni County included:

- Lack of end-to-end supply chain visibility
- Poor forecasting and quantification
- Poor utilization of stock management tools
- Poor reporting rates and delayed reports.
- Expiries of vital commodities
In April 2022, the Afya Ugavi Activity, a USAID implementing partner providing health supply chain systems strengthening support in Kenya, partnered with the Department of Health, County government of Makueni, to pilot an outsourced last mile distribution and stock visibility system dubbed - SVS (Stock visibility System).

A one week data collection exercise was conducted between 24th -28th April 2022 in 120 facilities within Makueni county to pick out the main supply chain challenges experienced at the different levels of care. Stock verification and onboarding of 22 facilities
Methodology: Key Findings during Onboarding Process

- Un-updated stock cards
- Unusable commodities i.e. damaged, expired, phased out regimens
- Large quantities of commodities with near 6 months to expiry
- Discrepancies between physical stock and bin card quantities
- Lack of verification of received commodities
- Overstocked, understocked and stocked out commodities
- Poor documentation—documentation on requisition and issue vouchers (S11 forms).
Anomaly per month

Anomaly Type
- Physical Stock Count Anomalies
- delivery

Title
Key Supply Chain Indicators to be addressed

- Central warehouse availability
- Adoption rate
- Anomalies rate
- Verified facility stock rate
- Stock delivered
- Products at risk
- Stock in transit
- Stocks expiring in 6 months
SvS Journey Experience: screenshots

Main Menu
Please select the action you would like to perform:

- Last synced: 2023-10-13 15:41:01
- Facility Stock Verification: Verify stock levels for stock at your facility
- Receive Verification: Verify and receive stock delivered to your facility
- View Records: View historic records
- Facility Details: View your facility details
- Exit: Close the application

Stock Recording Method
Select the method that you would like to use to record your stock levels:

- Scan Barcode: Scan the item barcode by holding the camera over the shipper pack barcode
- Single stock item: Select a specific medicine from the stock list

Facility: Matiliku Sub County Hospital

Deliveries

- 00000000550937 | Delivery date: March 11 2023 6:06 AM | Boxes: 1
- 00000000625577 | Delivery date: May 30 2023 5:21 PM | Boxes: 1
- 8006348839 | Delivery date: June 21 2023 3:00 AM | Boxes: 17
- 000000000636759 | Delivery date: July 23 2023 1:57 AM | Boxes: 3

Stock Receipts

- 80063488839 | Delivery date: June 21 2023 3:00 AM | Boxes: 17
- 000000000636759 | Delivery date: July 23 2023 1:57 AM | Boxes: 3
SvS Journey Experience: screenshots
### Stock Transactions

<table>
<thead>
<tr>
<th>Description</th>
<th>Mandatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock item: PM04TN007</td>
<td>TLD 90s</td>
</tr>
<tr>
<td>ISSUED QTY: *</td>
<td>The quantity of stock issued</td>
</tr>
<tr>
<td>INTER-FACILITY TRANSFER QTY: *</td>
<td>The quantity of stock transferred to another facility</td>
</tr>
<tr>
<td>INTRA-FACILITY TRANSFER QTY: *</td>
<td>The quantity of stock transferred within the same facility</td>
</tr>
<tr>
<td>LOST QTY: *</td>
<td>The quantity of stock missing or lost in the facility</td>
</tr>
<tr>
<td>AVERAGE MONTHLY CONSUMPTION: *</td>
<td>Enter the average monthly consumption</td>
</tr>
</tbody>
</table>

- **Update**
- **Anomalies**
- **Back**
1. Impact on forecasting and ordering of ARVs

The county was able to plan better and only order what was needed since there was end-to-end visibility of available commodities in all pilot sites.

SCPs were able to mop up excess commodities identified during the mapping phase and re-distribute to facilities that lacked or had higher volumes.

Subsequently **ordering** was purely based on the forecasting reports.
2. Impact on reduction of expiries

Prior to the rollout of the app, there were rampant expiries, especially on the HIV rapid test kits (RTKs).

After the rollout, a drastic drop in expiries was reported, up to 50%
Stock Expiry per month (Dec data)

Program:
- HIV
- TB
- Malaria
- Family Planning

Month and Year:
- 2023-04
- 2023-07
- 2023-09
- 2024-01
- 2024-04
- 2024-07
- 2024-10
- 2025-01
- 2025-03
- 2025-05
- 2025-07
- 2025-09
- 2025-11
- 2025-12
- 2026-04
- 2026-06
- 2027-05

Total Count:
- 1.0
- 1.2
- 1.4
- 1.6
- 1.8
- 2.0
3. Stockouts
There was a remarkable reduction in the stock-out rates of tracer commodities.

TLD stock out rates decreased from 24% to 3%, HIV RTKs decreased from 53% to 48% as attributed to the enhanced efficiency.

The commodity manager was empowered by reliable consumption data while making allocations hence ease in rationalising orders based on consumption and stocks on hand.
4. Reporting rates and utilisation of reporting tools

There was a remarkable increase in reporting rates on the Ministry of Health’s Facility Consumption Data Report, from 95.9% to 98.6% due to ease of reporting.

Bi-monthly stock verification meant that on the 15th and the last day of the month HIV commodity data was readily available on the app for reporting eliminating the need for manual paperwork.

This makes it a ‘top of mind’ report as it is by far the easiest report to generate for a healthcare worker who is supposed to prepare upwards of ten reports by the 5th day of each month.
## Makueni HPT Reporting Rates

<table>
<thead>
<tr>
<th>Data / Period</th>
<th>November 2022</th>
<th>December 2022</th>
<th>January 2023</th>
<th>February 2023</th>
<th>March 2023</th>
<th>April 2023</th>
<th>May 2023</th>
<th>June 2023</th>
<th>July 2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOH 643_FCDRR Revision 2019 - Reporting rate</td>
<td>22.1</td>
<td>46.5</td>
<td>48.8</td>
<td>55.5</td>
<td>94.6</td>
<td>92.6</td>
<td>97.7</td>
<td>95</td>
<td>95.7</td>
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<td>98.4</td>
<td>98</td>
<td>99.2</td>
<td>98.4</td>
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<td>99.2</td>
<td>95.2</td>
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<tr>
<td>MoH 729B Facility - FMAPS Revision 2019 - Reporting rate</td>
<td>97.3</td>
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<td>98.6</td>
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<td>64.4</td>
<td>80.8</td>
<td>78.8</td>
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<td>MOH 747A_Facility Contraceptives Consumption Report and Request...</td>
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<td>100</td>
<td>99.7</td>
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<tr>
<td>MOH 743 Malaria Commodities Form Rev 2020 - Reporting rate</td>
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<td>98.9</td>
<td>98.1</td>
<td>98.6</td>
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<td>99.6</td>
<td>100</td>
<td>99.6</td>
<td>100</td>
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<tr>
<td>TB_FCDRR Revision 2017 - Reporting rate</td>
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<td>94.7</td>
<td>95.2</td>
<td>87</td>
<td>91.3</td>
<td>95.7</td>
<td>89.4</td>
<td>78.8</td>
</tr>
</tbody>
</table>

*Source: Dhis 2019*
Facility Monthly ARV Patient Summary (MoH 729B F-MAPS)-Service data
Challenges

1. Lack of stable internet connectivity in some facilities – making real-time reporting a challenge
2. Difficult terrain hindering distribution to some facilities especially during the rainy season
3. Staff turnover especially in the dispensaries
Lessons Learned

• The SVS app and dashboard is a useful tool that assists with end-to-end stock visibility, quick analysis, and assisting in making informed decisions to manage ARVs and other program commodities at all levels of care.

• The dashboard provided an easy way to calculate the commodity fill rates after a given supply cycle, the stocking levels for various commodities, the expiry dates, and the inventory costs can be calculated if need be.

• A robust supply chain system is key in ensuring continuity of care and ensuring better clinical outcomes. With the pilot period coming to an end in June, the key take home is the stock visibility system is a cost effective and sustainable way of enhancing end to end visibility in the HIV supply chain.

• Buy-in from the top leadership is essential for ownership and sustainability.
Thank You