District Management Information System Guidelines

2020

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Disclaimer:

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ACRONYMS

EML	Essential Medicines List
FEFO	First Expiry First Out
GHSC-PSM	Global Health Supply Chain Program-Procurement and Supply Management
KP	Khyber Pakhtunkhwa
LMIS	Logistics Management Information System
MISes	Management Information Systems
MOS	Months of Stock
TB	Tuberculosis
USAID	U.S. Agency for International Development

ACKNOWLEDGEMENT

The key challenge encountered by the districts is the uninterrupted and timely supply of health commodities at all levels of supply chain, most critically the last mile. Admittedly, the outcome of ensuring commodity security at the last mile could only be effectively accomplished through cascading of the fundamental supply chain functions at the district and sub-district levels.

We proudly put forward the completed version of the District Level Supply Chain Package, which was prepared after months of effort. The package containing supply chain guidelines will help the district staff to ensure best supply chain practices at the district and below levels, contributing towards improved access of health commodities to the people.

The Health Department, Government of Khyber Pakhtunkhwa is committed to improve the health and quality of life for all, particularly women, children and marginalized communities, through access to essential quality health services which are accessible, equitable, culturally acceptable, affordable, and sustainable.

We acknowledge the invaluable leadership and technical assistance of Dr. Han Kang, Director, Health Office, USAID Pakistan, Mr. Khalid Mahmood, Project Management Specialist, USAID Pakistan, Dr. Muhammad Tariq, Country Director, USAID Global Health Supply Chain Program – Procurement and Supply Management (GHSC-PSM) project, Chemonics International and especially Mr. Babar Khisro of USAID Office, Khyber Pakhtunkhwa; and Mr. Muhammad Abbas Khan, Supply Chain Team Lead KP, Mr. Nabeel Ahmed Maqbool, Director, Vaccine Preventable Infectious Diseases, and Ms. Ambreen Khan, Director, Basic Health Services of GHSC-PSM project for their devoted efforts and support provided in the formulation of this package.

Dr. Niaz Muhammad
Director General Health Services
Government of Khyber Pakhtunkhwa, Peshawar

PREFACE

The District Health Commodities Information Systems Guidelines will serve as a key document for the officials working in the health department at the district level, including the district health officer, district storekeepers, service providers at the district health facilities and vertical program coordinators as well. The aim of these guidelines is to document the existing Management Information Systems (MIS) practices that are based on conventions from department history that have not been properly documented until now, as well as standard operating procedures based on international best practices. The guidelines will enable the district level relevant staff to understand the importance of data visibility and the use of data being captured in information systems of health commodities. This includes products related to provision of basic health services, essential medicines, vaccines, contraceptives, antimalarial and typhoid medicines, malaria rapid diagnostic tests, and tuberculosis (TB) medicines.

PREAMBLE

Until the product is dispensed to patients at the service delivery point or health facility it is imperative to maintain up to date information of the product including quantity, batch, and expiry date as well as other important features which are discussed in these guidelines. Regardless of storage facility size, the main information needs of the supply chain are very similar. How complex this information need become will vary based on the volume of products to be managed and storage facility size, as well as particular requirements, such as cold storage.

OBJECTIVE

The objective of these guidelines is to establish a practical reference for those managing information systems. The data visibility through MISes enables the management to take evidence based product quantification, forecasting, procurement, storage and dispensation.

STANDARD GUIDELINES

Information is at the center of the logistics cycle. Without it, the logistics system could not be managed effectively. Managers gather information about each activity in the system and analyze the collected information to coordinate future actions. For example, information about inventory levels and consumption must be gathered to estimate the quantity of a certain product for procurement.

The main purpose of an information system is to provide necessary information to decision makers. The essential data points for decision making are as follows:

1. How long will the current supplies last in terms of months of stock (MOS)?
2. What are the consumption patterns?
3. Are we having losses from the system that require us to act?
4. Do we need to order more supplies now?
5. Where are the supplies in the pipeline?
6. Do we need to move supplies from higher to lower levels?
7. Do lower-level storage facilities need more resources?
8. Are products about to expire? Can these products be distributed before expiry, or do we need to discard these products and remove them from the pipeline?
9. Do supplies flow regularly through the pipeline? Do we need to adjust our pipeline to account for bottlenecks in the system?
10. How many service delivery points are out of stock, understocked, or overstocked?

Decisions for improving the logistics system can only be made if they are based on appropriate data. In a logistics system, decisions are usually based on three essential data items: stock on hand (SOH), rate of consumption, and losses and adjustments.

The web-based logistics management information system (LMIS) is designed in the context of health sector logistics information of the province. The system brings in district-and sub-district level supply chain data. With a unified system for reporting and requisitioning, the web-based LMIS system can integrate information from all levels.

There are two important systems that provides supply chain information:

1. Inventory Management Systems for Large Stores
2. Integrated Supply Chain Dashboards

I. Inventory Management System For Large Stores: district and DHQ hospital Stores

This system is designed for large stores such as. district main medical stores or big hospitals stores. It covers data capturing for the complete lifecycle of store operations. Good storage practices in stores are required to implement this software. The following needs to be ensured for smooth implementation of an inventory management system:

1. Opening balances of the products of each batch needs to be entered into the system correctly – as per physical stock count
2. Stock receipt needs to be entered on time in the system
3. First Expiry First Out (FEFO) principle needs to be followed
4. Stock issuances must be done through the system
5. Physical stock count - Stock must be counted and adjusted accordingly at regular intervals

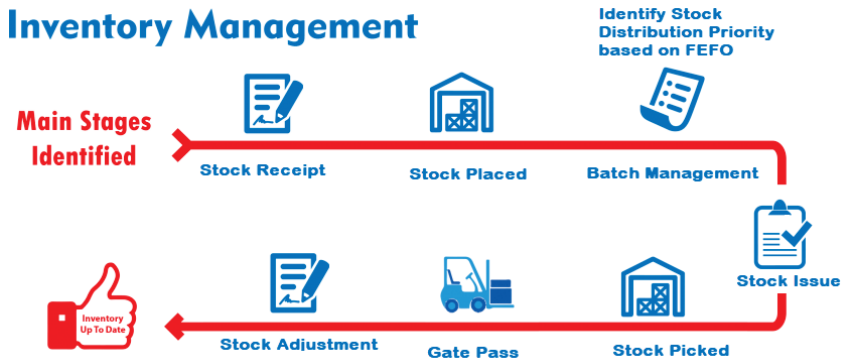


Figure 1: Overall process

After login, users directly reach the main screen of the system.

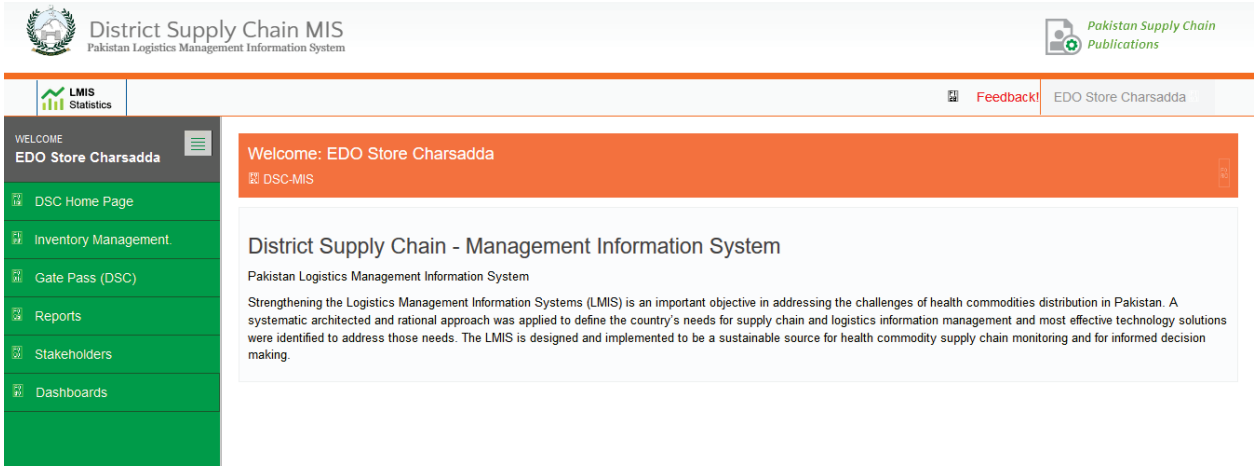


Figure 2: LMIS system welcome page

1.1.1 Stock receiving and incoming

As and when health commodities are received from the supplier, the product's batch wise quantities need to be entered into the inventory management system. The written records such as invoices and packing lists may be referred to for this purpose.

However, before inputting the data in the system, the following information must be known to Store Manager / Keeper:

a) Physical inspection

After receiving the stock, store manager or keeper must physically inspect each pack of received stock for any visible damages, sign of dampness or any other abnormalities for the specific commodity. Commodities with any sort of issue(s), must be placed and marked separately from usable commodities.

On immediate basis, the name, batch number and quantity of the physically damaged commodities needs to be recorded and sent to the supplier, District Health Officer and Provincial Procurement Cell. Communication should be kept in record for future references.

Select the appropriate Physical Inspection value from drop down in the system: NA, In Process, Completed.

Physical Inspection	Description	Action
NA	Commodities which does not physical inspection.	Stock can be used for issuance
In Process	Physical Inspection is in process	Stock cannot be issued till Physical Inspection is in process
Completed	Physical Inspection completed	Stock can be issued as per demand

b) Drug testing
For the Drug Testing Laboratory (DTL), Government Drug Inspectors randomly visit the district stores and collect the random samples. Users can choose DTL options from dropdown value as per actual situation.

DTL	Description	Action
NA	Commodities which does not require DTL like Cotton Wool, Syringes, etc.	Stock can be used for issuance
In Process	Government Drug inspector collected sample and sent to Lab for testing.	Stock cannot be issued till DTL is in process
Completed	Drug inspector after receiving the DTL report, allows store manager / keeper to issue the stock	Issue the stock as per demand

c) The product profile details need to already be present in the system
d) The manufacturer name must already be in the system
e) Product secondary packing (carton) needs to be entered into the system to calculate space
f) Product funders are identified
g) The waybills must contain batch number, expiry date, and quantities of the products

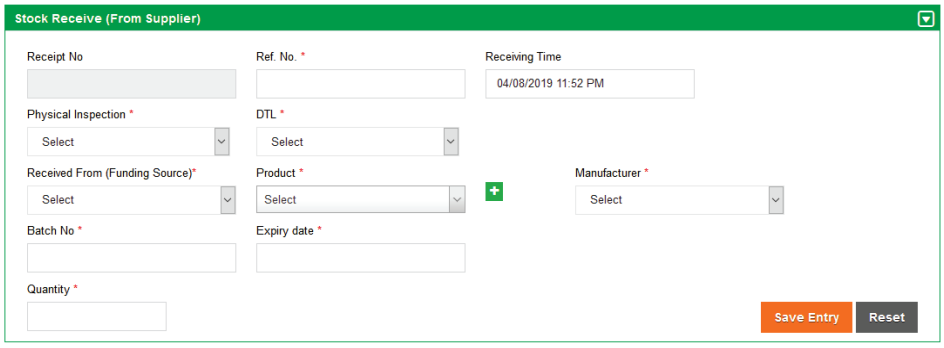


Figure 3: Stock receiving from supplier

If the product is coming from another store where an inventory management system is operational, the user uses "Stock Receive (Store)" menu option to receive the stock. Users of the system must have the voucher issued number from store sending stock. The user searches the voucher number in the system, if record found in the system, entries of the received products will appear automatically for further processing.

The system gives a unique number, e.g. R190400001, to each stock receipt. Each entry begins with "R", the next two digits denote fiscal year while the next two denote month. The last five digits denote serial number in each month, which resets to 00001 on the 1st of each month.

R	1	9	0	4	0	0	0	0	1
Receipt	Year		Month		Serial number (resets on 1st of each month)				

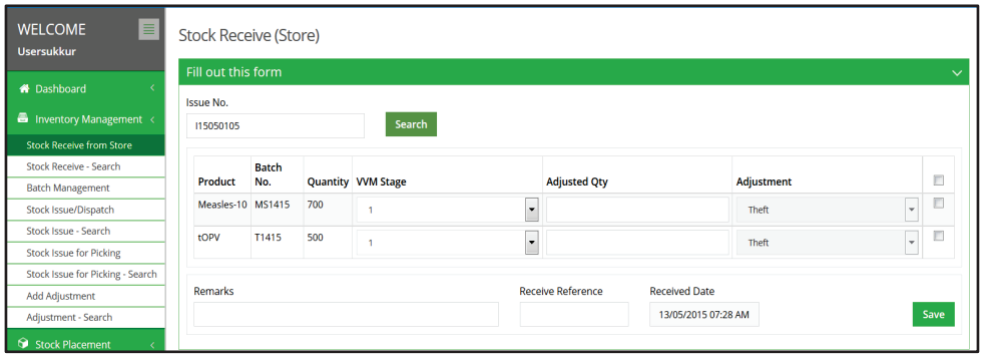


Figure 4: Stock receiving from another store

1.1.2 First Expiry First Out (FEFO) or batch management:

After entering the stock in the system, it is important that batches are issued per FEFO (First Expiry First Out) principle, ensuring that patients receive them in good condition and with time to use before their expiration dates. The inventory management system provides an automatic system to freeze those batches which have more shelf-life. The store keeper can, for any reason, override this feature using batch management. This override is recorded in the system audit log.

10 records per page Search:

Sr. No.	Product	Funding Source	Batch No	Manufacturer	Expiry Date	Quantity	Unit	Carton	Price	Status	Action	DTL Status	Physical Inspection
1	Cotton Bandages	Govt. of KP - Health Dept.	0342	Paktex	01/01/2030	8,500		17		Running	Make it Stacked Placement Info	Inprocess Completed NA	Inprocess Completed NA
2	IV with set	Govt. of KP - Health Dept.	20171226	Shifa	01/12/2022	19,200	Piece	32		Running	Make it Stacked Placement Info	Inprocess Completed NA	Inprocess Completed NA

Figure 5: Batch management

1.1.3 Stock placement

The system provides an efficient way to place stock. By default, the received stock quantity is identified as un-allocated and the appropriate storage location needs to be identified. The system provides facilities with information to identify storage location based on the following parameters:

1. Area: This can be a separate location like rooms or separate premises
2. Row: This can be a room or location within a room if a racking system is not installed
3. Rack: This can be stack of cartons if a racking system is not installed
4. Rack type: This is optional if a racking system is not installed, but typical options are single and double
5. Pallet: This is optional if a racking system is not installed, typically there are four pallets in a double rack and two in a single rack type
6. Level or shelf number: This is optional if a racking system is not installed

Users need to have the following information to place stock:

1. Store location for stock placement needs to be generated and identified
2. Product batch number and quantity to be placed at specific location must be known

Using this facility, the system places the entered quantity at the selected location and subtracts that amount from the unallocated quantity.

Place stock from received list to Location: A010111

S.No.	Receive No.	Product	Batch	Expiry	Received Quantity	Allocated Quantity	Unallocated Quantity	Allocate Quantity
1	A19070005	Tab Atenolol	279	05/2024	100,000 Tab / 10 Cartons	50,000 Tab / 5 Cartons	50,000 Tab / 5 Cartons	
2	A19070058	Septran DS Tab	ISCBH	03/2024	100,800 Tab / 12 Cartons	0	100,800 Tab / 12 Cartons	
3	A19070059	Septran DS Tab	GSCCW	11/2022	16,000 Tab / 4 Cartons	0	16,000 Tab / 4 Cartons	

Figure 6: Stock placement

1.1.4 Stock issuance

Stock issue is an important step of the store. The system gives a unique number to each stock issue which begins with I, the next two digits denote fiscal year, and the next two denote month. The last five digits denote serial number in each month.

I	I	9	0	4	0	0	0	0	I
Issue	Year		Month		Serial number (resets on 1st of each month)				

The following information must be known before issuance of the stock:

1. Issuance date
2. Issue reference number
3. Issued by
4. Issued to store
5. Product
6. Batch
7. Quantity
8. Expiry date

The system offers batches per FEFO guidelines so that the maximum use of a products' shelf life can be utilized. A voucher can be printed if required after each issuance which serves as evidence for issuance and the designated authority can sign and keep it as a record. The electronic copy is also saved in the system which cannot change and the audit log keeps track of each issuance.

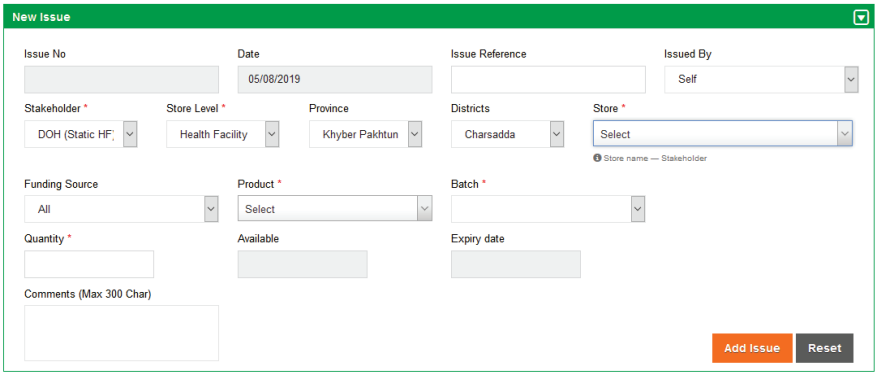
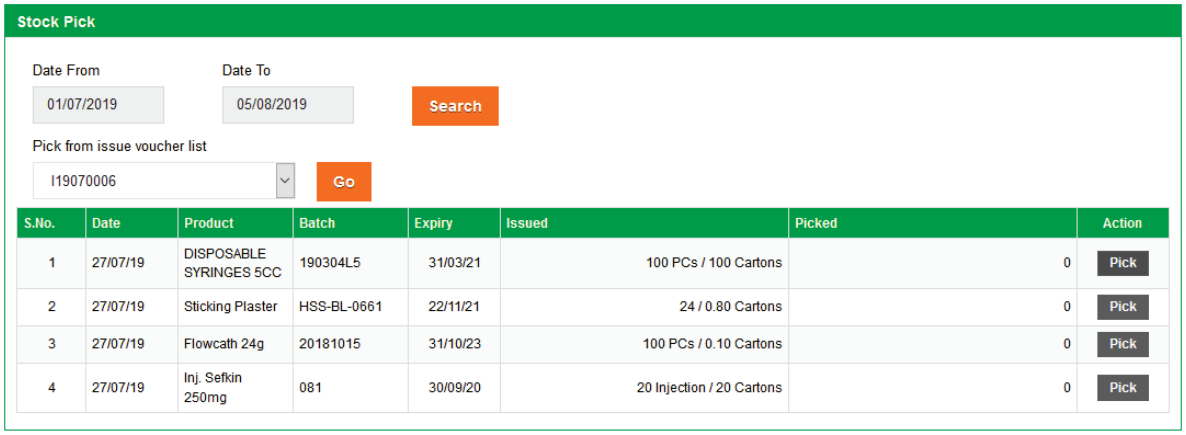


Figure 7: Stock issuance

1.1.5 Stock picking

Stock picking is an important step of inventory management. The system provides users with a list of vouchers based on the search date that are queued for picking and ultimately distributed.

Users first pick the stock electronically from the system which provides the physical location of the specified products within the store.



S.No.	Date	Product	Batch	Expiry	Issued	Picked	Action
1	27/07/19	DISPOSABLE SYRINGES 5CC	190304L5	31/03/21	100 PCs / 100 Cartons	0	Pick
2	27/07/19	Sticking Plaster	HSS-BL-0661	22/11/21	24 / 0.80 Cartons	0	Pick
3	27/07/19	Flowcath 24g	20181015	31/10/23	100 PCs / 0.10 Cartons	0	Pick
4	27/07/19	Inj. Sefkin 250mg	081	30/09/20	20 Injection / 20 Cartons	0	Pick

Figure 8: Stock picking

1.1.6 Stock adjustment

It is important that stock records are accurate and reflect physical stock. Sometimes stock is wasted or lost and this change in physical stock must be captured in the system. The system assigns

a unique number to each stock issue, which starts with "A". The next two digits denote fiscal year and following two denote month. The last five digits denote serial number in each month.

A	1	9	0	4	0	0	0	0	1
Adjustment	Year		Month		Serial number (resets on 1st of each month)				

The following information needs to be available to the user when entering the adjustments and must be known before issuance of stock.

- Adjustment date
- Adjustment type, such as lost, wasted etc.
- Reference number
- Product and batch number
- Quantity to be adjusted
- Any additional comments for adjustment

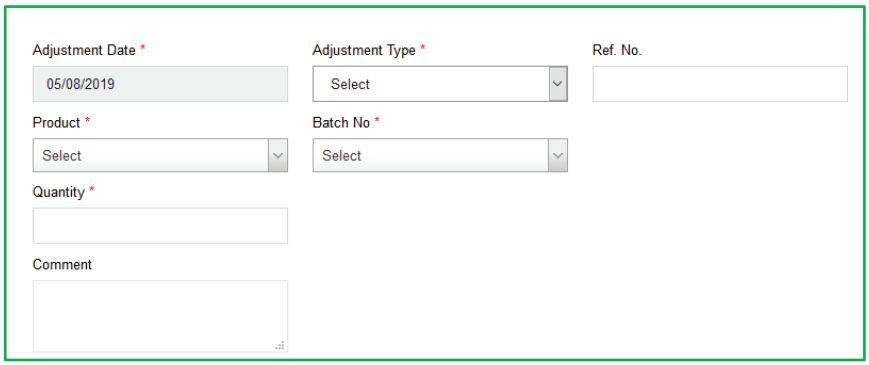


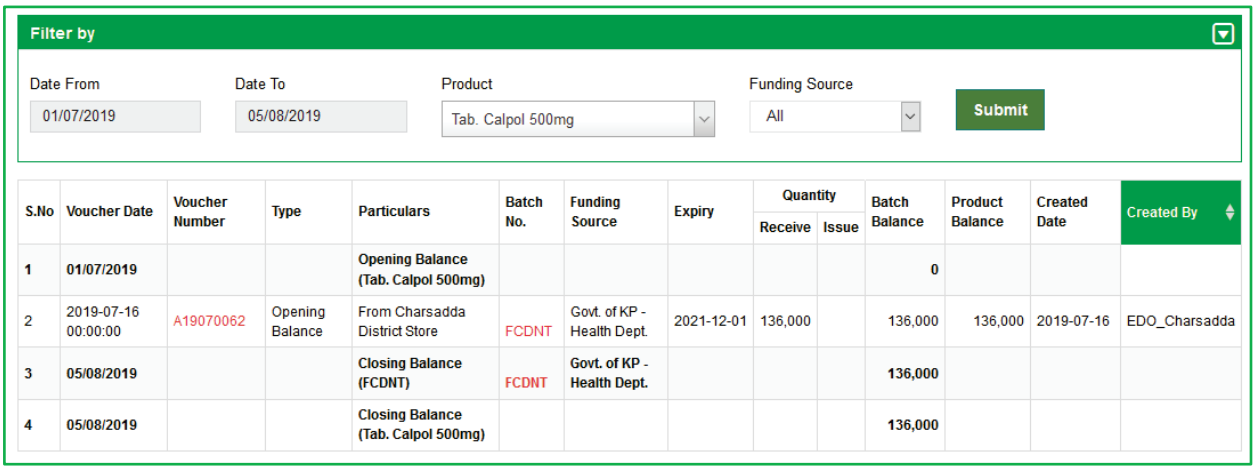
Figure 9: Stock adjustment

1.1.7 Record keeping and stock ledger

Every store has a stock register. The store keeper is responsible for the stock register and entering all stock related details such as brand name, generic name, strengths, dosage forms, quantity, batch and lot number, expiry date, and receiving date. The available manager will put their initials at the end of each entry.

The inventory management system offers automatic creation of electronic stock register to include:

- Transaction reference (such as issue voucher number or name of recipient)
- Transaction type (including receipts, issuance, losses, and adjustments)
- Product name and description including the form (capsule, tablet, liquid suspension, etc.) and strength
- Stock on hand or opening balance
- Closing or ending balance
- Closing balance product



S.No	Voucher Date	Voucher Number	Type	Particulars	Batch No.	Funding Source	Expiry	Quantity		Batch Balance	Product Balance	Created Date	Created By
								Receive	Issue				
1	**01/07/2019**			**Opening Balance (Tab. Calpol 500mg)**						**0**			
2	2019-07-16 00:00:00	A19070062	Opening Balance	From Charsadda District Store	FCDNT	Govt. of KP - Health Dept.	2021-12-01	136,000		136,000	136,000	2019-07-16	EDO_Charsadda
3	**05/08/2019**			**Closing Balance (FCDNT)**	FCDNT	**Govt. of KP - Health Dept.**				**136,000**			
4	**05/08/2019**			**Closing Balance (Tab. Calpol 500mg)**						**136,000**			

Figure 10: Stock ledger

II. Integrated Supply Chain Dashboards

The district integrated supply chain dashboards are a management tool that are interfaced with all provincial health information systems and consolidate supply chain, services, and demographics data into a single platform at the district level. The objective of a district supply chain dashboard is to provide critical information at the district and sub-district levels. The dashboard would improve visibility, efficiency, accuracy, and timeliness of supply chain function. A team of domain experts will manage the information system.

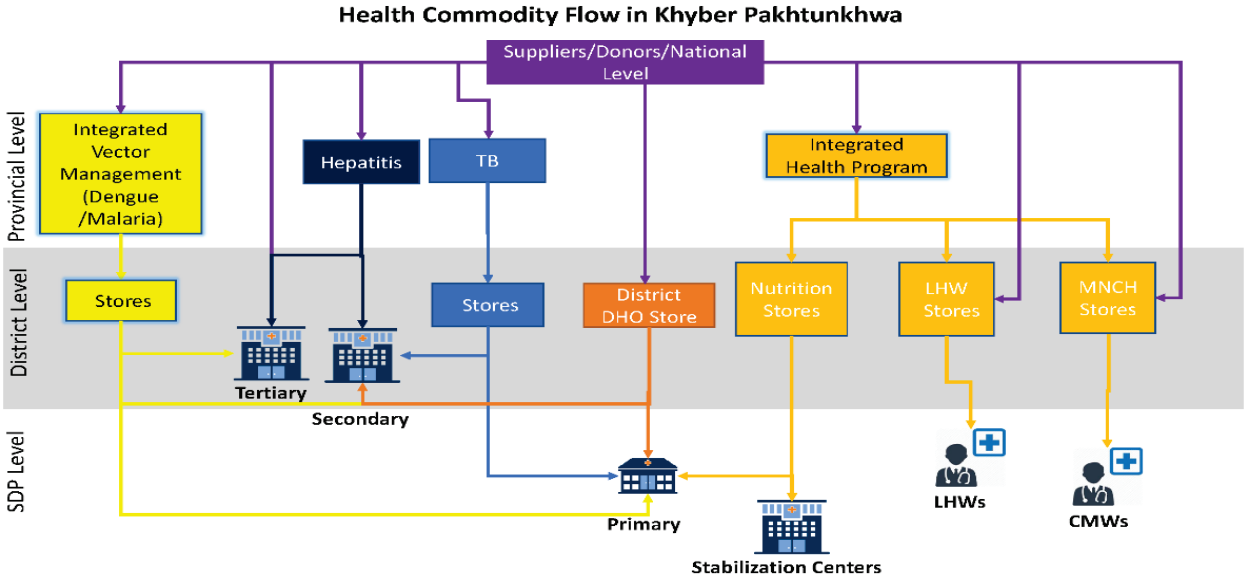


Figure 11: Health commodity flow in province

The district supply chain dashboards will consist of three components; analytical dashboards, inventory and warehouse management, and interfaces with other MISes.

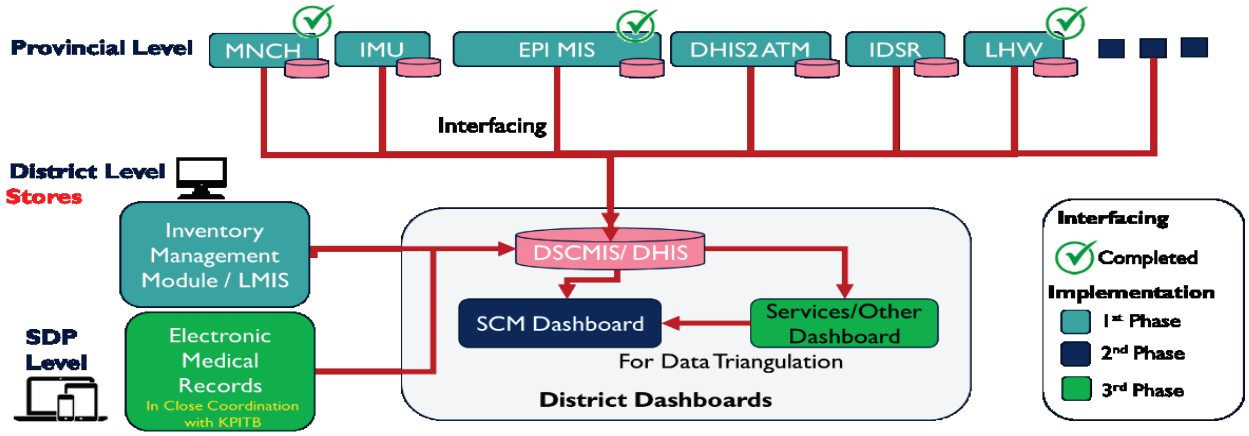


Figure 12: Overall information system architecture in province

The district supply chain dashboard shows stock availability and stock out status at district and sub-district levels and consumption trends for different medicines.

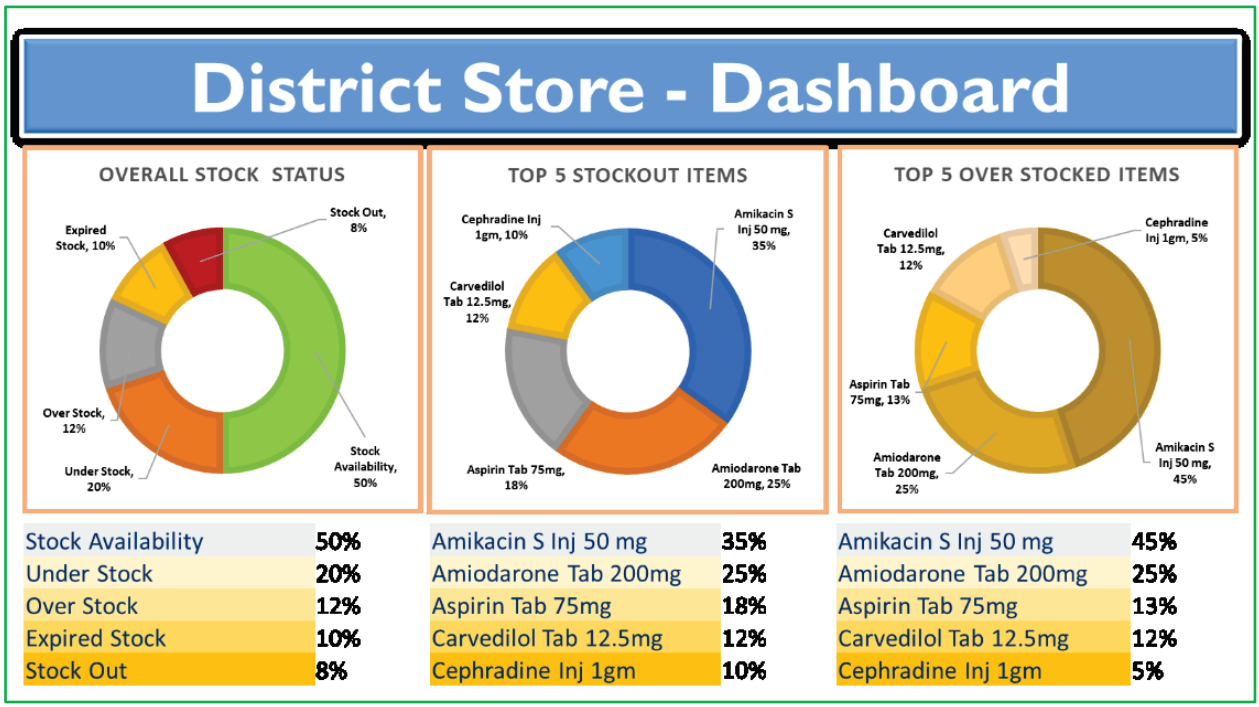


Figure 13: Dashboard District store

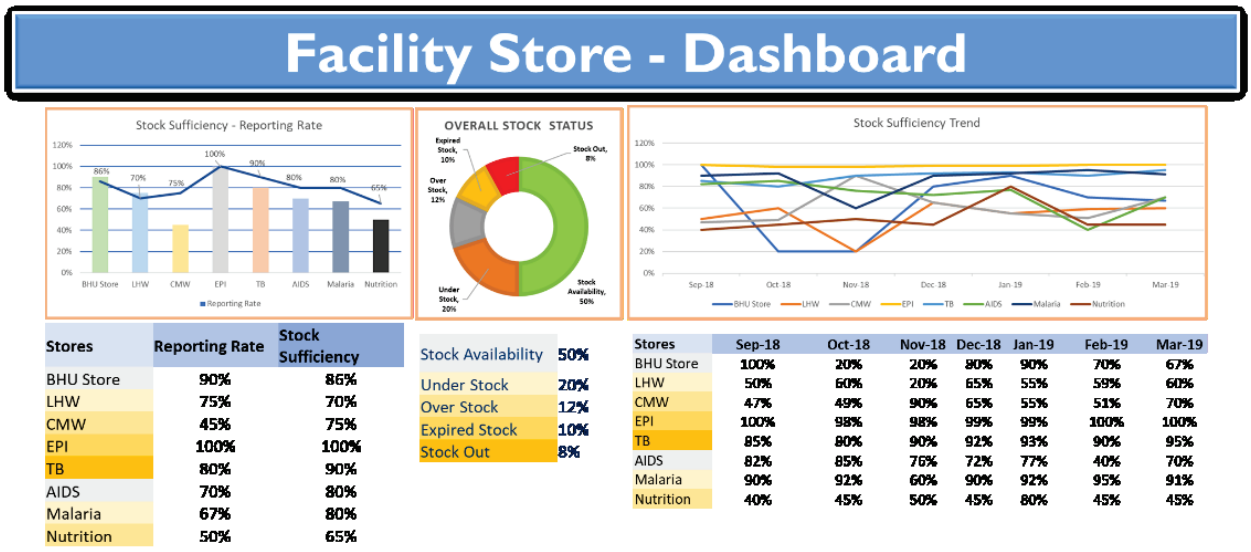
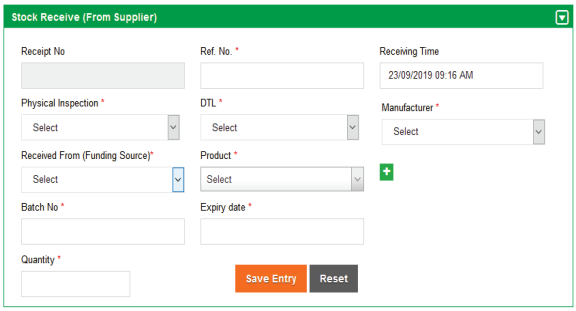


Figure 14: Dashboard Health facility

MIS GUIDELINES AT GLANCE

INVENTORY MANAGEMENT OF HEALTH COMMODITIES
STANDARD OPERATING PROCEDURES



Receiving and incoming data entry

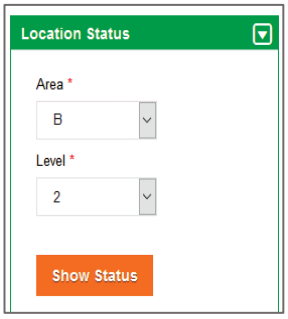
- Enter physical inspection status, reference number, date, drug testing status, funding source, product, batch, expiry and quantity

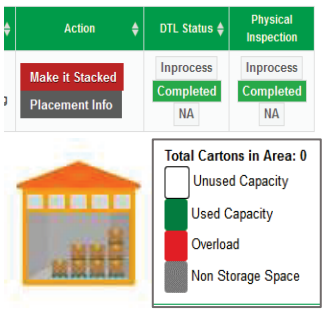
STEP 1

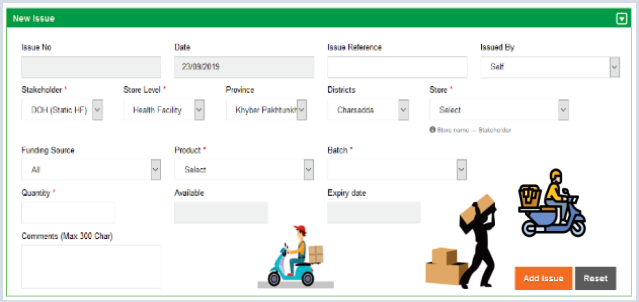
STEP 2

Stock placement & batch management

- Place stock per standard guidelines and First Expiry First Out (FEFO) principle
- Select storage area and shelf level
- Manage stock as per FEFO







Stock issuance & gate pass

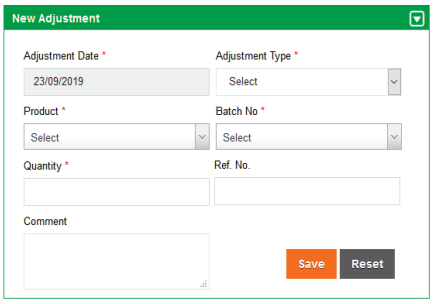
- Identify stock receiving facility
- Select funding source, product, batch and expiry
- Enter quantity as per requisition or AMC
- Pick stock from store
- Dispatch by printing gate pass

STEP 3

STEP 4

Stock adjustments, ledger and expiry dashboards

- Select adjustment type, product, batch, expiry and enter adjusted quantity
- Ledger will provide batchwise and overall running balance for selected product and period
- Expiry dashboard will show the expiry stock



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USAID GLOBAL HEALTH SUPPLY CHAIN PROGRAM

Procurement and Supply Management