

Inventory Module: An Application of World Wide Web for Effective Vaccine Management in Sri Lanka

WEB BASED IMMUNIZATION INFORMATION SYSTEM

WEBIIS

Dr. Chathura S Edirisuriya

Username :

Password :

Login Reset

Background

- EPI, Sri Lanka is a strong performer in the region as well as globally
- EPI is the main provider of immunization services in the country
- However, private sector involvement in immunization is increasing and expanding , particularly in larger cities

Background

- Present Immunization Management Information System is a paper based system
- **e-Government** and **e-Health** policies of Sri Lanka for public services lead the development of WEBIIS

What is Web Based Immunization Information System (WEBIIS)?

- WEBIIS is a web based comprehensive software solution for online Immunization Data Management which covers
 - Birth Registration
 - Immunization tracking
 - **Inventory management**
 - Report generation
- Developed from scratch using open source software

Why Was WEBIIS Developed?



Sri Lanka EVM assessment
9 – 30 May 2012
Findings and recommendations
of the assessment team
Draft 3 (30 May 2012)



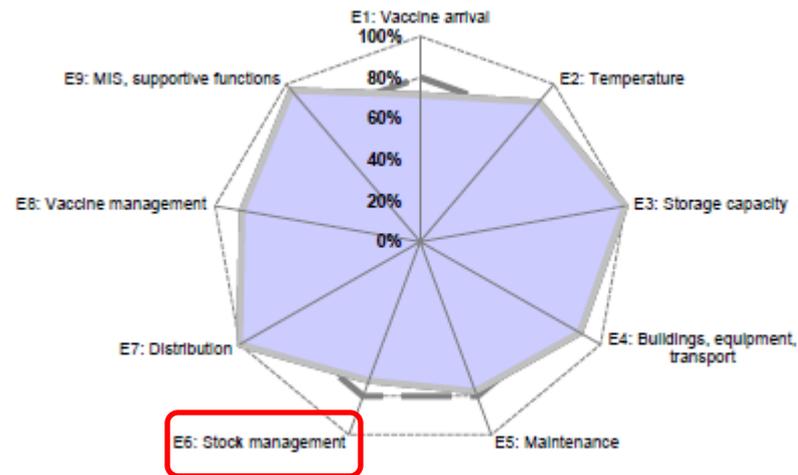
Sri Lanka EVM Report

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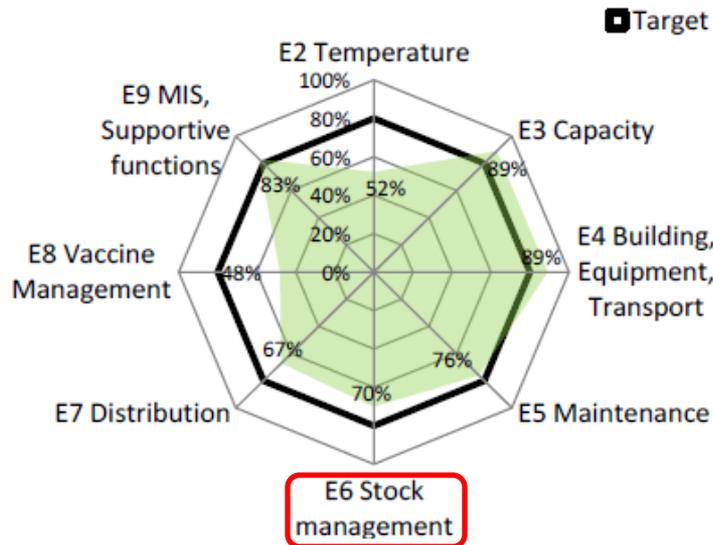
May 2012

- **Immunization is a top health priority.**
 - Data storage for extended period
 - Immunization certificate without delay
 - Upgrade the current IMIS with data quality improvements
- **Expanding private sector immunization service**
 - Wide range data capture with favourable approach
- **EVM Assessment 2012, recommends**
 - Computer based inventory system
 - Record VVM status at issuing and receiving points
 - Wastage calculation at all levels
 - Diluent registration
 - Quantified minimum and maximum levels for each vaccine

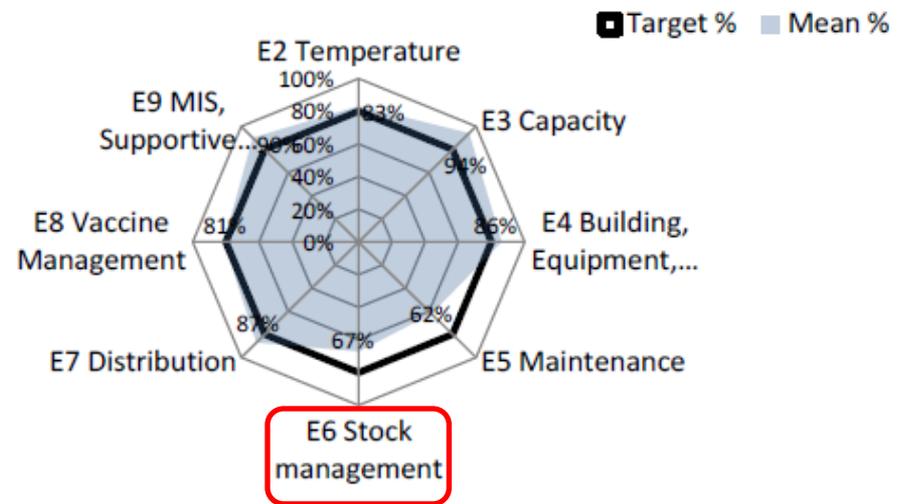
2012 SL EVM Assessment Summary



Primary Level: Epid Unit

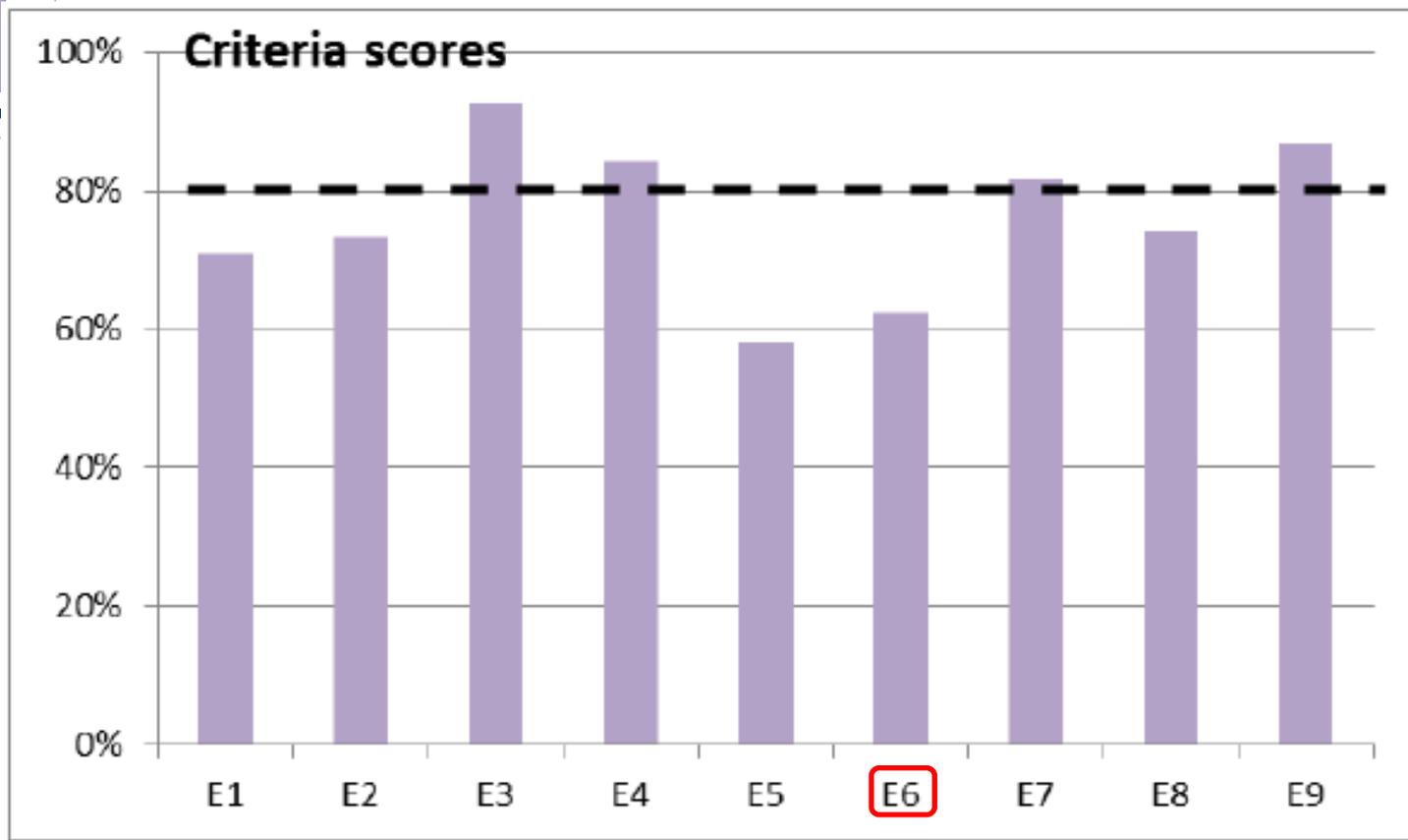
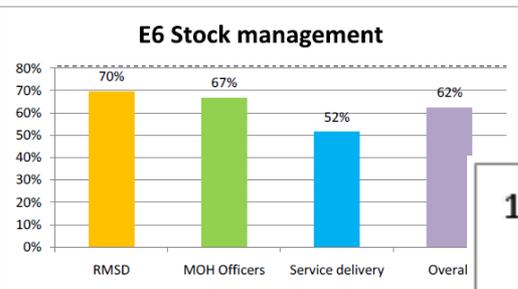


Sub National: RMSD



Lowest delivery level: MOH

EVM Assessment 2012: Overall and Stock management results



Inventory Module of the WEBIIS

- Customized to address the problems identified in the EVM assessment 2012
- Started piloting at three different levels
 - Primary (Central Vaccine Store)
 - Sub national (Regional Vaccine Stores)
 - Lowest delivery level (MOH)

HIGHLIGHTS OF THE SYSTEM

Home Page of the WEBIIS

WEBIIS
WEB BASED IMMUNIZATION INFORMATION SYSTEM

Master | Child | Inventory | Staffing | Immunization | Aggregation | Sync | Reports | Chathura Somawansa Edirisuriya

Notice Board

WEB BASED IMMUNIZATION INFORMATION SYSTEM

NOTICE-BOARD

Now two identification numbers are generated in birth registration. 1. HIN (Health Identification Number) 2. PHN (Personal Health Number). Please record both numbers in the birth registry as well as H512 card

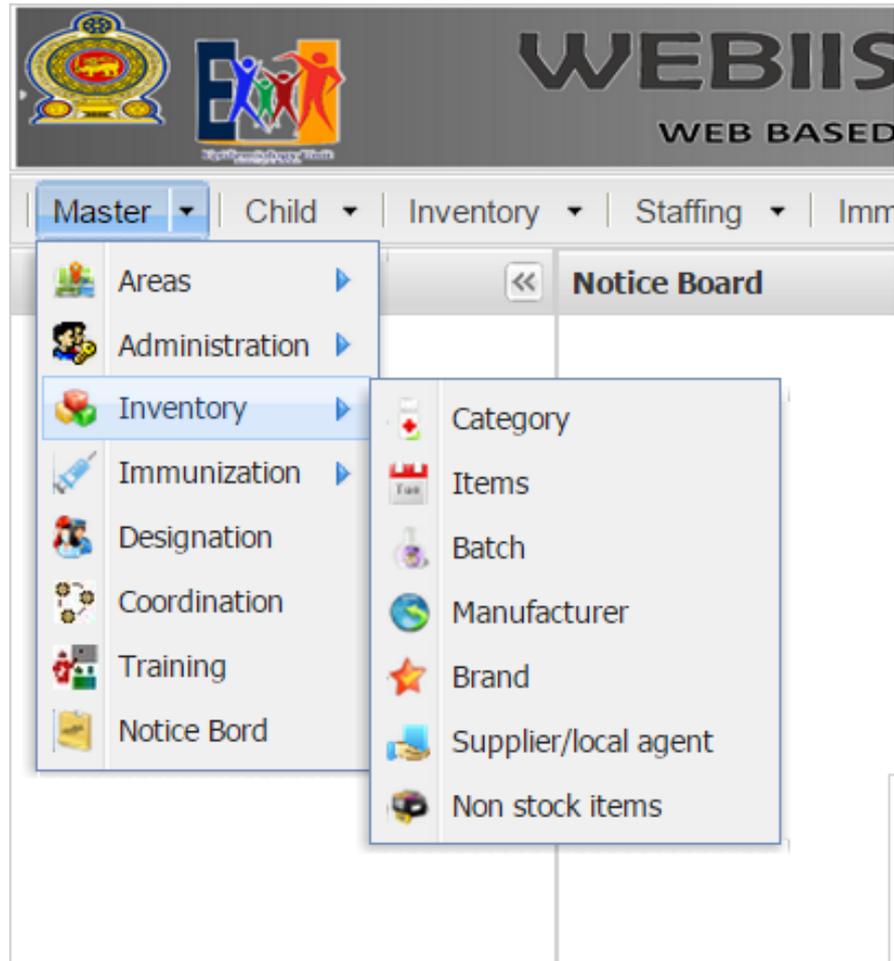
Notifications

Approvals

Reference #

Other

Master Inventory Menu



Adding New Vaccine Batch to the WEBIIS

Master ▾ | Child ▾ | Inventory ▾ | Staffing ▾ | Immunization ▾ | Aggregation ▾

>> **Batch Information**

Item* :	BCG (20 doses)
Batch:	037G4053 - Serum Institute of India Limited
Batch Number* :	037G4053
Batch Type* :	Government
Manufacturer:	Serum Institute of India Limited
Manufacture Date:	2014-05-01
Expiry Date* :	2016-04-30
Batch Status* :	Acceptable
VVM Status:	
Cold Chain Status:	ACCEPTABLE
Country Of Origin:	INDIA
Status:	ACTIVE

▲ **Diluent Information**

Mapped Item:	BCG Diluent
Mapped Batch:	070S14015E - Serum Institute of India Limited

General Inventory Menu

The screenshot displays the WEBIIS (Web Based Immunization Information System) interface. At the top, the logo 'WEBIIS' is shown next to the Sri Lanka Health Services logo. Below the header, a navigation bar contains several menu items: 'Inventory', 'Staffing', 'Immunization', 'Aggregation', 'Sync', and 'Reports'. The 'Inventory' menu is expanded, showing a list of options: 'Warehouse maintenance', 'Stock adjustment', 'Stock take', 'Stock transfers', 'Goods receiving', 'Item availability', and 'Warehouse transaction'. The 'Stock transfers' option is selected, and its sub-menu is displayed, containing 'Stock requests', 'Stock issues', 'Receive stocks', and 'Stock returns'. The 'Stock requests' sub-menu is further expanded, showing three options: 'Stock request', 'Approve stock requests', and 'Reject stock requests'. A 'NOTICE-BOARD' label is visible in the bottom right corner of the interface.

Warehouse Creation

WEBIIS WEB BASED IMMUNIZATION INFORMATION SYSTEM

Master | Child | Inventory | Staffing | Immunization | Aggregation | Sync | Reports

Maintain Warehouse

Warehouse: Gampaha RMSD Cold Room (+)

Warehouse Information

Warehouse Code* : 010020WH1

Warehouse Name* : Gampaha RMSD Cold Room (+)

Warehouse Of* : RMSD

RDHS Area* : Gampaha

Stock Request Approval Level* : 0

Stock Issue Approval Level* : 0

Description:

Warehouse Status: ACTIVE

Storage Information

REFREGIRATOR (2°C-8°C)

DEEP FREEZER (-20°C)

NORMAL (ROOM TEMPERATURE)

Storable Items

Item Name	Storage	Min Qty.	Max Qty.
Pentavalent (Single Dose)	REFREGIRATOR (2°C-8°C)	10000	30000
DTP (10 Doses)	REFREGIRATOR (2°C-8°C)	5000	15000

Adding Main Stock to the System

Master | Child | Inventory | Staffing | Immunization | Aggregation | Sync | Reports | Chathura Somawansa Edi

Goods Received Note

GRN: < New >

GRN Information

Customer Ref.: 0001
 WDN No.: 0001
 Supplier: State Pharmaceutical Company
 Recieve Date: 2015-05-12
 Total Cost: 100000
 Description:

Item Information

Warehouse: Epidemiology Unit Cold Room 1(+)
 Item:
 Batch:
 Stock Quantity:

VVM Status

VVM Information

Issued Qty: 10000

VVM Status	Quantities
VVM 1-QTY :	10000
VVM 2-QTY :	0
VVM 3-QTY :	0
VVM 4-QTY :	0

Add Finish

Warehouse	Item	Batch	Quantity	VVM & QTY	ADD VVM
Epidemiology Unit Cold Room 1(+)	BCG (20 doses)	037G4054	10000	1 :10000, 2 :0, 3 :0, 4 :0	ADD VVM
Epidemiology Unit Cold Room 1(+)	BCG Diluent	070S14015E	10000	-	

Stock Issuing with VVM Status




WEBIIS

WEB BASED IMMUNIZATION INFORMATION SYSTEM



Master | Child | Inventory | Staffing | Immunization | Aggregation | Sync | Reports
Epidemiology Unit

Stock Request No:

Stock Issuing Information

Request Date:

Issue Date:

Issue To:

Items

+
-
↑
↓

Warehouse	REQUEST ITEM	ISSUE ITEM	BATCH	BATCH VVM	REQUEST Q...	QUANTITY	VVM & QTY	ADD VVM
Epidemiology Unit Cold Room 1(+)	BCG (20 doses)	BCG (20 doses)	037G4054	1 :1000, 2 :0, 3 :0, 4 :0	1000	1000	1 :0, 2 :1000, 3 :0, 4 :0	ADD VVM
Epidemiology Unit Cold Room 1(+)	BCG Diluent	BCG Diluent	070S14015E		1000	1000	-	

Transport Details:

Special Notes:

Warehouse Current Stock Position

WEBIIS/IN/04

Generated By chathura
Date 12/05/2015
Time 04:16 AM

Web Based Immunization Information System Warehouse level current stock position report

WAREHOUSE NAME DATE 2015-05-12

ITEM NAME	BATCH NO	BALANCE	EXPIRY DATE	VVM STATUS	MIN. QTY.	MAX. QTY.
Epidemiology Unit Cold Room 1(+)						
BCG (20 doses)						
	036D2008	50000	5/31/14	1 :45000,2 :5000,3 :0,4 :	10000	40000
	037G4054	18140	4/30/16	1 :18140,2 :0,3 :0,4 :0	10000	40000

Monthly Vaccine Distribution

Web Based Immunization Information System Monthly Vaccine Distribution Report

From Date 2015-01-01

To Date 2015-05-12

LOCATION NAME	YEAR	MONTH	ITEM NAME								
			DT (10 Doses)	DTP (10 Doses)	JE Diluent	JE Live (5 Doses)	MMR (10 Doses)	MMR Diluent	OPV (20 Doses)	Pentaval (10 Dose)	TT (10 Doses)
Gampaha 1WH	2015	April	20	10	20	20	30	30	59	40	
		February	10	10	10	10	20	20	20	20	
		January			15	15			20	20	
		March	12	10	10	10	20	20	40	20	
		May	13	10			20	20	45	20	
Gampaha2 WH	2015	April	20	20	10	10	30	30	40	20	
		February	10	10	10	10	20	20	40	20	
		January			10	10			20	20	
		March	27	27	25	25	40	40	60	40	
		May	10	20	5	5	20	20	40	30	
Ganemulla WH	2015	April	20	20	15	15	30	30	74	40	
		February	30	30	20	20	30	30	80	40	
		January			20	20			60		
		March	40	30	40	40	60	60	160	80	
Ganemulla/South WH	2015	April	16	10	5	5	10	10	36	20	
		February	10	10	5	5	10	10	40	20	
		March	20	20	10	10	20	20	55	36	10
		May	10	12	5	5	10	10	20	10	
Kalagedihena WH	2015	April	20	20	20	20	40	40	80	50	
		February	10	20	10	10	10	10	40	20	
		January			10	10			20	60	
		March	20	20	20	20	40	40	73	41	

Monthly Vaccine Distribution Report

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Vaccine Use for Immunization in a Clinic

Generated By chathura
Date 12/05/2015
Time 07:54 AM

Web Based Immunization Information System Immunization Summary Report

From Date 2015-04-01

To Date 2015-04-30

	DT		DTP		JE (Live)		MMR			OPV					PvV				Grand Total		
	1	DT TOTAL	1	DTP TOTAL	1	JE (Live) TOTAL	1	2	MMR TOTAL	1	2	3	4	5	OPV TOTAL	1	2	3		PvV TOTAL	
Welisara Clinic Warehouse	Apr 1, 2015										8				8	8			8	16	
	Apr 8, 2015	9	9	13	13	8	8	15	8	23	3	21	15	13	9	61	3	21	15	39	153
	Apr 22, 2015	7	7	6	6	3	3	28	9	37	5	8	15	6	7	41	5	8	15	28	122
	Welisara Clinic Warehouse TOTAL	16	16	19	19	11	11	43	17	60	16	29	30	19	16	110	16	29	30	75	291

Problems encountered in developing the software & How they were managed

- Ever changing requirements by users/industry
- Underdeveloped IT logistics in periphery of the country
- Low IT literacy among field staff & High turnover of IT development team
- Malware attacks
- Business Requirement Specification & Web based modular approach
- Equipment supply
- Continuous training & technical inputs by national institutions (Epid Unit)
- Server hosting at reputed ISP and assess the software by SLCERT for security loopholes

Way forward

- Full implementation of the inventory module island wide by 2016
- Effective vaccine management, avoiding any supply or quality failures
- Minimize wastage of vaccines
- Efficient monitoring of vaccine supply chain at all levels

Acknowledgement

- UNICEF for generous financial support developing WEBIIS
- Dr. Paba Palihawadana, Dr. Sudath Peiris and Dr Ananda Amarasinghe for their technical and administrative support at all stages of the software development and implementation
- Dr. Lasantha, Dr. Manjula, Dr. Thushanthi and all other staff of the Epidemiology Unit for continuous advice and support extended to improve the software and in conducting the training sessions of this software application
- EWIS Ltd for undertaking this pioneering project as a Government-Private partnership
- Sri Lanka Mobitel Ltd for providing mobile internet services at very concessionary rates considering this as a national project
- All health staff who are using the system providing useful feedback for further improvement of the system

THANK YOU