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USAID Global Health Supply Chain Program
Procurement and Supply Management

Software Requirements Specification Document

Stock Tracking through Barcode
(Pilot Implementation)

Release: vLMIS R2.6, vLMISApp R1.0

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Revision History

Name	Date	Reason For Changes	Version
Pakistan Field Office	28 MAR 2014	First Draft	1.0
Pakistan Field Office	22 APR 2014	Scenarios added.	1.1
Pakistan Field Office	25 May 2016	Scenarios and use cases updated.	1.2

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1. List of Acronyms

CCEM	Cold Chain Equipment Manager
GOP	Government of Pakistan
HF	Health Facility
ICT	Information Communications Technologies
IM	Inventory Management
IT	Information Technology
JSI	John Snow, Inc.
LMIS	Logistics Management Information System
MIS	Management Information System
MNHRC	Ministry of National Health Services, Regulation and Coordination
MIPC	Ministry of Inter Provincial Coordination
SDP	Service Delivery Point
SOP	Standard Operating Procedure
UC	Union Council
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
vLMIS	Vaccine Logistics Management Application
WHO	World Health Organization

2.   Introduction

2.1   Purpose

This document is a part of Software requirements specifications (SRS) document of Vaccines Logistics Management System (vLMIS) web application and limited to stock tracking through barcode scanner module related requirements. Stock management through barcode scanner module is part of Release 2.6 of vLMIS which will be released by the end of May 2016.

2.2   Document Conventions

- Underlined text is used to emphasize importance.
- If there is an outstanding question related to the requirements, it will be noted in red italics and denoted as a question. For example: *[QUESTION: why is such and such done in so and so way?]*
- If an item is TBD, it is similar noted, but is prefixed with TBD instead. Example:*[TBD: whether such and so field will be dropped]*
- In the Use Cases section, use cases IDs are prefixed with "UC". Example: UC001

2.3   Intended Audience and Reading Suggestions

- This document is intended mainly for developers with parts customers can easily get important information from (system features and use cases).
- This document can also benefit any or all stakeholders and vLMIS project managers
- For more information on GS1 standards please visit
  http://gs1.org
  http://www.gs1.org/docs/gsmp/healthcare/GS1_Healthcare_GTIN_Allocation_Rules.pdf

2.4   Module Scope

Stock management through barcode module will be an enhancement in current vLMIS web application. The purpose of this module is to better management of stock in an EPI store with the introduction of barcode a mean to fast tracking of vaccines and other stock. This module is using an intelligent barcode scanner terminal which enables users to punch manual data too.

Manual data entry enables user to track all stock either with the barcode or without barcode. Mandatory bar-coding may be hinder the availability of vaccines with right packing, which is not in the favor of country in current highly demand of vaccines scenario.

It will use database to store information about products' batch and expiry information in the barcode along packing volume information in liters. It will help the staff to manage their supplies to view and enter the storage location data with respect to available space in the cold chain.

Initially this module pilot implementation will be used in National and Provincial EPI stores and it will allow following functions:-

   a. **Make it possible for store keepers to do receive data entry** directly into vLMIS from EPI store floor by using internet connectivity. Barcode Scanner terminal based data entry of stock data enables store keeper to store placement data into terminals. This data will be uploaded when terminal will find internet connectivity.

   b. **Make it possible for store keepers to enter issue picking information** directly into vLMIS from EPI store floor by using Barcode Scanner terminal based data entry screens. This data will be uploaded when terminal will find internet connectivity.

   c. **Make it possible for store keepers to transfer stock from one cold chain location to another** by using Barcode Scanner terminal based data entry screens. This data will be uploaded when terminal will find internet connectivity.

   d. **Make it possible for store keepers to search batches of the stock in location or vice versa** by using Barcode Scanner terminal based informatory screens. The barcode terminal keeps track of location locally and requires internet connectivity.

   e. **Make it possible for store keepers to update VVM stage of a particular placed in a particular cold chain location** using Barcode Scanner terminal base data entry screens.

3.   Overall Description

The information of stock present on different locations of an EPI store is very important in effective Inventory management system, this not only ensures FIRST EXPIRYFIRST OUT (FEFO) but also efficient operations during Stock receiving and issuance. The basic purpose of the Stock tracking through barcode scanner is effective location management so that one can easily place and pick stock in an EPI store.

This implementation of a vLMIS along with automated data collection through bar-coding will give increases in accuracy and provides help in more organized storage which may result in increased storage capacity.

The setup requirements of this module can be extensive. The characteristics of each product and location must be maintained with details. The detail product characteristics would include exact dimensions of each item in each unit of measure the item is stocked as well as information such as whether it can be mixed with other items in a location, like max quantity per location, vaccines versus syringes, Routine versus campaign stock, etc.

Manufacturers are adopting barcode on vaccines packing and adopting GS1 standards. GS1 and its Member Organizations in over 100 countries is the official source for barcode numbers. GS1 bar codes identify items in the supply chain and are used in all industry sectors including retail, manufacturing and healthcare. GS1 ensures that the bar code numbers are unique against all other numbers and will be registered in the GS1 Global Trade Item Number Registry, GEPIR.

3.1 GS1 Standards

Every year, families around the world spend thousands of dollars (or Euros, or any of hundreds of other currencies) at the supermarket – and almost all of that spending is registered thanks to the "beep" of a barcode passing through a scanner. We all have so much faith in barcodes that we implicitly trust that "beep" to send the correct price and product information to the cashier, and indeed that trust is very well deserved, because the reliability and security of the GS1 Barcodes on the items in your shopping caddy is beyond reproach.

In order to get their products to supermarket's shelves, most companies use not only GS1 Barcodes, but also a variety of other elements of the GS1 System: other GS1 Data Carriers like GS1 Data Bar or an EPC/RFID tag, GS1Identification Keys, GS1 Communication Standards.

The GS1 System of Standards is global, robust, multi- sector, user-driven, and scalable; and it is used and endorsed by millions of companies. Companies and organizations in the retail supply chain, in the healthcare sector and in many other industries and sectors can manage their day-to-day business with the same feeling of reliability and efficiency as that barcode "beep" produces in consumers at the supermarket checkout.

3.1.1 The Roles Standards Play

Well-designed supply chain standards play a very important role in day-to-day business operations: They reduce complexity between and within organizations. Standards facilitate collaboration between trading partners in the supply chain, making it quicker and easier to identify items, share information (like order quantities, availability, or specific characteristics), order and receive stock from suppliers, or ship healthcare goods to patients. They help improve patient safety and reduce medication errors. They enable global traceability and authentication. They improve efficiency.

Well-designed standards are more important than ever before in the context of today's challenging economy, because they are the foundation for clear, understandable exchanges that keep costs down for everyone by reducing complexity. With proper standards, the logistics of international supply chains are more efficient, more sustainable, and more profitable.GS1 creates and manages a proper and well- designed system of standards for the global supply chain.

3.1.2   Why Choose the GS1 System of Standards

Some organizations develop their own proprietary identification, classification and data capture systems. Others use standards that are only functional within the confines of one single industry sector, or one single country.

The GS1 System of Standards is a much better choice, however, because it is global, robust, multi-sector, user- generated, and scalable.

3.1.2.1 *Global*

No matter where in the world supplier or distributor or consumer – is based, GS1 standards will function perfectly there. The GS1 System of Standards is truly global.

3.1.2.2 *Robust*

GS1 Identification Keys are of a fixed length, and all benefit from a "check digit" which helps prevent accidental key stroke errors; GS1 Data Carriers are best-in-class with highly reliable first-time read rates.

3.1.2.3 *Multi-sector*

GS1 standards work within organizations and outside of it too and GS1 System of Standards has been endorsed by a wide variety of industries, organizations and trade associations. The global healthcare sector is widely adopting GS1 standards, and a number of national Ministries of Health has regulated their use. Similarly, a Memorandum of Understanding has been signed with the World Customs Organization, which recognizes in GS1 a true partner and ally in its efforts to protect borders. Furthermore, for many years, GS1 and GS1 Member Organizations have been actively engaged in UN/CEFACT, the United Nations Centre for Trade Facilitation and Electronic Business; and GS1 has also had a long and fruitful working relationship with ISO, the International Organization for Standardization.

3.1.2.4 *User-generated*

All GS1 standards are built and maintained through the GS1 Global Standards Management Process (GSMP), a worldwide collaborative forum. The GSMP is an open and transparent process which brings together volunteers from all industries and from everywhere in the world to identify needs for standards, gather business requirements, document best practices, obtain consensus on solutions, and then develop and implement the resulting supply chain standards.

3.1.2.5 Scalable

GS1 System of Standards is perfectly suited to all organizations either with one single product or hundreds. Even, a small or specialized organization may use GS1 System, because it's eminently scalable. No matter what the future holds for the organization – an expansion of line of products or services, an extension into new geographies, an acquisition or a merger – with the GS1 System, it is ready.

3.1.2.6 The better choice

For more than 30 years, GS1's voluntary standards have been providing a framework that ensures effective exchanges between organizations or companies and act as basic guidelines that facilitate interoperability and provide structure to many industries. GS1 standards are used today by more than a million companies in dozens of sectors including healthcare, transportation and logistics, chemicals, high tech – and the retail supply chain.

3.1.3   How GS1 Standards are made

Since 2002, the Global Standards Management Process, or GSMP, has been the pre-eminent worldwide collaborative forum where all GS1 standards are built and maintained by a community of users. In 2008, the GSMP combined with the EPC global Joint Action Group (JAG) to become the single standards development forum for all of GS1. This new GSMP is the engine that powers the entire GS1 System of Standards. It is an open and transparent process made possible by the participation of companies who wish to improve the efficiency of supply chains.

Building standards that truly improve supply chain efficiency is a collaborative effort requiring participation from a wide range of stakeholders. The GSMP brings together users from all industries and from everywhere in the world to identify needs for standards, gather business requirements, document best practices, obtain consensus on solutions and then develop and implement the resulting supply chain standards.

User involvement is the basis of the GSMP work is accomplished via a committee structure that allows GS1 users to participate in the way that brings the most value to their organization in the most efficient manner. The GSMP's membership is a richly diverse community from around the world, numbering over a thousand individuals from all kinds of organizations, including suppliers, retailers, 3PLs, solution providers, purchasing organizations, healthcare providers, and more. In the last six years, the GSMP has processed over 1,000 changes which have enhanced the GS1 System and enabled its application and deployment in a myriad of new business contexts.

To properly treat these requests, the GSMP uses a methodology that guarantees a robust, stable and timely solution at the end of the production chain.

3.1.4 GS1 Automatic Identification Standards

GS1 Automatic Identification Standards are themselves composed of several elements i.e. GS1 Identification (ID) Keys.GS1 ID Keys are specially designed to work with the GS1 Data Carriers i.e. GS1 Bar Codes. GS1 Identification Keys are used to name and distinguish any object, thing or location, so interested parties can get information or business messages related to them.

The main GS1 ID Key is GTIN – Global Trade Item Number

3.1.4.1 Global Trade Item Number (GTIN)

The Global Trade Item Number, or GTIN, is one of the main building blocks of the GS1 System. GTIN is used to uniquely identify trade items, which are products and services that are priced, ordered or invoiced at any point in the supply chain, whether at the checkout, in a EPI store, in an electronic catalogue or elsewhere. Each trade item that is different from another is allocated its own separate GTIN.

By joining a GS1 Member Organization the company receives a GS1 Company Prefix which gives the company the ability to create GTINs and access to the GS1 standards. The GS1 System is designed to be used in any industry or any part of the public sector so that an individual company can select to allocate GTINs using a GS1 Company Prefix from the GS1 Member Organization of their choice. However, some Regulators impose mandatory local requirements on the use of GTIN within their jurisdiction. Attributes such as Batch Number, Expiration Date, Serial Number, etc. add value to the product when combined with the GTIN in a GS1 bar code using the GS1 Application Identifiers. Their use enables tracking& tracing systems and can contribute to improving patient safety.

Within the GS1 System the following attributes may only be used in association with a GTIN.

Batch Number

A Batch Number (Application Identifier (10)) is typically assigned at the point of manufacture using, for example, a production lot number, a shift number, a machine number, a time, or an internal production code. The data is alphanumeric and length is variable up to 20 alphanumeric characters.

Expiration Date

An Expiration Date (Application Identifier (17)) is often referred to as expiry date or maximum durability date and indicates the limit of consumption or use of a product (e.g., for pharmaceutical products it will indicate the possibility of an indirect health risk resulting from the ineffectiveness of the product after the date). It is always encoded as a fixed length six numeric characters with the structure YYMMDD where:

- YY= the tens and units of the year (e.g., 2003 = 03).

- MM= the number of the month (e.g., January = 01).

- DD= the number of the day of the relevant month (e.g., second day = 02).

An Expiration Date and Time may also be expressed (Application Identifier (7003)). This structures only used when the exact expiration time is critical to patient safety.

Serial Number

A Serial Number (Application Identifier (21)) is typically used on medical devices that need to be individually tracked and traced (e.g., wheel chairs, pacemakers, MRI scanners).

3.2   User Types

The following actors and responsibilities have been identified as potential users in Stock Tracking through Barcode application.

EPI Store Operators

Level	Actor	Responsibilities
Central /Provincial EPI Store	EPI Store Manager EPI Store Keeper	Stock tracking using vLMIS web and Barcode Scanner application. Stock tracking using Barcode Scanner Application.
System Administrator	Administrator	This user is responsible to add/update/delete products barcode related parameters other data listing information.

4.   Bar-coding Situation on Vaccines in EPI Stores

4.1   GS1-Data Matrix Standard 2D Barcodes

Some Vaccine has GS1-Data Matrix standard 2D barcodes.

Given below barcode result after scanning
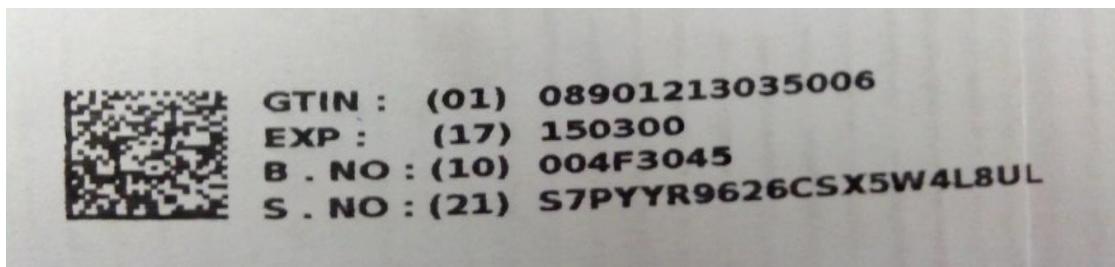
0108901213035006171503001 0004F304521S7PYYR9626CSX5W4L8UL

3rdto16th Character: GTIN 08901213035006

19th to 25thCharacter: Expiry date150300
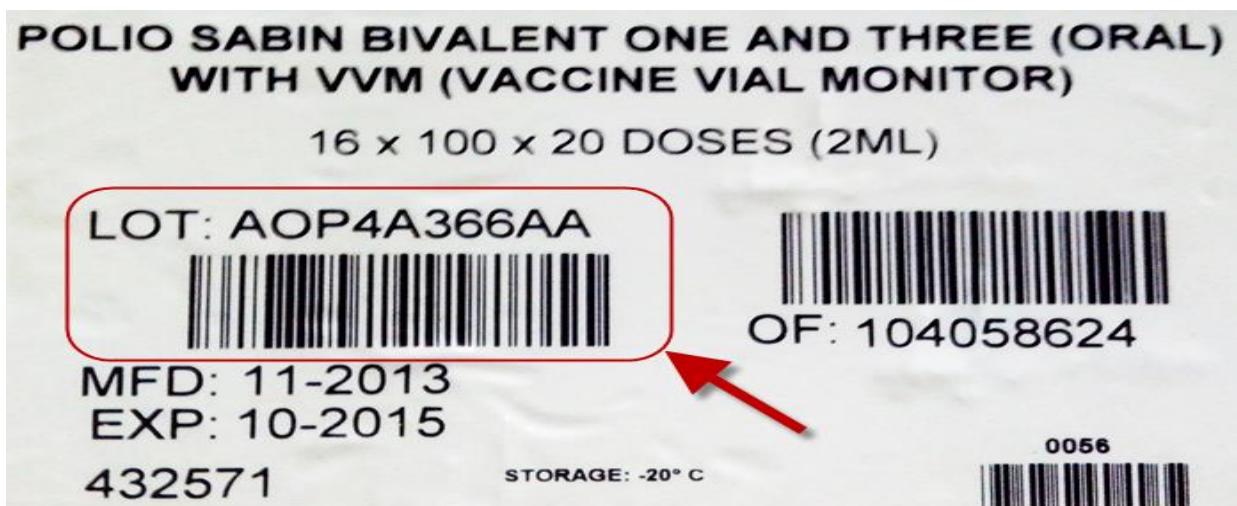
27thto35^{h}Character: Batch No. 004F3045

38th Character to end: Serial Number: S7PYYR9626CSX5W4L8UL
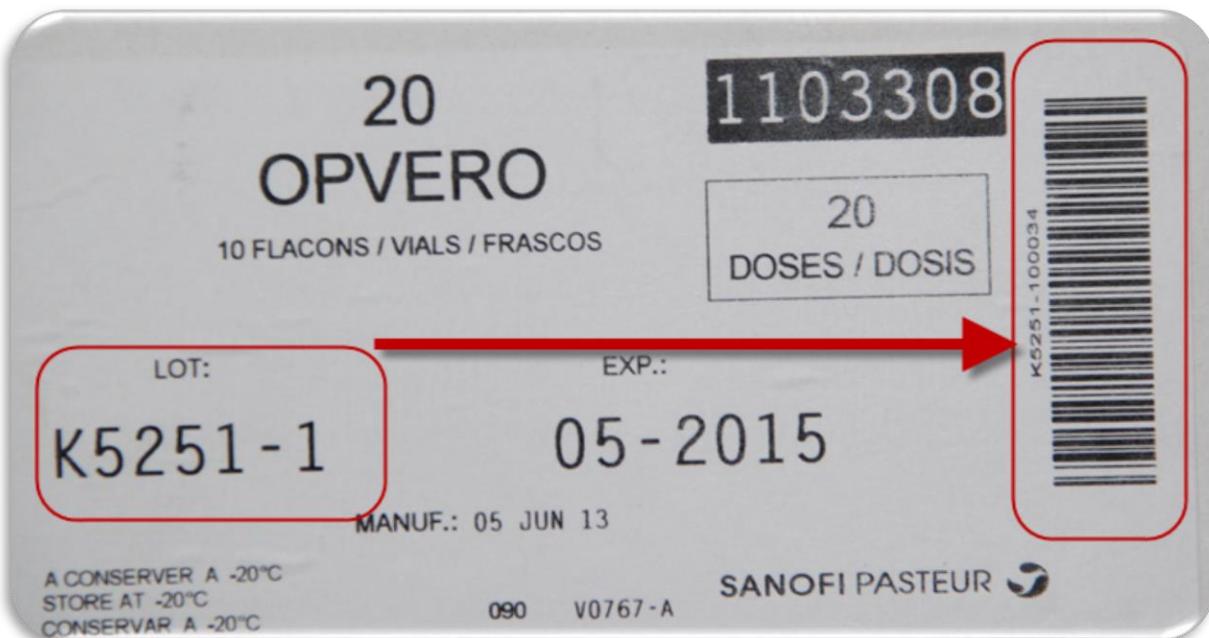
4.2 1D Non-GS1 or Standard Barcodes

Some vaccines packages contain Batch No. & Expiry Date as Non-GS1 or standard barcodes.
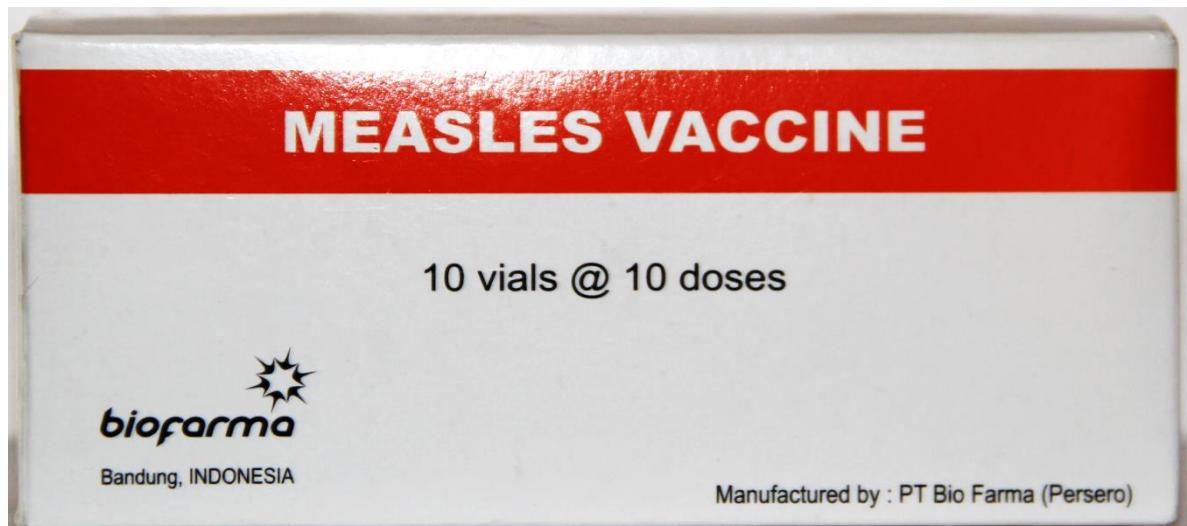
Some vaccines packages contain Batch/Lot No as Non-GS1 or standard barcodes
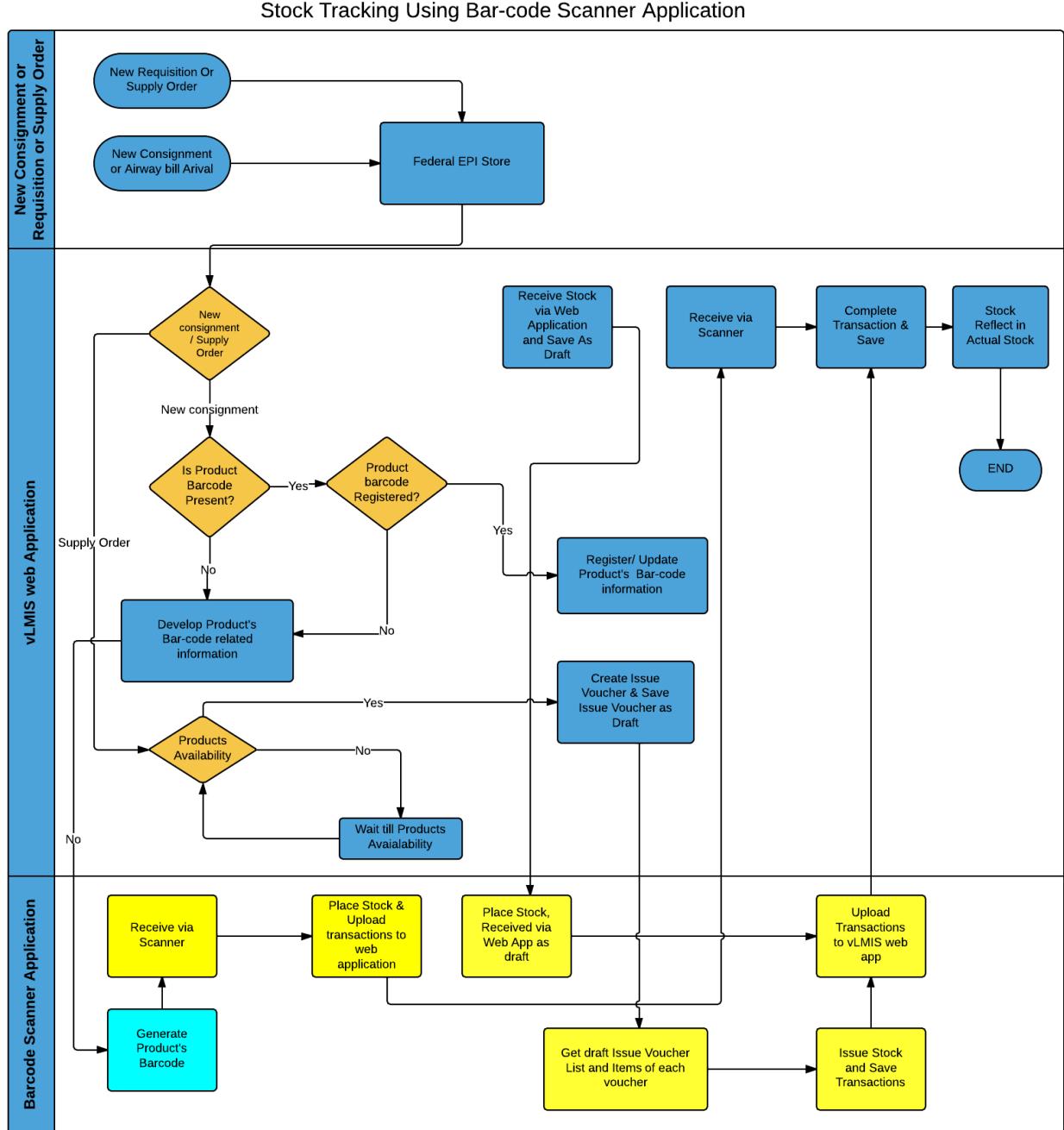
4.3   No Barcodes

Some vaccines packages do not contains any barcodes.

5. Stock Tracking Through Barcode Over All Process

Stock Tracking Using Bar-code Scanner Application

6.   Barcode Scanner Application

6.1   Functional Requirements

Actually there are **TWO** parts of **Stock Tracking Using Barcode Scanner** application, one part will be performed using **vLMIS web Application** and other part will be performed using **Barcode Scanner application (vLMIS App).**

6.1.1   Registration & Login

User will be able register him/her self and then will be able to login into barcode scanner application by selecting his respective store and password.

6.1.2   Receive & Place

User will be able to receive stock using vLMIS web application and later will be able to place received stock using barcode scanner application at a location within the warehouse / store. User will be able to get pipeline shipment voucher batches and will place each batch one by one by scanning location and scanning batch no with specific quantity and then will be able to upload placement information to live vLMIS web application when internet connectivity is available.

6.1.3   Issue & Picking

Users will be able to generate issue voucher using vLMIS web-based application and later will able to pick stock using barcode scanner application, where user will get unpicked vouchers and batches list and user will able to pick each batch by scanning location and batch no with specific quantity and later will be able to upload stock pick related information to live vLMIS web application when internet connectivity is available.

6.1.4   Place & Pick

Enable user to add stock place or pick (open placement) information by scanning location and batch no with specific quantity for placement or picking then later this information will be uploaded to live vLMIS web application when internet connectivity is available.

6.1.5   Internal Transfer

Enable user to transfer stock from one location to another location and then later that information will be uploaded to live vLMIS web application when internet connectivity is available.

6.1.6   Update VVM Stage

Enable user to update VVM stage of any batch by scanning location and batch and then later that information will be uploaded to live vLMIS web based application.

6.1.7   Search Batch

User will be able to search any batch placement information using barcode scanner application by scanning batch no. All placements of the scanned batch will be listed with location and quantity information.

6.1.8   Search Products

User will be able to search any product placement information using barcode scanner application by scanning location. All products batches placed at the specific location will be listed with quantity.

6.1.9 Location Status

6.1.10 Products Registration with Barcode Information

To identify the batch number and expiry date in barcode and also determine the number of units of the products of a particular packing along its volume occupied in a placement place, user will be able to register products information in vLMIS web based application, later that information will be used in barcode scanner application (vLMIS App).

7. Use Cases

A use case shows a user and a computerized system interacting to reach a goal. Use cases are meant to be read by a potentially wide range of team members and are therefore written in text prose, unaccompanied by technical symbols or notations. Use cases answer the question:

The following use cases are based on possible scenarios that may be encountered in the Stock Tracking through Barcode Scanner and vLMIS Web Application system.

7.1 Registration and Login

Use Case ID	UC 001
Level	User-level
Actors	EPI Store Managers or EPI Store Keeper
Goal	User is authenticated to track stock using barcode scanner application.
Pre-Conditions	A user account has been created for the user and login credentials provided to the user for the EPI store stock related operations.
Post-Conditions	User can successfully authenticated to use the barcode scanner application and user login info will be saved, so that next time it should auto load login info.
Stakeholder Interest	User need to login to perform stock placement, picking, Transfer and other stock related operations using barcode scanner application.
Main Success Scenario Steps	1. User navigates the barcode scanner app in the Mobile computer Scanner device. 2. System displays the barcode reader app icon and double clicks the icon. 3. User enters their user name and password. 4. System validates username and password. 5. System provides the actions that user can perform.

Extensions	3a: User or Password not recognized
	    1: System denies access and notifies user of invalid user name or password
	3c: Forgot password
	    1: User to need to contact system administrator for further details about his/her login info.

Special Requirements	Internet access (If login very first time).
Requirements	Reference to corresponding system requirements:6.1.1

7.2   Receive & Place

On arrival of new stock, store manager enters stock details using vLMIS web interface and then store keeper places the received stock a proper location.

Use Case ID	UC 002–1 vLMIS Web Application
Level	EPI store manager user-level
Actors	EPI store manager
Goal	User wants to receive new stock and wants to save it as pipeline shipment until stock is physical received then used will stock placed on proper locations using either Web Interface or Barcode Scanner App.
Pre-Conditions	User can access and login to live vLMIS web application.
Post-Conditions	Pipeline shipment received will be saved in the system.
Stakeholder Interest	Stock receiving using Web Application and Stock Placement using Barcode Scanner application.
Main Success Scenario	1. User Logs in vLMIS web application. 2. User navigates to main menu. 3. User selects **Add Pipeline shipment** option from the main menu. 4. User can enter received stock details from Receive voucher and then can save all transactions by clicking **Save** button. 5. User will get message transactions saved as draft.
Extensions	None
Special Requirements	Live vLMIS web application access.
Requirements	Reference to corresponding system requirements:6.1.2
Notes/Issues	None

Use Case ID	UC 002–2 Barcode Scanner Application
Level	EPI Store keeper User-level
Actors	EPI Store Keeper
Goal	User can get **Stock Received As Draft** transactions list and can place stock on proper location/cold chain.
Pre-Conditions	A user has required working barcode scanner application.
Post-Conditions	Stock placement information will be saved and stock quantity will be reflected in actual stock.
Stakeholder Interest	Quick and accurate stock received as draft placement.
Main Success Scenario	6. User Logs in.
	7. User navigates to main menu.
	8. User selects **Stock Placement** from the menu.
	9. System displays the Stock Placement screen.
	10. In **Select/Enter Receive #**, user can enter the **Stock Receive as Draft** voucher number and transactions against that voucher number will be loaded in the grid.
	11. User double clicks each record from the grid and **Stock Placement # 2** screen will be open.
	12. User scans or selects location.
	13. User enters quantity by default quantity 1 will be placed for the selected batch.
	14. User selects barcode type, If GS1 barcode code type selected user scans product information or user can click select button or in case of Non-GS1 or No Barcode "Select Product Screen" will be displayed and user enters product information manually.
	15. User clicks add button record will be added in grid.
	16. User can perform steps 11 to 14 to place remaining quantity of the selected batch if required.
	17. User press Esc key to close **Stock Placement # 2** screen and **Stock Placement** Screen gird will be updated.
	18. User clicks **Save** button to save transactions and can click **Cancel** button to cancel stock placement transactions.
	19. User can select Upload option from main menu to upload transactions to live vLMIS.
Extensions	None
Special Requirements	Working barcode scanner application.
Requirements	Reference to corresponding system requirements: 6.1
Notes/Issues	None

7.3   Issue & Picking

User wants to Issue stock in two steps first want to create **Stock Issue Voucher** making sure FEFO process of the Stock using Web Application and then wants to issue actual stock against **Stock Issue Voucher** using Barcode Scanner application.

Use Case ID	**UC 004-1 vLMIS Web Application**
Level	EPI store manager user-level
Actors	EPI store manager.
Goal	User wants to issue stock to some other EPI store but ensuring **FEFO** process and wants to generate Stock Issue Voucher using **vLMIS web application**.
Pre-Conditions	Working barcode scanner application.
Post-Conditions	User can successfully pick stock and generate issue voucher used to pick stock using **Barcode Scanner Application**.
Stakeholder Interest	Issue stock to some other EPI store but ensuring **FEFO** process.

Main Success Scenario	1. User Logs in to vLMIS web Application.
	2. User navigates to main menu.
	3. User selects **Issue Stock** from the menu.
	4. Issue Stock form will be displayed.
	5. User fills following fields data
	    • Issue date
	    • Issue Reference
	    • To warehouse
	    • Product
	    • Batch
	    • Quantity
	    • Comments
	6. Use clicks **Add Issue** button to add product in issued product list
	7. User can repeat step 5 to 6 to issue other products.
	8. User clicks **Save** button to save Issuance transaction and issue voucher details.

Extensions	
Special Requirements	User can access live vLMIS web application and have stock availability for issuance.
Requirements	Reference to corresponding system requirements:6.1.3
Notes/Issues	None

User wants to Issue Stock using Barcode Scanner application.

Use Case ID	**UC 004-2 Barcode Scanner Application**

Level	EPI Store keeper user level.
Actors	EPI store Keeper
Goal	To issue stock against Issue Voucher number.
Pre-Conditions	Working barcode scanner application.
Post-Conditions	User can successfully pick stock as per issue voucher using barcode scanner application.
Stakeholder Interest	Quick and accurate stock tracking.
Main Success Scenario	9. User log in to Barcode Scanner Application. 10. User navigates to main menu. 11. User selects **Stock Picking** from the menu. 12. Stock Picking Screen will be displayed. 13. All unpicked issue voucher list will be listed in Issue # drop down list. 14. All sub transactions against selected issue voucher number will be listed in the grid. 15. User selects each record from grid and double clicks to open next "**Stock Picking Screen**". 16. User scans or selects cold chain location where product need be picked. 17. User selects barcode type, If GS1 barcode code type selected user scans product information or user can click select button or in case of Non-GS1 or No Barcode "Select Product Screen" will be displayed and user enters product information manually. 18. User enters quantity to be issued. 19. User clicks add button to add issued product in list. 20. User press **Esc** key to close **Stock Picking** screen and previous **Stock Picking** screen grid will be updated. 21. User clicks **Save** button to save and complete Stock Issuance process. 22. User can select **Upload** option from main menu to Upload stock issuance transactions.
Extensions	
Special Requirements	Working Barcode Scanner application.
Requirements	Reference to corresponding system requirements:6.1.3
Notes/Issues	None

7.4   Place & Pick

Use Case ID	UC 004
Level	EPI Store keeper user level.
Actors	EPI store Keeper
Goal	User can place or pick stock to/from any location.
Pre-Conditions	Working Barcode Scanner application.
Post-Conditions	User can successfully place or pick stock from/to any location.
Stakeholder Interest	Efficient Stock placement within warehouse/store.
Main Success Scenario	1. User logs in **Barcode Scanner Application**. 2. User navigates to main menu. 3. User selects **Place & Pick** option from main menu. 4. **Stock Placement & Picking** screen will be displayed. 5. User selects **Place Stock** or **Pick Stock** option. 6. Use scans or enters location to/from where stock need to place or pick. 7. User scans or enters batch number. 8. User enters quantity to be placed or picked. 9. User can click add button to add record in grid. 10. User can perform step 5 to 8 to place or pick stock 11. User can click delete button if placed or picked stock entry need to be removed from grid. 12. User can click upload button to upload stock placement or picking information. 13. User clicks close button to close **Stock Placement & Picking** screen**.**
Extensions	None
Special Requirements	Working Barcode Scanner Application.
Requirements	Reference to corresponding system requirements:6.1.4
Notes/Issues	None

User wants to place or pick stock using barcode scanner application.

Use Case ID	UC 004-2 Barcode Scanner Application
Level	EPI Store keeper user level.
Actors	EPI store Keeper
Goal	To issue stock against Issue Voucher number.
Pre-Conditions	Working barcode scanner application.
Post-Conditions	User can successfully pick stock as per issue voucher using barcode scanner application.
Stakeholder Interest	Quick and accurate stock tracking.
Main Success Scenario	23. User log in to Barcode Scanner Application. 24. User navigates to main menu. 25. User selects **Stock Picking** from the menu. 26. Stock Picking Screen will be displayed. 27. All unpicked issue voucher list will be listed in Issue # drop down list. 28. All sub transactions against selected issue voucher number will be listed in the grid. 29. User selects each record from grid and double clicks to open "**Stock Picking Screen # 2**". 30. User scans or selects cold chain location where product need be picked. 31. User selects barcode type, If GS1 barcode code type selected user scans product information or user can click select button or in case of Non-GS1 or No Barcode "Select Product Screen" will be displayed and user enters product information manually. 32. User enters quantity to be issued. 33. User clicks add button to add issued product in list. 34. User press **Esc** key to close **Stock Picking # 2** screen and **Stock Picking** screen grid will be updated. 35. User clicks **Save** button to save and complete Stock Issuance process. 36. User can select **Upload** option from main menu to Upload stock issuance transactions.
Extensions	
Special Requirements	Working Barcode Scanner application.
Requirements	Reference to corresponding system requirements:6.3
Notes/Issues	None

7.5 Internal Transfer

Use Case ID	UC 005
Level	EPI store keeper user level
Actors	EPI store keeper
Goal	User can transfer stock from one location to another location within EPI store.
Pre-Conditions	Working Barcode Scanner application.
Post-Conditions	User can successfully transfer stock from one location to another location within EPI store.
Stakeholder Interest	Efficient Stock placement within EPI store.
Main Success Scenario	1. User logs in **Barcode Scanner Application**. 2. User navigates to main menu. 3. User selects **Stock Internal Transfer** option from main menu. 4. **Stock Internal Transfer** screen will be displayed. 5. Use scans/selects source location. 6. User scans/select batch. 7. User enters quantity to transfer by default 1 quantity will be added. 8. User scans/selects target location. 9. Record will be added in grid. 10. User can perform step 5 to 8 to transfer stock internally from one location to another location. 11. User clicks save button to save Stock Internal Transfer transactions. 12. User selects **Upload** option from main menu to upload stock internal transfer transactions. 13. User presses **Esc** to close **Stock Internal Transfer** screen**.**
Extensions	None
Special Requirements	Working Barcode Scanner Application.
Requirements	Reference to corresponding system requirements:6.1.5
Notes/Issues	None

7.6   Update VVM Stage

User wants to update VVM stage of a particular batch on particular location.

Use Case ID	UC 006
Level	EPI store keeper user level
Actors	EPI store manager/EPI store keeper
Goal	User can update VVM stage of a particular batch on particular location within EPI store.
Pre-Conditions	Working Barcode Scanner application.
Post-Conditions	User can successfully VVM stage of a particular product batch placed on a particular location.
Stakeholder Interest	User wants to update VVM stage of products using Barcode Scanner application.
Main Success Scenario	1. User log in Barcode Scanner Application. 2. User navigates to main menu. 3. User selects **VVM Stage** from the main menu. 4. **Batch VVM Stage** screen will be open. 5. User enters or selects Batch No and press Enter key to search. 6. All locations will be listed in the grid where the selected batch found with VVM stage drop down. 7. User updates VVM stage. 8. Use clicks **Save** button to save VVM stage related changes. 9. User can select **Upload** option from main menu to upload VVM stage related changes. 10. User presses **Esc** key to close **Batch VVM Stage Screen**.
Extensions	None
Special Requirements	Barcode Scanner Application
Requirements	Reference to corresponding system requirements:6.1.6
Notes/Issues	None

7.7   Locations Status

User wants to see the locations status i.e. which products placed at which location.

Use Case ID	UC 007
Level	EPI store manager/EPI storekeeper user level.
Actors	EPI store keeper
Goal	User can see the locations capacity status in terms of filled and available space in percentage
Pre-Conditions	Working Barcode Scanner application.
Post-Conditions	User can successfully view locations status to check the filled and available space in any particular location.
Stakeholder Interest	Get the current space availability in a store in different locations.
Main Success Scenario	1. User logs in Barcode Scanner Application. 2. User navigates to main menu. 3. User clicks **Locations Status** option from main menu. 4. **Locations Status** screen will be displayed having locations status in terms of filled percentage. 5. User can press **Esc** key or Cancel button to close **Locations Status** Screen.
Extensions	None
Special Requirements	Working Barcode Scanner application.
Requirements	Reference to corresponding system requirements:6.1.9
Notes/Issues	None

7.8   Search – Batch

User wants to see on which locations a particular batch is placed.

Use Case ID	UC 008
Level	EPI store manager/EPI store keeper user level.
Actors	EPI store manager/EPI store keeper
Goal	User can perform search a particular Batch locations of a product.
Pre-Conditions	Working Barcode scanner application.
Post-Conditions	User can successfully see the selected batch locations.
Stakeholder Interest	To Search Batch locations to make Place and Pick process more efficient.
Main Success Scenario	1. User log in Barcode Scanner Application. 2. User navigates to main menu. 3. User clicks **Search Batch** from main menu. 4. System displays **Batch Locations** screen. 5. User Enters or selects Batch no and press enter key to search. 6. All locations list will be loaded in the grid. 7. User can press **Esc** key to click to **Cancel** button to close Search Batch Screen.
Extensions	None
Special Requirements	Working Barcode scanner application.
Requirements	Reference to corresponding system requirements:6.1.7
Notes/Issues	None

7.9   Search Products

User wants to see on which products are placed on a particular location within EPI store.

Use Case ID	UC 009
Level	EPI store manager/EPI store keeper user level.
Actors	EPI store manager/EPI store keeper
Goal	User can Search particular location products that are placed on that location within EPI store.
Pre-Conditions	Working Barcode scanner application.
Post-Conditions	User can successfully see the selected batch locations.
Stakeholder Interest	To Search Batch locations to make Place and Pick process more efficient.
Main Success Scenario	1. User log in **Barcode Scanner Application**. 2. User navigates to main menu. 3. User clicks **Search Product** from main menu. 4. System displays **Location Products** screen. 5. User scans or selects **Location** and press enter key to search. 6. All products that are placed on the selected location will be loaded in the grid. 7. User can press **Esc** key or clicks to **Cancel** button to close **Location Products** Screen.
Extensions	None
Special Requirements	Barcode scanner application.
Requirements	Reference to corresponding system requirements:6.1.8
Notes/Issues	None

7.10 Upload Transactions to vLMIS

User wants to upload all offline transactions performed using Barcode scanner application to live vLMIS web application.

Use Case ID	UC 010
Level	EPI store manager/EPI store keeper user level.
Actors	EPI store manager /EPI store keeper
Goal	User can upload offline transactions performed using barcode scanner application to live vLMIS web application.
Pre-Conditions	Working Barcode Scanner Application, Internet connectivity.
Post-Conditions	User can successfully upload offline transactions to online vLMIS web application.
Stakeholder Interest	User want to upload stock tracking related operations performed using Barcode Scanner Application.
Main Success Scenario	1. User logs in Barcode Scanner application. 2. User navigates to main menu. 3. User clicks **Upload** option from main menu. 4. System displays **upload to vLMIS** screen. 5. User can select transactions from grid and click **upload** button to upload transactions.
Extensions	a.* At any time, due to loss of Internet connection, transaction uploading can be failed, but user can upload remaining transactions later when internet connection is available.
Special Requirements	Working Barcode Scanner Application, Internet Connectivity.
Requirements	Reference to corresponding system requirements: 6.1.2 to 6.1.9
Notes/Issues	None

7.11 Registration of Product's barcode Information using vLMIS Web application

User wants to register products and its barcode related information only once so that later that information can be used to track stock using Barcode Scanner application.

Use Case ID	UC 011
Level	Administrator level
Actors	Administrator
Goal	Administrator can add/update barcode and pack size related information of the product.
Pre-Conditions	User must know about the product and its Barcode and pack size related information if available.
Post-Conditions	User can successfully enter the information about the barcode related product and it's packing.
Stakeholder Interest	Barcode information of products can be used for efficient stock tracking using Barcode Scanner application.
Main Success Scenario	1. Administrator Logs in to live vLMIS web application. 2. User navigates to main menu. 3. User clicks **Product Barcode Information** link from the menu. 4. **Product Barcode Information** form will appear 5. Administrator select the product 6. Administrator will add pack size name 7. Administrator will add its dimensions 8. Administrator will add GS1 Data Matrix barcodes information.
Special Requirements	Internet connectivity.
Requirements	Reference to corresponding system requirements:6.1.10
Notes/Issues	None