

**Standard Operating Procedures for
Planning and Implementing a
Continuous Results Monitoring and
Support System in Sierra Leone at the
Primary Health Unit Level**



USAID
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SIAPS 
Systems for Improved Access
to Pharmaceuticals and Services

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About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to ensure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

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Key Words

Sierra Leone, Continuous Results Monitoring and Support System Report, SOP, CRMS

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ACRONYMS

ACT	artemisinin-based combined therapy
CRMS	continuous results monitoring and support system
DDMS	Directorate of Drugs and Medical Supplies
DIO	district information officer
DLO	district logistics officer
DHMT	district health management team
EPI	expanded program on immunization
FHCI	free health care initiative
M&E	monitoring and evaluation
MoHS	Ministry of Health and Sanitation
MSH	Management Sciences for Health
NAS	National HIV/AIDS Secretariat
NMCP	National Malaria Control Program
NPPU	national pharmaceutical procurement unit
PHU	primary health unit
PMIS	pharmaceutical management information system
PMTCT	prevention of mother-to-child transmission
RR&IV	request, receipt, and issue voucher
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SOP	standard operating procedure
TB	tuberculosis
USAID	US Agency for International Development

INTRODUCTION

The US Agency for International Development (USAID)-funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program, implemented by Management Sciences for Health (MSH), provides technical assistance to improve supply chain performance for the effective and efficient management of commodities through selection, quantification, procurement, storage, distribution, information, and system monitoring.

SIAPS Sierra Leone has worked to strengthen the pharmaceutical systems and supply chain to ensure access to and rational use of safe and effective medicines and other health products as part of the country's post-Ebola recovery plan. SIAPS is providing technical assistance to the Ministry of Health and Sanitation (MoHS) through the Directorate of Drugs and Medical Supplies (DDMS), Pharmacy Board of Sierra Leone, district health management teams (DHMTs), and health facilities to contribute to the success of the free health care initiative (FHCI).

The goals of the MoHS are to provide quality and affordable health care and nutrition services; reduce inequalities in access to health care; and promote health and improve the health of all Sierra Leoneans, especially mothers and children, by strengthening national health systems.

A key component of the SIAPS technical assistance is the implementation of a continuous results monitoring and support system (CRMS) that will be conducted regularly by tracking several system and service indicators so that challenges identified during the monitoring exercise are addressed in real time and improvements are made and demonstrated on a continuous basis. The CRMS is a comprehensive, indicator-based system that ensures product availability, improves management, and promotes rational medicine use.

In Sierra Leone, the process owners of the CRMS are the DDMS and DHMTs. The key field-level operators are the district pharmacists, who work in collaboration with the district logistical officer (DLO), district information officer (DIO), the DHMT's monitoring and evaluation (M&E) team, and health program pharmacists with support from the DDMS and SIAPS.

The DDMS and SIAPS adopted the CRMS as a fast-track performance improvement and quality assurance approach to be applied at the central, district, and health facility levels. The CRMS is a supportive supervision and mentoring approach that assesses baseline challenges in pharmaceutical management and regularly tracks and supports improvement in key areas. The CRMS uses a set of indicators to measure, track, and monitor performance levels and trends that influence medicine availability and disease case management. It provides a platform for stakeholders to conduct a participatory review of timely evidence on strengths, challenges, and needed improvements and to develop action plans to address the gaps.

Since May 2016, the DDMS and SIAPS have supported DHMTs to implement the CRMS in their respective health facilities. By the end of 2017, 10 of the 13 districts and more than 1,000 health facilities had conducted three rounds of quarterly CRMS supervisions, reviewed the evidence in stakeholder review workshops, and produced reports. The indicators tracked are generally classified as service indicators (monitoring treatment uptake, consumption, stock

status, and rational use) and system indicators (monitoring availability and functioning of information systems and forms, storage and handling, availability of skilled staff, and capacity building). CRMS supervisors use a checklist and various tools and forms to complete their findings and observations; they also provide real-time mentorship and support to address challenges. The findings and observations of CRMS exercises are summarized and presented to key stakeholders and owners of the system in a CRMS review forum where actionable plans are discussed and operationalized by the next quarterly exercise.

The purpose of this standard operating procedure (SOP), which was prepared as a job aid, is to provide a frame of reference for implementing a CRMS to conduct comprehensive, participatory, and responsive monitoring using the first exercise as a baseline to track trends in improvement following continuous engagement of target facilities. This approach is in line with supportive supervision and monitoring system but is more proactive and action oriented.

The main objectives of a CRMS are to:

- Institutionalize regular periodic monitoring of selected indicators to demonstrate improvement in pharmaceutical management systems
- Strengthen supply chain management at the last mile (health facilities) to prevent stock-outs and minimize expiry, theft, and pilferage by tracing each medicine from the store to the patient
- Strengthen the pharmaceutical information management system to improve data quality and reporting
- Ensure proper storage for safe and secure management of pharmaceuticals
- Improve pharmaceutical waste management and timely disposal
- Facilitate the smooth distribution/redistribution of malaria drugs to service delivery points
- Build human resource capacity for training, supervision, and implementation of last-mile pharmaceutical management
- Through group activities, troubleshoot potential issues that may arise at various point of the supply chain
- Support the DHMT and health facilities to maintain a transparent, accountable, and efficient inventory management and control system

Steps in CRMS Implementation



Figure 1. CRMS action plan

Continuous Results Monitoring & Support System (CRMS) Steps

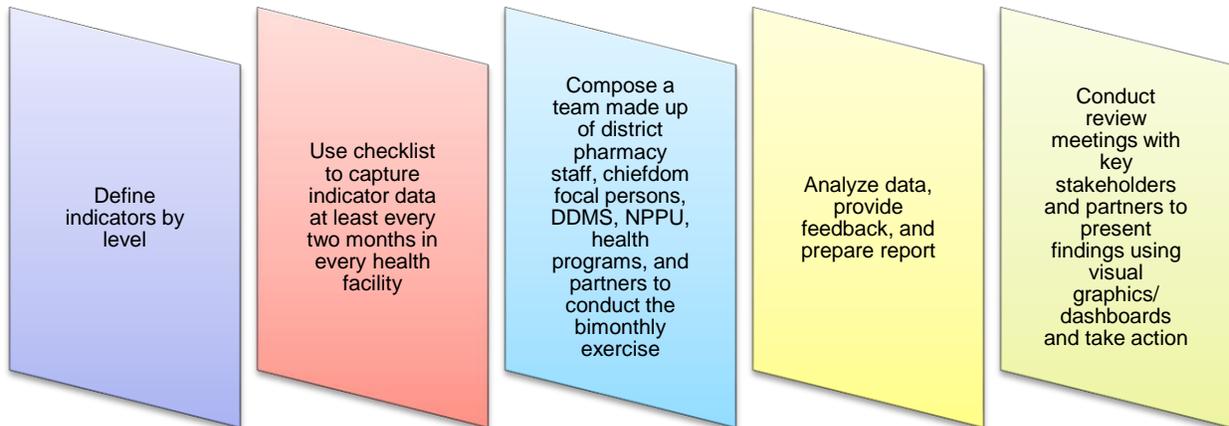


Figure 2. Steps for the implementation of the CRMS

The CRMS process (figures 1 and 2) involves identifying problems, planning strategically, setting targets, meeting expectations/deadlines, instilling accountability, involving leadership, and providing mentorship.

- Key indicators are selected to be tracked using standard checklists and are revised as appropriate.
- Data sources include treatment registers, bin/stock cards, observations, and CRMS checklists.
- Indicators track and report trends on product availability; consumption; expiry; and systems (pharmaceutical management information system (PMIS), storage, inventory control, staffing, training, rational medicine use) on a quarterly basis
- Three to four monitoring teams will be formed with at least four personnel per team comprising staff from the DHMT (lead); DDMS; national pharmaceutical procurement unit (NPPU); SIAPS; health programs (e.g., tuberculosis (TB), National HIV/AIDS Secretariat (NAS), National Malaria Control Program (NMCP), reproductive health); and other partners as appropriate
- The period for a cycle of supervision is five to seven days.
- The CRMS checklist uses a template that can be customized for each exercise; findings are recorded with check marks to minimize writing.
- At the start of a program, the exercise may be conducted every two months at a health facility.
- Immediately after each exercise, data from the checklists are aggregated and analyzed to produce narrative and graphic reports.
- As a sustainability and ownership measure, a participatory review mechanism is used in which key central, district, and health facility personnel deliberate on CRMS periodic reports. Areas that raise concern during the deliberation, such as constant stock-outs, high expiry loads, high gaps between treatment numbers and doses, and testing and treatment correlations, are focused on. The root causes are discussed and approaches for improvement and targets are agreed upon.

Illustrative CRMS Exercise



The CRMS team explains the purpose of the CRMS visit to a PHU in-charge

In consultation with the DDMS and SIAPS, the DHMT will prepare an action plan, including timeline and budget. Expenses related to conducting these exercises will be supported by the DHMT and SIAPS based on DHMT standard rates. To avoid interfering in the routine work of the DHMT program, the period for conducting the exercise by each team should not exceed one week.

During supervisory visits, facility staff will benefit from technical assistance from the teams, which will build the capacity of health facility staff; address minor infrastructural challenges; and taking actions such as reverse distribution, collecting expired products, and giving feedback.



Reviewing inventory control forms to complete the checklist

After the supervision, the team leader will compile all information and write a report. A review meeting will take place to see the trend of the different indicators monitored.

The steps for the CRMS field exercise include:

- Dividing the district into several clusters by chiefdom
- Forming a team for each cluster (table 1)
- Orienting team members on the purpose of the exercise, the review, and the use of the checklist

Table 1. Illustrative Team

Team 1	<ul style="list-style-type: none"> • District pharmacist (team leader) • Chiefdom focal person • DHMT M&E • DDMS • TB Program pharmacist 	Team 2	<ul style="list-style-type: none"> • DLO (team leader) • Chiefdom focal person • DDMS • NAS pharmacist • SIAPS M&E 	Team 3	<ul style="list-style-type: none"> • DIO (team leader) • Chiefdom focal person • SIAPS supply chain management lead • NPPU • NMCP pharmacist
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CRMS data are used to inform the following tasks:

- Forecasting
- Procurement
- Distribution planning

- Reverse logistics of expired and overstocked products
- Redistribution of excess products to avoid expiration

District/HF/Month			# of patients Treated by Age				Key Uptake Variables/Conditions										
District	Facility	Period	<5 Years		>5 Years		Anemia	Diarrhea	Eye Infection	Hypertension	Indigestion	Malaria	Malnutrition	Pneumonia/ARI	Reproductive Health	Post Partum Haemorrhage	Worms (Intestinal)
			Male	Female	Male	Female											
Bombali	Facility 1	Apr-16															
		May-16															
		Jun-16															
	Facility 2	Apr-16															
		May-16															
		Jun-16															
	Facility 3	Apr-16															
		May-16															
		Jun-16															
	Facility 4	Apr-16															
		May-16															
		Jun-16															
Facility 5	Apr-16																
	May-16																
	Jun-16																

Figure 3. CRMS key conditions checklist

District/HF/Month			Storage				Expired Drugs				Inventory Control						
District	Facility	Period	Adapted to Storage Space	Adapted to Patient Availability	Stacked in a Patient	Adapted to Staff on Availability	Loose Products	In Storage with old exp. product, labels etc.	In storage with old exp. product, labels etc.	Expired Drugs (Y00)							
			Bombali	Facility 1	Apr-16												
May-16																	
Jun-16																	
Facility 2	Apr-16																
	May-16																
	Jun-16																
Facility 3	Apr-16																
	May-16																
	Jun-16																
Facility 4	Apr-16																
	May-16																
	Jun-16																
Facility 5	Apr-16																
	May-16																
	Jun-16																

Figure 4. CRMS indicators tracked

During previous CRMS supervisions, some inconsistencies and problems were observed in the data collection processes, data sources, and recording that had a negative impact on data quality,

aggregation, analysis, reporting, and use for decision making. The need for a CRMS SOP was recognized. This SOP will contribute to gathering better quality data to ensure a common understanding of the indicators and uniformity in the data collection processes, data sources, and recording and ultimately contribute to better quality of data, easier aggregation, analysis and reporting, and better use of CRMS-generated information for timely decision making at all levels.

The CRMS is designed to track indicators in the following areas:

- Patient treatment/uptake by age, gender, and type of disease
- Consumption quantities of health products
- Availability (usable stock on hand) of health products
- Availability and use of inventory control/management information system tools and reporting
- Availability of skilled staff and appropriate training and supervision
- Expiry and disposal of health products
- Storage conditions and practices

The above indicators are tracked using CRMS and supervision checklists to record service- and system-related indicators

Service-related indicators:

- Total number of cases/patients diagnosed in the health facility by age group and gender
- Number of patients diagnosed by disease/health condition and age group (under five years and five years and above)
- Consumption of health products
- Availability of health products
- Expiry of health products

Available forms/checklists for service-related indicators by topic area:

- PMIS
- Storage conditions
- Management of expired pharmaceuticals
- Inventory control and management
- Staffing
- Training, mentoring, and supportive supervision
- Rational medicine use

CRMS Checklist: General information

Each CRMS supervision checklist/form has the following components that are used to capture general information about the supervision and the health facility. Figure 5 and table 2 provide the definition, potential sources of information, specific instructions, and examples of each component.

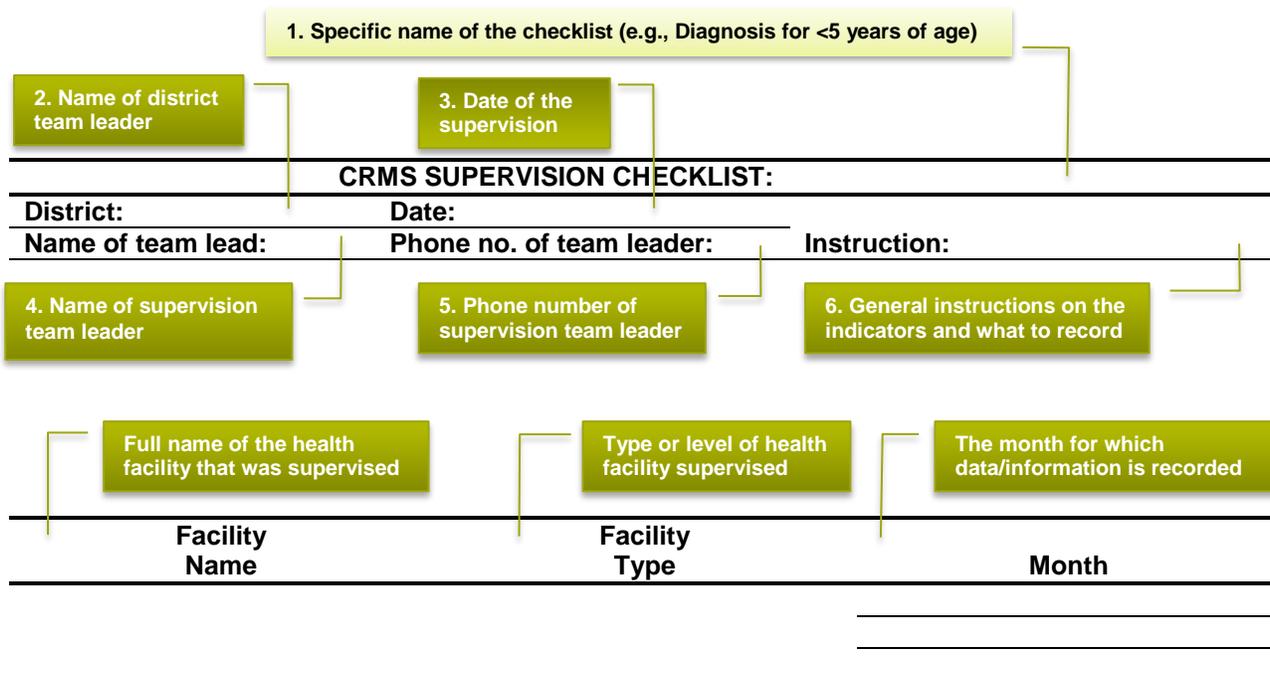


Figure 5. CRMS supervision checklist/form—general information

Table 2. CRMS Checklist—General Information—Component, Definition, Data Sources, Instructions, and Examples

Component/ Information	Definition	Source of Data/Information	Specific Instructions	Example
1.1 Checklist title	Name/title of the specific CRMS supervision checklist/form	N/A	This comes preprinted with the checklist/form	Diagnosis for <5 years of age
1.2 District	Full name of the district the CRMS supervision is happening in		Write the full name of the district where the supervision is happening	Bombali
1.3 Date	Date on which the CRMS supervision is happening in the following format: Month day, year		Write the date on which you are conducting the CRMS supervision using the prescribed date format	June 20, 2016
1.4 Name of the team leader	The full name of the CRMS supervision team leader	Supervision team leader	Write the first and last names of the CRMS supervision team lead	Edward Kamara
1.5 Phone number of the team leader	The phone number of the CRMS supervision team leader	Supervision team leader	Write the phone number of the team leader	076-77 02 44
1.6 Instructions	General instructions on the indicators in the specific checklist and what the supervisor needs to record in the checklist/form	N/A	This comes preprinted with the checklist/form	Enter the number of <5 year patients diagnosed with each disease during the previous month
1.7 Facility name	Full name of the health facility that was supervised by the team	Health facility records, health facility in-charges, and district records	Write the full name of the health facility supervised by the team	Binkolo
1.8 Facility type	The type/level of the health facility that was supervised by the team		Write the type/level of the health facility supervised by the team	Community Health Center
1.9 Month and year	The month and year of the data review period (the previous month for which complete data are available). Note that this can be the specific date of the supervision for indicators such as availability of health products.	DMS, supervision orientation	Write the name of the month and year for which data were reviewed and captured	January 2017

CRMS Supervision Checklist: Diagnosis for under Five Years of Age

This supervision checklist is used to collect data about the number of patients/cases <5 years of age diagnosed with a specific disease/health conditions in the previous month. Figure 6 shows the checklist, and tables 3 and 4 provide indicators, definitions, potential sources of information, specific instructions, and examples on each component.

Facility Name	Facility Type	Month and Year	Data type	0-11mths		12-59mths		Anaemia		Diarrhoea		Eye Infection		HIV/AIDS		Immunization		Malaria		Malnutrition		ARI		Skin Infection		TB		Worms (Intestinal)		Others		
				Male	Female	Male	Female	0-11m	12-59m	0-11m	12-59m	0-11m	12-59m	0-11m	12-59m	0-11m	12-59m	0-11m	12-59m	0-11m	12-59m	0-11m	12-59m	0-11m	12-59m	0-11m	12-59m	0-11m	12-59m	0-11m	12-59m	
			Registers																													
			Monthly summary reports																													
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			Monthly summary reports																													

Figure 6. The data collection checklist/form—diagnosis for under five years of age

This checklist has an additional column on the left side to collect information regarding the number of diagnosed cases from the two major data sources—registers and monthly summary reports. The figures from the registers are obtained by counting the number of cases diagnosed by health condition/disease and age group from the corresponding registers, and the figures from the monthly summary report are obtained directly from the report for the previous complete month. A number of registers and corresponding monthly summary reports are used to record and summarize information on diagnosis of patients <5 years of age at the primary health unit (PHU) level (table 3).

Table 3. Registers and Monthly Summary Reports

Register Name	Specific program	Age group	Corresponding monthly summary
1 Under 5 clinic register	FHCI	<5 years of age	
2 Under 1 expanded program on immunization (EPI) register	EPI	<5 years of age	
3 Mother and neonates health register	FHC	All ages	
4 Prevention of mother-to-child transmission (PMTCT) testing register	HIV	>5 years of age	Monthly PMTCT data collection/summary form

Register Name	Specific program	Age group	Corresponding monthly summary
5 Monthly HIV counseling and testing register	HIV	All ages	Monthly adult HIV counseling and testing/TB screening data collection/summary form
6 Daily dispensing register for HIV	HIV	All ages	Monthly pediatric and adult antiretroviral data collection/summary forms
7 General clinic register	FHC	≥5 years of age	
8 Maternity and delivery register	FHC	≥5 years of age	
9 Family planning register	FP	≥5 years of age	
10 TB: Patient treatment card, TB health facility register	TB		
11 Health Facility PHU F1	DHMT M&E		
12 Health Facility PHU F2			
13 DHIS2			
14 Treatment register monthly summary			

Table 4. Total Number of Diagnosed under Five Patients/Cases by Group—Indicators, Definitions, Data Sources, Instructions, and Examples

Indicator	Definition	Source of data/information	Instruction on how to record	Example
2.1.1 0–11m: Female	The total number of 0-11 months of age female patients/cases diagnosed in the health facility with any health condition/disease during the last month	Registers and monthly summary reports (table 3)	From the patient register, calculate or locate the total number of 0–11 months of age female patients/cases diagnosed with any health condition in the last month by the health facility and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Total number of 0–11 months of age female cases/patients diagnosed in the health facility with any health condition in May 2016 = 36 (calculated from the patient register or the monthly summary for May 2016) Number of cases entered under 0–11m, female = 36
2.1.2 0-11m: Male	The total number of 0–11 months of age male patients/cases diagnosed in the health facility with any health condition/disease during the last month		From the patient register, calculate or locate the total number of 0–11 months of age male patients/cases diagnosed with any health condition in the last month by the health facility and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Total number of 0–11 months of male cases/patients diagnosed in the health facility with any health condition in May 2016 = 36 (calculated from the patient register or the monthly summary for May 2016) Number of cases entered under 0–11m, male = 36

Introduction

Indicator	Definition	Source of data/information	Instruction on how to record	Example
2.1.3 12–59m: Female	The total number of 12–59 months of age female patients/cases diagnosed in the health facility with any health condition/disease during the last month		From the patient register, calculate or locate the total number of 12–59 months of age female patients/cases diagnosed with any health condition in the last month by the health facility and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Total number of 12–59 months of age female cases/patients diagnosed in the health facility with any health condition in May 2016 = 36 (calculated from the patient register or monthly summary for May 2016) Number of cases entered under 12–59m, female = 36
2.1.4 12–59m: Male	The total number of 12–59 months of age male patients/cases diagnosed in the health facility with any health condition/disease during the last month	Registers and monthly summary reports (table 3)	From the patient register, calculate or locate the total number of 12–59 months of age male patients/cases diagnosed with any health condition in the last month by the health facility and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Total number of 12–59 months of age male cases/patients diagnosed in the health facility with any health condition in May 2016 = 40 (calculated from the patient register or monthly summary for May 2016). Number of cases entered under 12–59m, male = 40
2.2.1 0–11m: Specific health condition/ disease	The total number of <12 months of age patients/cases diagnosed in the health facility with a specific health condition/ disease during the last month	Registers and monthly summary reports (table 3)	For each health facility, calculate or locate the total number of <12 months of age patients/cases diagnosed with a specific health condition in the last month from the patient register and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Health condition/disease: Anemia Total number of <12 months of age cases/patients diagnosed in the health facility for anemia in May 2016 = 36 (calculated from the patient register or monthly summary for May 2016) Number of cases entered under “anemia” for <12 months = 36
2.2.2 12–59m: Specific health condition/disease	The total number of 12–59 months of age patients/cases diagnosed in the health facility with a specific health condition/disease during the last month		For each health facility, calculate or locate the total number of 12–59 months of age patients/cases diagnosed with a specific health condition in the last month from the patient register and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Health condition/disease: Anemia Total number of 12–59 months of age cases/patients diagnosed in the health facility for anemia in May 2016 = 36 (calculated from the patient register or monthly summary for May 2016) Number of cases entered under “anemia” for 12–59 months = 36

Table 5. Patients/cases Diagnosed for all Health Conditions/Diseases: 5 Years of Age and above

Indicator	Definition	Source of data/information	Instruction on how to record	Example
3.1.1 5–14y: Female	The total number of 5–14 years of age female patients/cases diagnosed in the health facility with any health condition/disease during the last month	Registers and monthly summary reports (table 3)	From the patient register, calculate or locate the total number of 5–14 years of age female patients/cases diagnosed with any health condition in the last month by the health facility and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Total number of 5–14 years of age female cases/patients diagnosed in the health facility with any health condition in May 2016 = 20 (calculated from the patient register or monthly summary for May 2016) Number of cases entered under 5–14 years, female = 20
3.1.2 5–14y: Male	The total number of 5–14 years of age male patients/cases diagnosed in the health facility with any health condition/disease during the last month		From the patient register, calculate or locate the total number of 5–14 years of age male patients/cases diagnosed with any health condition in the last month by the health facility and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Total number of 5–14 years of age male cases/patients diagnosed in the health facility with any health condition in May 2016 = 15 (calculated from the patient register or monthly summary for May 2016) Number of cases entered under 5–14 years, male = 15
3.1.3 >14y: Female	The total number of >14 years of age female patients/cases diagnosed in the health facility with any health condition/disease during the last month		From the patient register, calculate or locate the total number of >14 years of age female patients/cases diagnosed with any health condition in the last month by the health facility and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Total number of >14 years of age female cases/patients diagnosed in the health facility with any health condition in May 2016 = 20 (calculated from the patient register or monthly summary for May 2016) Number of cases entered under >14 years, female = 20
3.1.4 >14y: Male	The total number of >14 years of age male patients/cases diagnosed in the health facility with any health condition/disease during the last month	Registers and monthly summary reports (table 3)	From the patient register, calculate or locate the total number of >14 years of age male patients/cases diagnosed with any health condition in the last month by the health facility and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Total number of >14 years of age male cases/patients diagnosed in the health facility with any health condition in May 2016 = 20 (calculated from the patient register or monthly summary for May 2016) Number of cases entered under >14 years, male = 20

Table 6. Patients/cases Diagnosed by Specific Disease: 5 Years of Age and above

Indicator	Definition	Source of data/information	Instruction on how to record	Example
3.2.1 5–14y: Specific health condition/disease	The total number of 5–14 years of age patients/cases diagnosed in the health facility with a specific health condition/disease during the last month	Registers and monthly summary reports (table 3)	For each health facility, calculate or locate the total number of 5–14 years of age patients/cases diagnosed with a specific health condition in the last month from the patient register and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Health condition/disease: Anemia Total number of 5–14 years of age cases/patients diagnosed in the health facility with anemia in May 2016 = 36 (calculated from the patient register or monthly summary for May 2016) Number of cases entered under “anemia” for 5–14 years = 36
3.2.2 >14y: Specific health condition/disease	The total number of >14 years of age patients/cases diagnosed in the health facility with a specific health condition/disease during the last month		For each health facility, calculate or locate the total number of >14 years of age patients/cases diagnosed with a specific health condition in the last month from the patient register and enter that number into the corresponding cell of the checklist	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Health condition/disease: Anemia Total number of >14 years of age cases/patients diagnosed in the health facility with anemia in t May 2016 = 36 (calculated from the patient register or monthly summary for May 2016) Number of cases entered under “anemia” for >14 years = 36

For health conditions/diseases not included in the list, add the total number of cases for each and enter by age group cell.

CRMS Supervision Checklist/form: Consumption of Health Products

This supervision checklist is used to collect data about the quantity of health products dispensed or used during the previous month. Figure 8 shows the checklist, and table 7 provides the indicator in the checklist, its definition, potential sources of data, specific instructions, and examples.

Continuous Results Monitoring and Support System in Sierra Leone at the Primary Health Unit Level

Indicator	Definition	Source of data/information	Instruction on how to record	Example	
Quantity, batch numbers, and expiry dates of health products need to be updated in the stock cards according to the corresponding information on the physical products.					
6.1.3	Request, receipt, and issue voucher (RR&IV) available	Are RR&IVs available with enough blank pages for at least one month of reporting?	Observation and analysis by the CRMS supervisor Response by the health facility in-charge	For each health facility, determine whether RR&IVs are available in the health facility and have enough pages to prepare a summary report for at least one month If RR&IVs are available with enough pages to prepare a one-month summary report, enter "Y" as a response; if not, enter "N"	Date of CRMS supervision: June 20, 2016 Data review period: Current date, as of June 20, 2016 Document: RR&IV form Are adequate RR&IVs available? Response: "Y" or "N"
6.1.4	RR&IV updated	Are the RR&IVs updated with the previous month's summary?	Observation and analysis by the CRMS supervisor Response by the health facility in-charge	For each PHU, determine whether RR&IVs are available and contain up-to-date information as of the end of the previous month. If all necessary information is entered for the previous month, enter "Y"; if not, enter "N"	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Document: RR&IV Are RR&IVs updated? Response: "Y" or "N"
If the supervision happens before the 5th day of the month, look for the RR&IV summary report for two months prior to the current month.					
6.1.5	RR&IV report submitted on 5th day of the month	Is there evidence that the RR&IV report for the past month was submitted by the 5th day of the current month? This needs to be verified by checking information from the district health team	Observation and analysis by the CRMS supervisor Response by the health facility in-charge	For each health facility, determine whether an RR&IV summary report for the previous month was submitted to the District Health Office by the 5th day of the current month. Enter "Y" or "N" and confirm submission of the report by checking with the DHMT.	Date of CRMS supervision: June 20, 2016 Data review period: May 2016 (full month) Document: RR&IV Is there evidence that the RR&IV summary report for May 2016 was completed and submitted to DMS by the 5th of June 2016? Response: "Y" or "N"
If the supervision happens before the 5th day of the month, look for the RR&IV summary report for two months prior to the current month.					

Introduction

Indicator	Definition	Source of data/information	Instruction on how to record	Example
6.1.6 Registers available	<p>Are all treatment, diagnosis, and dispensing registers available at the health facility with adequate blank pages for the next month?</p> <p><i>See table 3 for the list of registers to be checked</i></p>	<p>Observation and analysis by the CRMS supervisor</p> <p>Response by the health facility in-charge</p>	<p>For each PHU, determine whether all treatment, diagnosis, and dispensing registers (table 3) are available and have enough pages to register records for at least one month. Estimate the number of pages needed based on the pages used in the previous month for each register in the list.</p> <p>If all registers are available with enough blank pages to record at least one month's data, write "Y" as a response; if not, write "N".</p>	<p>Date of CRMS supervision: June 20, 2016</p> <p>Data review period: Current date, as of June 20, 2016</p> <p>Documents: All PHU registers (table 3)</p> <p>Are registers available with adequate blank pages?</p> <p>Response: "Y" or "N"</p>
6.1.7 Registers fully completed	<p>Are all registers available and updated with the previous month's data?</p> <p><i>See table 3 for the list of registers to be checked</i></p>	<p>Observation and analysis by the CRMS supervisor</p> <p>Response by the health facility in-charge</p>	<p>For each PHU, determine whether all registers (table 3) have up-to-date information as of the end of the previous month.</p> <p>If all necessary information is entered completely for the previous month, write "Y" as a response; if not, write "N".</p>	<p>Date of CRMS supervision: June 20, 2016</p> <p>Data review period: May 2016 (full month)</p> <p>Document: All PHU registers (table 3)</p> <p>Are the registers updated?</p> <p>Response: "Y" or "N"</p>
6.1.8 Monthly summary reports completed	<p>Are all monthly summary reports updated and completed with information for the previous month?</p> <p><i>See table 3 for the list of monthly summary reports to be checked</i></p>	<p>Observation and analysis by the CRMS supervisor</p> <p>Response by the health facility in-charge</p>	<p>For each PHU, determine whether all monthly summary reports (table 3) have up-to-date information for the previous month.</p> <p>If all necessary information is summarized completely for the previous month, write "Y" as a response; if not, write "N".</p>	<p>Date of CRMS supervision: June 20, 2016</p> <p>Data review period: May 2016 (full month)</p> <p>Document: All PHU monthly summary reports (table 3)</p> <p>Are the monthly summary reports updated?</p> <p>Response: "Y" or "N"</p>

Indicator	Definition	Source of data/information	Instruction on how to record	Example
6.1.9 Monthly summary reports submitted	<p>Are all monthly summary reports for the previous month submitted on or before 5th day of the current month?</p> <p><i>See table 3 for the list of monthly summary reports to be checked</i></p> <p>This needs to be verified by checking information from the DHMT</p>	<p>Observation and analysis by the CRMS supervisor</p> <p>Response by the health facility in-charge</p>	<p>For each PHU, determine whether all monthly summary reports for the previous month have been submitted to the DHMT by the 5th day of the current month.</p> <p>If the monthly summary reports were prepared before the 5th day of the current month, as evidenced by the date and signature, write “Y” as a response; if not, write “N”.</p> <p>If the original copy is still in the PHU, the response is “N” even if the report was completed on time.</p> <p>Confirm submission of the report by checking with the DHMT.</p>	<p>Date of CRMS supervision: June 20, 2016</p> <p>Data review period: May 2016 (full month)</p> <p>Document: Monthly summary reports (table 3)</p> <p>Is there evidence that the monthly summary reports for May 2016 were completed and submitted to DHMT by the 5th of June 2016?</p> <p>Response: “Y” or “N”</p>
6.1.10 Average # of medicines per prescription	<p>What is the average number of medicines per one prescription?</p>	<p>Under 5 clinic register;</p> <p>general clinic register (above 5)</p>	<p>Check the first pages of the previous month records on “Under 5 clinic register” and “General clinic register for above 5”; count the number of prescriptions and total number of medicines in each page of the two registers; divide the total number of medicines by the total number of prescriptions in each register; and calculate the average of the two calculation results by summing them up and dividing by 2.</p>	<p>Date of CRMS supervision : June 20, 2016</p> <p>Data review period: May 1-31, 2016</p> <p>Document: prescription paper or treatment register</p> <p>Are prescription papers or treatment registers used and duly completed?</p> <p>Response: “Y or N”</p>

CRMS Supervision Checklist: Storage Conditions

This supervision checklist is used to collect information about the storage conditions of health products in general, the status of storage facilities, and the functionality and organization of the store/dispensary. Figure 11 shows the checklist, and table 10 provides the list of indicators in the checklist, their definitions, potential sources of data, specific instructions, and examples.

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Indicator	Definition	Source of data/information	Instruction on how to record	Example
7.1.2 Adequate shelves/pallets available	Do you observe an adequate number of pallets in the store? Are heavy products stored directly on the wall?	Observation and analysis by the CRMS supervisor Response by the health facility in-charge	For each PHU, examine the store for any big packages of health products are placed directly on the floor. If you observe packages placed directly on the floor, write "Y" as a response; otherwise, write "N".	Date of CRMS supervision: June 20, 2016 Data review period: June 20, 2016 Is a sufficient number of pallets available? Response: "Y" or "N"
7.1.3 Shelved/stocked on pallet	Are products stacked on pallets?	Observation and analysis by the CRMS supervisor	For each PHU, examine the store and observe whether all big packages of products are stacked on pallets. If you observe that they are stacked on pallets and not directly on the floor, write "Y" as a response; otherwise, write "N".	Date of CRMS supervision: June 20, 2016 Data review period: June 20, 2016 Do you observe any stock stacked on pallets? Response: "Y" or "N"
7.1.4 Adequate shelves available	Is the number of shelves in the store adequate? Are products stored directly on the wall?	Observation and analysis by the CRMS supervisor Response by the health facility in-charge	For each PHU, examine the store and determine whether all health products in smaller packages are placed on shelves and not on the floor. If you observe that any health products are placed directly on the floor, write "N" as a response; otherwise, write "Y".	Date of CRMS supervision: June 20, 2016 Data review period: June 20, 2016 Is shelving adequate? Response: "Y" or "N"
7.1.5 Loose products shelved	Are any loose products (e.g., strips or blisters outside of their containers, loose tablets or capsules) in the store or dispensary placed directly on shelves?	Observation and analysis by the CRMS supervisor	Inspect the store and dispensary of the PHU and determine whether there are loose products placed on shelves. If you observe loose products directly on shelves, write "Y"; if not, write "N".	Date of CRMS supervision: June 20, 2016 Data review period: June 20, 2016 Are any loose products placed directly the shelves? Response: "Y" or "N"
Placing loose products (those outside or their containers/packaging) directly on shelves or on the floor is not recommended.				

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Indicator	Definition	Source of data/information	Instruction on how to record	Example	
7.1.6	Is the store organized with labeling?	Are the shelves, pallets, and health products placed on them organized with proper classification and labeling (e.g., pharmacologically, alphabetically)?	Observation and analysis by the CRMS supervisor	For each PHU, examine the store and dispensary to determine whether health products are stored in an organized manner on pallets and shelves with proper labeling. If you observe that pallets and shelves are labeled and organized systematically, write "Y" as a response; otherwise, write "N".	Date of CRMS supervision: June 20, 2016 Data review period: June 20, 2016 Is the store well organized? Response: "Y" or "N"
7.1.7	Is there a functional air conditioning system?	Is there a functional air conditioning system in the store and dispensary to keep the temperature in the range of 20–25°C?	Observation and analysis by the CRMS supervisor Response by the health facility in-charge	For each PHU, examine the store and dispensary and observe for a functional air conditioning system. If you observe and feel that there is a functioning system in the rooms, write "Y" as a response; otherwise, write "N".	Date of CRMS supervision: June 20, 2016 Data review period: June 20, 2016 Is there a functioning AC system in the store and dispensary? Response: "Y" or "N"
7.1.8	Is there a functioning wall thermometer and a temperature monitoring log?	Do you observe functioning wall thermometers and corresponding updated temperature logs in the store and dispensary?	Observation and analysis by the CRMS supervisor Response by the health facility in-charge	For each PHU, examine the store and dispensary determine whether the rooms have functioning wall thermometers and that monitoring logs are kept. If you observe functioning wall thermometers in the store and dispensary and corresponding updated temperature logs, write "Y" as a response; otherwise, write "N".	Date of CRMS supervision: June 20, 2016 Data review period: June 20, 2016 Are there functioning wall thermometers in the store and dispensary, and are temperature monitoring logs kept? Response: "Y" or "N"

Continuous Results Monitoring and Support System in Sierra Leone at the Primary Health Unit Level

Indicator	Definition	Source of data/information	Instruction on how to record	Example
7.1.9 Does physical security meet minimum standards?	Is the physical security of the medical store and dispensary adequate? Are the rooms in the store and dispensary constructed with walls that will prevent people or animals from breaking in? Can the doors and windows be locked? Is access to the stores and dispensaries limited? Are signs posted to limit access, such as "authorized personnel only"? Are there guard(s) securing the medical store and dispensary at all times?	Observation and analysis by the CRMS supervisor Response by the health facility in-charge	For each PHU, examine the store and dispensary to determine whether the minimum standards for physical security are met. If you observe that all standards are met, write "Y" as a response; otherwise, write "N".	Date of CRMS supervision: June 20, 2016 Data review period: June 20, 2016 Do the store and dispensary rooms meet the minimum security standards? Response: "Y" or "N"
7.1.10 Storage condition improvement done at the time of supervision	Have you done any storage condition improvement activity during the current CRMS supervision? Storage condition improvement activities include: <ul style="list-style-type: none"> Organizing products on the shelves and pallets using systematic methods such as pharmacological group and expiry dates. Labeling shelves, pallets, and packages Separating expired health products Updating tools (e.g., PMIS) 	CRMS supervisor	For each PHU, write "Y" if you have done any of the storage condition improvement activities listed under definition; otherwise, write "N".	Date of CRMS supervision: June 20, 2016 Data review period: June 20, 2016 Did you carry out any storage improvement activity during the current CRMS supervision? Response: "Y" or "N"

CRMS Automation: Introducing a Web-based Dashboard

To take systems strengthening support to the next level, SIAPS introduced a web-based enhanced information graphic display platform. The dashboard, which can be found at <http://slpharmadb.org/>, features data from each health facility and supply structure and provides real-time access to patient and commodity information. It serves as an early warning system that will contribute to averting stock-outs, avoiding emergency procurements, and ensuring an uninterrupted supply of all key products. It will also improve forecasting and timely procurement using national and donor resources.

The CRMS dashboard provides:

- Improved data quality during both capture and entry
- Timely data entry (there is a lack of dedicated personnel to do manual reports)
- Expedited data cleaning
- Timely report generation
- Faster summary report (the current Excel system is very time consuming)

Originally programmed to handle data on essential medicines and HIV-, malaria-, and TB-related products, the dashboard data are being expanded to include all CRMS-related data. Dashboard users can download an Excel template prefilled with metadata, which district staff can carry and fill in while in the field. After completing the template, it is uploaded to the dashboard. The automation of the CRMS will generate automatic report summaries, provide trend analyses of different variables, and print and export narrative and graphic reports. Reports include morbidity data, stock status of tracer products, inventory control, expiration status, rational medicine use, and other system-related data. A web-based early warning and stock status display tool, designed and implemented by the project, incorporate a CRMS real-time data entry and information display. Training has been provided to program and MoHS staff who will be implementing the dashboard. The CRMS uses a series of indicators to track and monitor factors that influence medicine availability and disease case management.

Advantages of the CRMS dashboard include:

- Simple offline data entry using an Excel template
- Ensuring data quality by using Excel cell validation rules
- Multiplatform template
- Uploading of the template when data entry is completed
- Automatic report summary by national, district, or facility level
- Trend analysis of any variable
- Print/export any report/chart as image/CSV/Excel

The domain slpharmadb.org was procured and the dashboard was linked with this URL. The dashboard consultant demonstrated the final dashboard to the SIAPS/Sierra Leone technical team. Training logistics were reviewed, and the training schedule was updated. As most trainees and data entry operators will be managing their own district data, the dashboard was updated to allow selection of a single district for each user. All reports will have the option to summarize by national

level, region, or district and may be filtered by facility. Users having CRMS data view permission should be able to see any district data with no restriction on districts or product groups.

CRMS Data to be Integrated into the Dashboard

Morbidity:

- Number of visits by age and gender
- CRMS visit profile by age
- CRMS total visit profile

Stock:

- CRMS stock status of product group
- CRMS stock availability by type of facility for product group
- CRMS treatment versus quantity of artemisinin-based combined therapy (ACT) dispensed
- Availability of ACT
- CRMS commodity expiry for 14 high-level indicator products (ACTs, essential antibiotics), plus stock-out trends for each product

System:

- Average number of medicines per prescription
- Count of selected variables (e.g., expired, moved for disposal, disposed of)
- Discrepancy between physical count and stock card record
- First expired, first out practices
- Staff-level distribution (percentage of each designation)

Issues to be Addressed

- There is a need to review the possibility of integrating the dashboard with Channel, mSupply, and DHIS2.
- As Channel is a desktop software package that runs in all DDMS stores independently, it would be nearly impossible to interoperate with Channel because the product names and facility lists are not harmonized.
- Sierra Leone is planning to implement mSupply in warehouses. It is not clear when the implementation will start.

- Further discussion and work with the Directorate of Policy, Planning and Information (DPPI) is needed to explore opportunities for exporting DHIS2 antiretroviral therapy patient data to the dashboard. One of the major discussion points is how to match or harmonize DHIS2 facility lists with dashboard facility lists collected from the NAS and NACP.
- The CRMS has some disease indicators as well as logistics indicators such as availability, consumption, and expiry. DHIS2 does not directly support product-based indicators. Product indicators are treated as normal indicators, which will make designing reports based on product group complicated. For example, when a new key product is included in the system for monitoring, someone has to manually include the product indicator in the data entry form in DHIS2 or it will not show up for data entry.
- Countries are very sensitive about their DHIS2 installation. If the CRMS is developed under DHIS2, it will be challenging to integrate it into the country's DHIS2 platform.

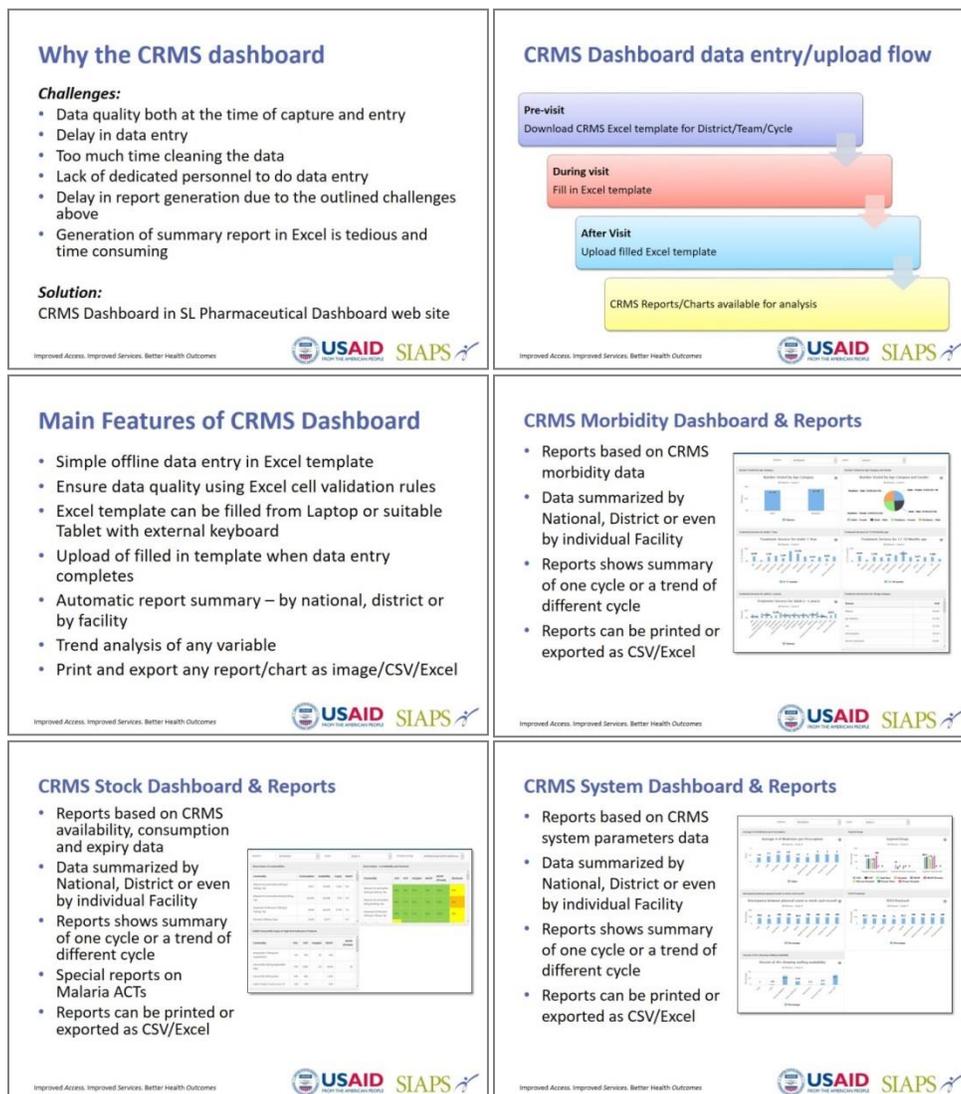
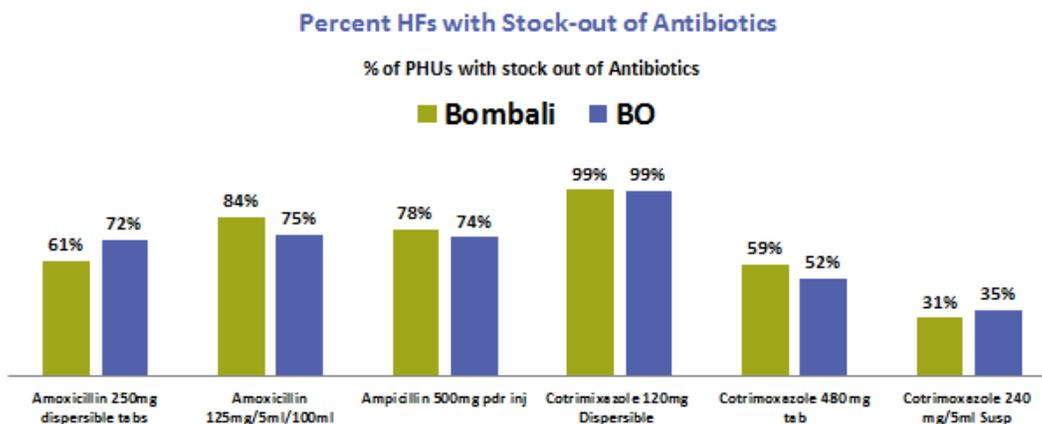


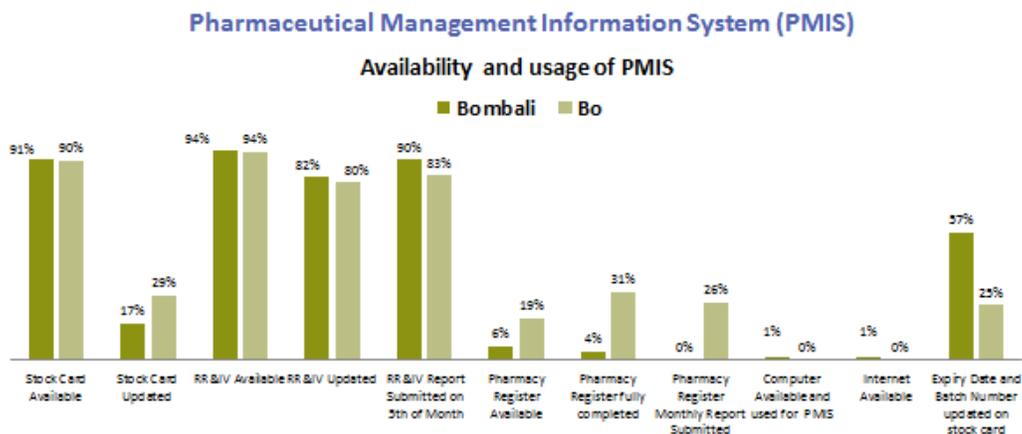
Figure 12. CRMS dashboard highlights

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2. <http://siapsprogram.org/publication/continuous-results-monitoring-and-support-system-tracks-post-ebola-recovery-in-sierra-leone/>
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On the average a significant 68% of HFs in the two districts show stock-out of selected antibiotics, only CTM suspension showing 33% of HFs showing stock-out. ARI/Pneumonia being the second most frequent conditions in the HFs, this can be worrying.



Information is key in supply chain accountability and transparency. The findings show although 90% of the HFs have stock cards, only 23% of them have updated the cards that makes any meaningful supply chain management impossible. The only LMS tools that are reported to be updated at an 80% level are RR&IVs. However, the unreliable source data to complete them makes it also not a meaningful information for decision making.