



Continuous Results Monitoring and Support System

**Bombali/Sierra Leone
First Bimonthly Report**

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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 results 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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ACRONYMS

ARI	acute respiratory infection
ACT	artemisinin-based combination therapy
ASAQ	artesunate-amodiaquine combination
ARV	antiretroviral
CHC	community health center
CHO	community health officer
CHP	community health post
CRMS	continuous results monitoring and support system
DDMS	Directorate of Drugs and Medical Supplies
DHMT	district health management team
DIO	district information officer
FEFO	first expiring first out
GIT	gastrointestinal
HF	health facility
IUD	intrauterine device
IV	intravenous
LMIS	logistics management information system
MCHP	maternal and child health post
MOHS	Ministry of Health and Sanitation
M&E	monitoring and evaluation
MIS	management information system
MOS	months of stock
NaCl	sodium chloride
ORS	oral rehydration salts
RH/FP	reproductive health/family planning
RMNCH	reproductive, maternal, newborn, child, and adolescent health
PMI	President's Malaria Initiative
PMIS	pharmaceutical management information system
PHU	peripheral health unit
RDT	rapid diagnostic test
RUTF	ready-to-use therapeutic foods
RR&IV	report, request and issue voucher
STI	sexually transmitted infection
SO	stock-out
SOP	standard operating procedure
SCM	supply chain management
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
TB	tuberculosis
USAID	US Agency for International Development

EXECUTIVE SUMMARY

This is the report of the first continuous results monitoring and support system (CRMS) exercise in Bombali District, which was conducted in May 2016. The purpose of the report is to highlight the findings and observations of the CRMS exercise. A total of 104 health facilities (HFs) (one hospital, 18 community health centers (CHCs), 57 community health posts (CHPs), 26 maternal and child health posts (MCHPs), and two clinics) were assessed using a comprehensive checklist based on selected service and system indicators. The one-week exercise was conducted by five teams comprising members of the district health management team (DHMT) and hospital pharmacy, district medical store, district council, and chiefdom health focal persons. The Directorate of Drugs and Medical Supplies (DDMS) was also represented in the exercise. The US Agency for International Development (USAID)-funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) program in Sierra Leone coordinated this first experience. To prepare the other districts for their CRMS evaluations, six additional district pharmacists participated in the training/orientation to gain hands-on experience on what it takes to plan and conduct a CRMS evaluation, which will be repeated using the same tool every two to three months. The method involves observation, interviews, and review of documents/tools used to document dispensing, supply chain, and other related information.

The CRMS exercise examined different indicators that focused stock availability; consumption; expiry; number of patients treated broken down by condition, age, and gender; availability and performance of pharmaceutical information tools; storage conditions; staffing; training; and supervision.

The CRMS evaluation will be conducted in all districts and facilities every quarter so that a continuous performance improvement is achieved through the process. Following the report production, a review meeting of key stakeholders and partners will be conducted to examine the findings and observations of the report, address challenges, and set targets to be realized in subsequent CRMS exercises. Each DHMT will be the owner of the system and will have support and oversight from the DDMS as part of its ownership and sustainability goal.

Preliminary findings have indicated several good practices, challenges, and gaps that need immediate attention. The purpose of the CRMS evaluation is not to pinpoint problems observed but to support HFs for fast-tracked improvement in the identified weak areas through a process of continued engagement and mentorship.

A total of 37,391 patients visited these facilities, with 54% under the age of five and 46% age five or above. Among the patients, 34,493 were treated for malaria, and acute respiratory infections (ARIs) comprised approximately 60% of all conditions treated, followed by diarrhea and sexually transmitted infections (STIs) at 15% each.

Availability, consumption, and expiry status of 68 tracer products representing antimalarials, antimicrobials, reproductive health/family planning (RH/FP) products, gastrointestinal (GIT) and antiparasitic medicines, antiseptics, medical supplies, and other miscellaneous medicines were the focus of the exercise. The findings, which are based on months of supply (MOS), indicate

that 32% of peripheral health unit (PHUs) were within the minimum/maximum level of three months for HFs suggested in the DDMS standard operating procedure (SOP). Among these facilities, 52% were above the maximum level and 16% were below the minimum level.

Almost all of the PHUs practice a push system, which is evident from the oversupply, stock-out, and expiry that are associated with this type of passive system. Approximately 57% of PHUs reported a supply shortage at delivery, and 13% were oversupplied. Of the total products received, 60% had less than six months before expiration.

A review of inventory management/control tools and practices showed that nearly 86% of PHUs have stock cards and report, request, and issue vouchers (RR&IVs). Approximately 80% of PHUs have updated RR&IVs that are submitted to the district before the fifth of each month. However, only 18% of PHUs have updated stock cards, which makes inventory control a concern. Computers and internet access as well as user friendly, efficient treatment registers at the PHU level are lacking.

The review of storage conditions showed that 58% of PHUs have adequate storage, 44% have adequate shelving, and 35% have their drug stores organized to make facilitate inventory management and control.

A total of 238 staff work at the assessed PHUs (51 at CHCs, 136 at CHPs, and 51 at MCHPs), including community health officers (CHOs), nurses, and other support staff. Nearly 40% of staff are volunteers. This high percentage of volunteers may negatively affect accountability and sustainability. Only 17% of PHUs reported having a training related to drug management, including a logistics management information system (LMIS), and 60% reported having supportive supervision.

This report gives detailed information to identify areas of focus so that PHUs will be adequately supported in providing necessary services in their respective catchment areas.

GENERAL INFORMATION

The Republic of Sierra Leone has an estimated population of 7,075,641 (2015 Sierra Leone national census) and is divided into 12 districts plus two urban and rural areas of the capital of Freetown. The districts are divided into 149 chiefdoms. There are 13 district councils, one for each of the 12 districts and one for the Western Area Rural.



About Bombali District

Bombali District is in the Northern Province of Sierra Leone, and Makeni is its capital city. Bombali District has a population of 606,183 (2015 Sierra Leone national census). It is made up of 13 chiefdoms: Biriwa, Bombali Shebora, Gbanti Kamaranka, Gbendembu Ngowahun, Libeisyagahun, Magbaiamba Ndowahun, Makari Gbanti, Paki Massabong, Safroko Limba, Sanda Loko, Sanda Tenraren, Sella Limba, and Tambakha.

Bombali District has 21 CHCs, 62 CHPs, 23 MCHPs, one government hospital, one military hospital, one community hospital, three mission clinics, three mission hospitals, and three private clinics.

About SIAPS/MSH

In September 2015, the USAID-funded SIAPS Program began providing technical assistance to the Ministry of Health and Sanitation (MOHS) and the DDMS to support all aspects of the pharmaceutical supply management system with a focus on facility-level interventions, including selection, quantification, procurement, warehousing, distribution, dispensing, inventory control, pharmaceutical information systems, training, and infrastructure improvements for the safety and security of products. The objectives of the project include:

- Supporting the DDMS within the MOHS to improve its organizational structure and better support HFs
- Improving the selection and quantification of pharmaceuticals
- Build pharmaceutical management capacity among district-level and HF staff
- Strengthening the last mile of supply chain management from the district to the PHU level
- Improving pharmaceutical information management systems
- Improving and optimizing storage and handling practices at the district, service delivery point, and central levels and expediting disposal

About the Continuous Results Monitoring and Support System

The CRMS is a comprehensive approach developed by the Strengthening Pharmaceutical Systems Project, the predecessor of SIAPS, and the President's Malaria Initiative (PMI) in Ethiopia in 2009 to address the challenges identified by an initial assessment and to track PMI's implementation progress with the goal of strengthening systems, improving operations, ensuring the availability of resources, and improving the quality of data and performance. The pharmaceutical management system faces several challenges, including a lack of accountability, difficulty obtaining good and reliable data and reports, poor storage and inventory management practices, personnel shortages, and high turnover. More training, more resources, and more of the same failed approach is not the answer. The solution for addressing such challenges must be systematic rather than ad hoc and must lie in an integrated approach that includes identifying the problems, planning strategically, setting targets, meeting expectations/deadlines, accountability, leadership, active monitoring and evaluation (M&E), and a systematic management approach based on performance monitoring and transparency.

CRMS in Sierra Leone will be the responsibility of the DDMS and DHMTs, which will take ownership and sustain the process as an enhanced approach of supportive supervision. The support aspect for improving access to medicines, pharmaceutical management, and rational use will be prominent.

Objective/purpose

As part of the health system strengthening strategy and to address the challenges identified during subsequent implementation interventions, SIAPS is providing technical assistance to the DDMS/MOHS and DHMTs to conduct a continuous monitoring exercise that continually tracks the progress and performance of the pharmaceutical management system in public-sector service delivery and distribution entities.

CRMS update

CRMS data are updated every two months and shared with stakeholders and partners for discussion and to address gaps. The report presentation takes the form of a summary analysis of key indicators. The indicators track availability of medicines; inventory management tools; human resources; and practices in dispensing, treatment, and storage. The indicators selected for the continual monitoring are categorized according to the different activity areas. Indicators may be modified or new ones added or dropped, depending on the speed of change and level of accomplishment of activities.

Data collected

Illustrative examples of data collected using a checklist include the number of patients treated/diagnosed, quantity of medicines dispensed, quantity of medicines available on day of visit, quantity expired, disposal status of expired products, availability/use of management information system (MIS) tools, adequacy/practice of storage, staffing/training, and mentoring/supervision.

Data collection sites

Current CRMS activities target all 13 districts and 1,183 HFs in Sierra Leone.

Data collection process

The data collection process involves the development of a checklist that is monitored/tracked for service and system indicators. Service indicators are related to product availability, use, expiry, treated conditions, and rational use, while system indicators are related to monitoring support activities such as information system staffing, training, storage, and handling. Staff conducting the exercise use the checklist to collect data on the selected indicators from stock cards, reports, RR&IVs, treatment registers, interviews, and observations. After collection, the data are cleaned, entered into a database, aggregated, and analyzed, and a report is produced that highlights key findings and actions to address challenges. Every two months, the same checklist will be used to update the findings for subsequent data collection, which will be reflected in the database. A report will show trends and program progress.

CRMS review process

Following each CRMS exercise, a CRMS review meeting will be organized to bring key stakeholders/partners together to discuss the CRMS report and advance the institutionalization of the CRMS. The review process is a forum for sharing CRMS findings across facilities. Participants celebrate progress, analyze gaps, and develop solutions to problems that can be addressed by the next joint meeting two to three months later.

METHODOLOGY

The CRMS exercise in Bombali District began with an orientation for 20 participants from the Bombali DHMT, including staff from the district medical store and hospital pharmacy and representatives of the district council. To prepare the other districts for their CRMS exercises, additional district pharmacists from Portloko, Kambia, Tonkolili, Koinadugu, Kono, and Western Area participated in the training/orientation to gain hands-on experience in planning and conducting a CRMS evaluation. The DDMS was also represented. SIAPS Sierra Leone coordinated this first experience. Five four-person teams were formed, and a lead person was assigned to guide the team and ensure that data were provided. The DHMT made its vehicles available as a gesture of collaboration and eventual ownership and sustainability of the CRMS rather than asking the project to provide vehicles for the exercises. The CRMS exercise was conducted by going to each HF, collecting data, and making observation according the indicators in the checklist. Each team was given five days to complete the task. The planning and orientation was a one-day exercise in which SIAPS advisors described the CRMS and how to conduct the data collection and provided immediate support to HFs in terms of taking corrective actions, such as organizing storage and mentoring HF staff on correcting lapses observed during the visit. The data were then collected by the SIAPS team from each team leader, entered into a database, and analyzed. A report was then produced. This process will be transferred to the respective districts in subsequent CRMS exercises. The district pharmacist is the point person and coordinator for each district.

FINDINGS AND ANALYSIS

Section One: Case Management

Number of Health Facilities by Type

Figure 1 shows the number/percent of HFs where the CRMS exercise was conducted by type. More than half of the HFs are CHPs, followed by MCHPs (25%) and CHCs (17%). One hospital and two clinics were included in the exercise.

Health Facilities in Bombali District Where the CRMS Exercise Was Conducted (May 2016)

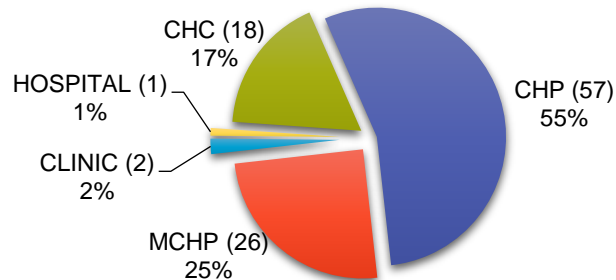


Figure 1. Facility types where the CRMS exercise was conducted

Treatment by Age, Gender, and Type of Health Facility

The total number of patients visited in the 104 HFs for the month of April was 37,391. Figure 2 shows that 54% of patients were under the age of five and 46% were five years of age or above. A further breakdown of the age groups shows that of those under the age of five, 44% were under the age of one, and 56% were between one and five years of age. The gender breakdown shows that 60% of patients treated were female and 40% were male. The breakdown for treatment in all age groups by type of HF shows that 44% of treatments were conducted at CHPs (n=57), 26% at MCHPs (n=26), 19% at CHCs (n=18), and approximately 5% each at clinics (n=2) and hospitals (n=1). This aggregation by age, gender, and facility type is an important approach to inform distribution quantities, forecasting for procurement/ordering, and distribution.

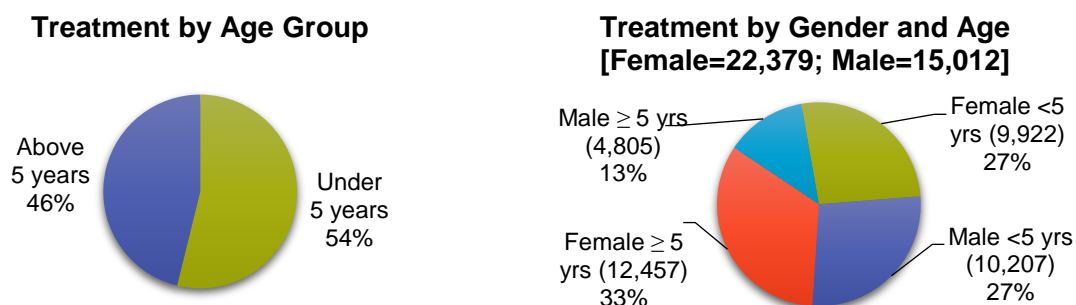


Figure 2. Treatment by gender and age

Number of Patients Treated by Condition, Age, and Facility Type

Of the 34,493 conditions treated for all age groups during April 2016 in the 104 HFs in Bombali District, malaria (34%), ARI/pneumonia (24%), diarrhea (8%), and STIs (6%) comprised approximately 72% of the conditions treated. A further breakdown by age showed that in the <5 age group, malaria (37%), ARI/pneumonia (31%), and diarrhea (10%) comprise 78% of the conditions, while in the >5 age group, malaria (32%), ARI/pneumonia (14%), and STI (15%) comprise 61%. Malaria was the number one condition treated in both age groups and accounted for one-third of all conditions treated. This information can guides decisions on what products procurement and distribution efforts should focus. Malaria, ARI/pneumonia, and diarrhea patients are most often treated at CHPs, followed by MCHPs and CHCs. Detailed breakdowns by HF type, age, and condition are shown in annex A.

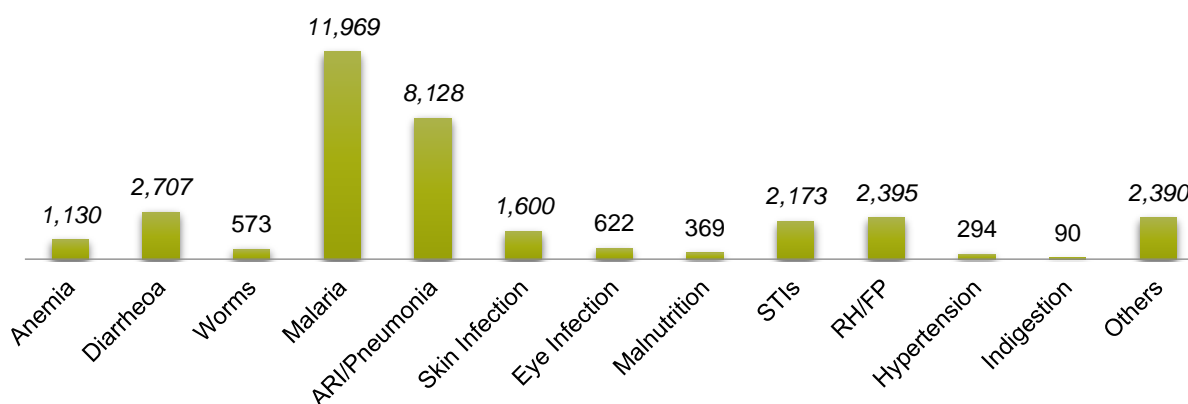


Figure 3. Conditions treated

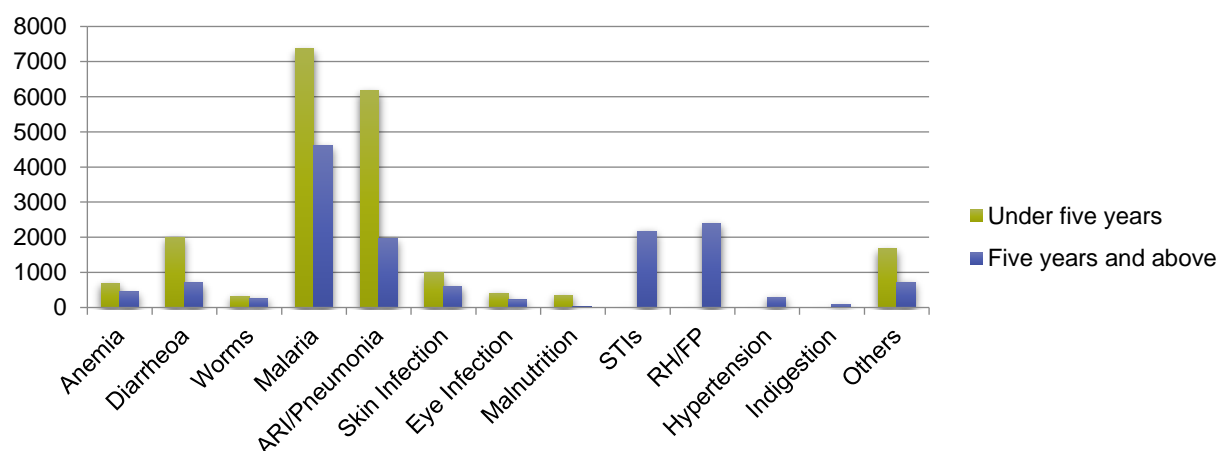


Figure 4. Health conditions by age group

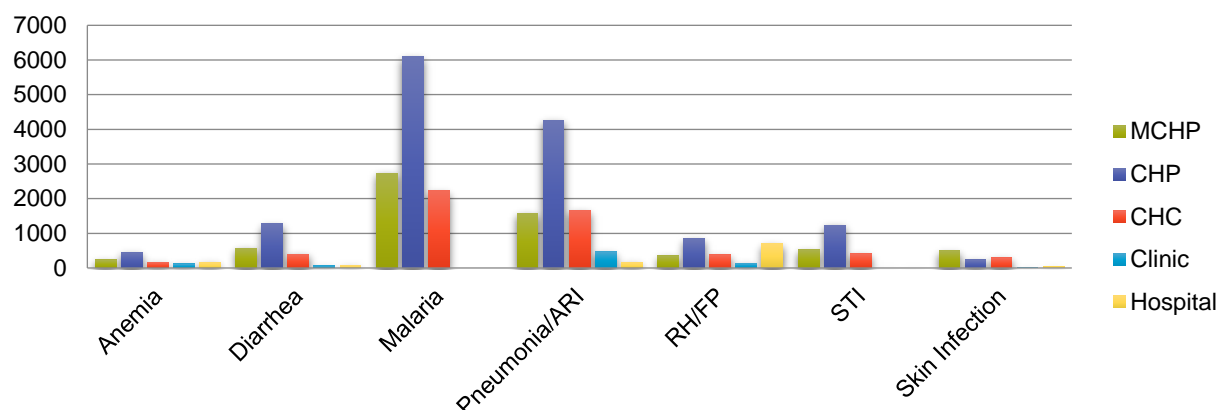


Figure 5. Top seven conditions treated by facility type

Correlating Doses Dispensed/Consumed with Conditions Treated and Assumptions

Tracking the availability of products, dispensed quantities, and number of patients treated provides important information on stock status and for correlating doses dispensed/consumed to the number of cases treated. For treatments based on fixed and standard doses based on standard treatment registers, such as malaria, tuberculosis (TB), HIV and AIDS, worms, and anemia, correlations can be tracked and discrepancies or mismatches between numbers treated and doses dispensed can identify problems in data quality or accountability. For example, if 10 malaria patients are treated, 10 doses should be dispensed. Likewise, if 10 patients are treated for worms with albendazole, 10 400 mg tablets should be dispensed. Ideally, the number of doses dispensed will equal the number of patients treated.

To determine the correlation of some straightforward dose-treatment-related assumptions, the following analyses were conducted:

- Artemisinin-based combination therapy (ACT) is dose based. One dose is assumed to be equal to one patient treated for malaria. In addition to ACTs, 30 quinine tablets is considered a full course of treatment. The correlation did not take sulphadoxine/pyrimethamine into consideration.
- For the treatment of intestinal worms, albendazole is the index product. A single 400 mg albendazole tablet is the recommended dose regardless of age. Therefore, the number of tablets dispensed is assumed to be equal to the number of patients treated.
- For hypertension, treatment is assumed to comprise a course of 30 tablets of methyldopa.
- For anemia, iron/iron folate at a dose of 30 tablets is the assumption made.
- For indigestion, aluminum hydroxide at a dose of 30 tablets is the assumption made.

Based on these assumptions, the data showed major gaps between doses dispensed/consumed and patients treated. For malaria/antimalarial drugs, the discrepancy is 29%, for intestinal worms/albendazole it is 92%, for hypertension/methyldopa it is 107%, for anemia/iron it is 62%, and for indigestion/antacid it is 73%.

Section Two: Stock Status (Medicine Availability, Consumption, and Expiry)

The review process for determining availability was based on physical counts and validated by checking stock cards. Availability was correlated with consumption data obtained from the treatment registers, reports, and RR&IVs. MOS was calculated by dividing the available quantity by the consumed quantity. By triangulating availability, consumption, stock-out, expiry, and MOS indicators, it is possible to make informed decisions for redistribution to prevent loss, improve access, and institutionalize a pull system of ordering/distribution.

The following tables and figures show the percent of PHUs with different levels of stock availability, segregated by type of product and health program. The tables and figures are presented in nine categories: antimalaria, RH/FP, antimicrobials, intravenous fluids, antidiarrhea, antiparasites, disinfectants/antiseptics, miscellaneous, and medical supplies.

For ease of display and interpretation of the level of availability, the tables are color coded where each color represents the range of percent of HFs showing the availability. Red indicates no stock (stock-out), green indicates a higher proportion of HFs showing availability, and yellow and orange show the lower and middle ranges:

% HFs	60–100%	30–60%	1–30%	0%
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The information on MOS and the color-coded availability information can be used to make decisions for redistributing products from HFs that are overstocked to those that are understocked or stocked-out. Those in red, where the HFs are stocked-out, need a supply of the specific product, followed by yellow and orange, indicating a need to top off their stock. The analysis is based on more than 95% of PHUs to minimize bias in data management.

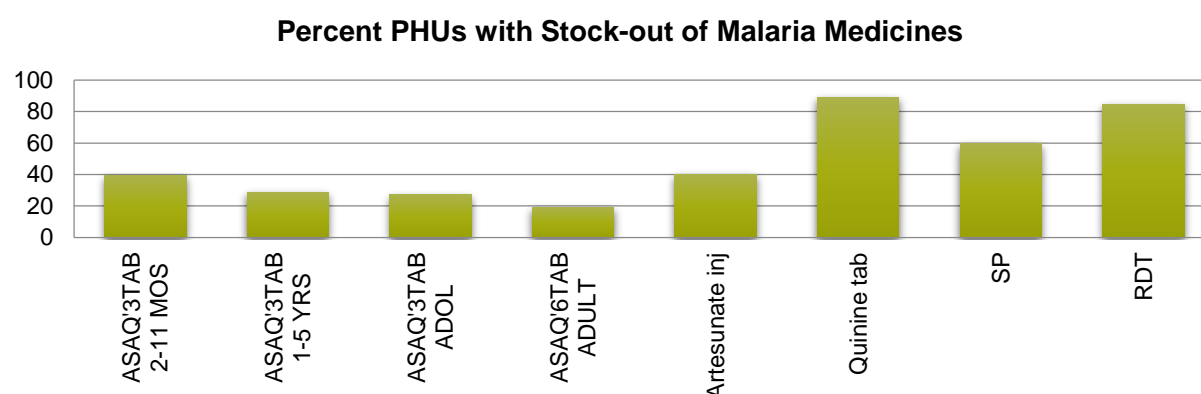
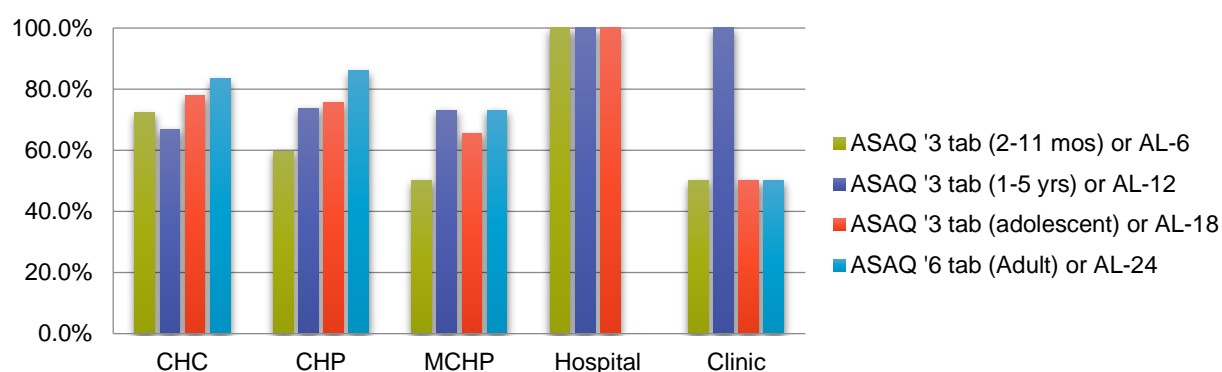
1. Antimalaria Products Availability and Stock-out Status in PHUs

Table 1 shows the availability of antimalarial medicines at the PHU level in Bombali District. ACTs are available in 70% of PHUs. An average of 65% of PHUs did not have artesunate/quinine, which are the recommended medicines for severe malaria. When the low availability of quinine tablets was correlated with average MOS, adequate stock that could last for approximately three years in the HFs was found. This indicates that the problem is not actually availability but overstock in some facilities and stock-outs in others.

Table 1. Availability of Antimalarial Medicines at the PHU Level in Bombali District

Antimalarials	CHC	CHP	MCHP	% of HFs with stock-out
1. Artesunate 60 mg injection	55.6%	63.2%	61.5%	40%
2. ASAQ '3 tab (2–11 mos) or AL-6	72.2%	59.6%	50%	39.4%
3. ASAQ '3 tab (1–5 yrs) or AL-12	66.7%	73.7%	73.1%	28.8%
4. ASAQ '3 tab (adolescent) or AL-18	77.8%	75.4%	65.4%	27.1%
5. ASAQ '6 tab (adult) or AL-24	83.3%	86.0%	73.1%	19.2%
6. Sulphadoxine/pyrimethamine (SP) 500/25 mg	38.9%	47.4%	34.6%	59.7%
7. Quinine sulfate 300 mg tab	5.6%	15.8%	11.5%	89%

Key (% HF) **60-100%** **30-60%** **1-30%** **0%**

**Figure 6. Percentage of PHUs with stock-outs of malaria medicines****Figure 7. Antimalarial medicine stock status by facility type**

2. Reproductive and Family Planning Product Availability and Stock-out Status in PHUs

Twelve of the 13 products on the lifesaving products list were analyzed for availability/stock-out. More than 90% of HFs showed a stock-out of 42% of the key products. More than 70% of PHUs had stock of pills and oxytocin. Approximately 50% of the PHUs had stock-outs of folic acid and combination iron-folic acid tablets, and only Makeni Hospital had adequate supplies of these products. Although approximately 44% of PHUs showed stock-outs of magnesium sulfate injection, the MOS showed enough stock to cover 63 months (approximately five years) in the HFs. This level of stock will expire before it can be used. The finding indicates that some HFs are overstocked and others have stock-outs. These stock status challenges stem from the weak inventory management/push system and information and reporting practices. Strengthening the pharmaceutical management system for monthly stock status reporting, a pull system for ordering/distribution, and redistribution from overstocked facilities to where they will be consumed are key measures to meet Sustainable Development Goals (SDG) targets in reproductive, maternal, newborn, child, and adolescent health (RMNCH) programs. It is to be noted that IUDs and misoprostol are allowed to be distributed and used at hospital and CHC levels but not CHPs and MCHPs.

Table 2. Stock status of FP/RH commodities by facility type

Reproductive/Family Planning	CHC	CHP	MCHP	% of HFs with stock-outs
1. Contraceptive pill	88.9%	78.9%	76.9%	18.4%
2. Female condom	5.6%	7.0%	11.5%	92.0%
3. Ferrous sulfate 200 mg tab	5.6%	3.5%	3.8%	95.7%
4. Folic acid 5 mg tab	38.9%	45.6%	42.3%	57.7%
5. Implant (e.g., Jadelle, Norplant, Implanon)	50.0%	14.0%	3.8%	77.4%
6. Iron-folic tab	50.0%	71.9%	69.2%	36.3%
7. Intrauterine device (IUD)	5.6%	0.0%	0.0%	94.4%
8. Magnesium sulfate 20% 10 mL inj	55.6%	59.6%	53.8%	43.7%
9. Medroxyprogesterone inj (Depo-Provera)	16.7%	26.3%	26.9%	76.7%
10. Misoprostol 200 mcg tab	5.6%	0.0%	0.0%	94.4%
11. Oxytocin 5 IU inj	66.7%	71.9%	73.1%	29.4%

Key (% HF)	60-100%	30-60%	1-30%	0%
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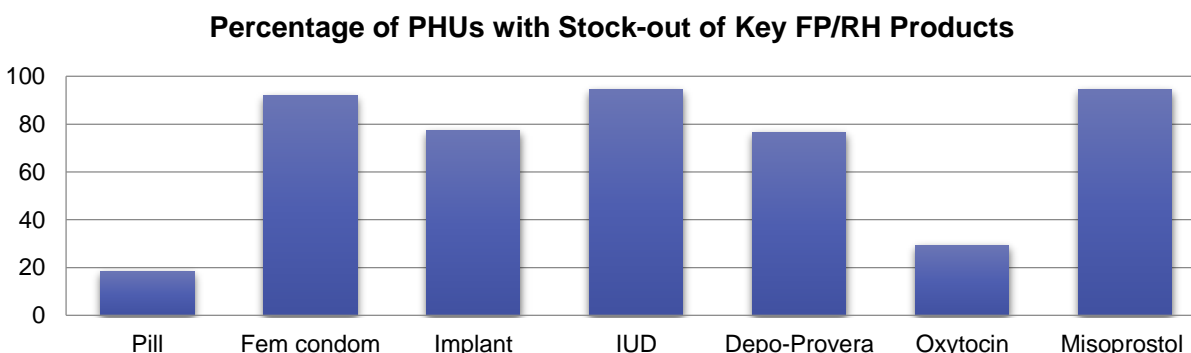


Figure 8. Percentage of PHUs with stock-outs of key FP/RH products

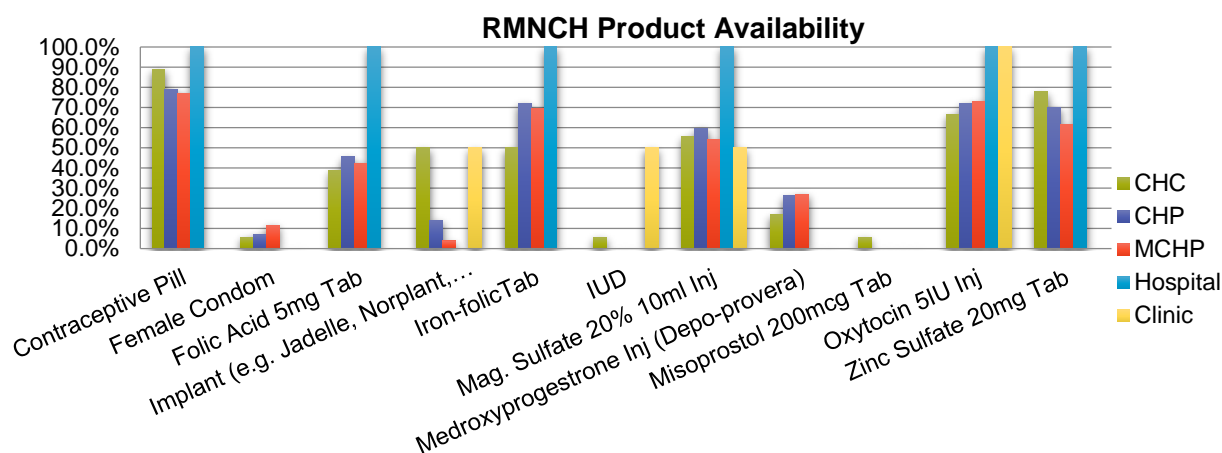


Figure 9. HF RMNCH medicine stock status

3. Antimicrobial Product Stock Status in PHUs

Antibiotics are key for treating life-threatening conditions. More than 90% of PHUs had stock-outs of five antimicrobial products. The key antibiotics (amoxicillin, ciprofloxacin, and co-trimoxazole formulations) are stocked-out in an average of 68% of PHUs and are available in only one-third. Analyses on the quantity of antibiotics consumed and the number of HFs reporting consumption during the month showed that approximately 19 patients per PHU were treated with antibiotics each month. Consumption of four antibiotics (amoxicillin dispersible tablets, ampicillin injectable, and co-trimoxazole 240 mg suspension and 480 mg tablets) was included in this analysis. Only 19 patients treated for infections (such as STIs and ARIs/pneumonia, which represent the second most frequently treated conditions in the district). The stock-out status described above indicates that there is inadequate access to antibiotics to manage the high number of infections, which may be due to under-procurement of antibiotics (poor forecasting), weak consumption data from all HFs to inform quantification, or diversion of the distributed antibiotics to unapproved channels.

Table 3. Stock Status of Antibiotics by Facility Type

Antibiotics	CHC	CHP	MCHP	% of HFs with stock-outs
1. Amoxicillin 250 mg dispersible tabs	22.2%	43.9%	50.0%	61.3%
2. Amoxicillin susp 125 mg/5 mL/100 mL	11.1%	21.1%	15.4%	84.1%
3. Ampicillin 500 mg pdr inj	33.3%	14.0%	19.2%	77.8%
4. Ciprofloxacin 250 mg tab	5.6%	8.8%	3.8%	93.9%
5. Clotrimazole 1% w/w cream, 50 mg tube	11.1%	7.0%	7.7%	91.4%
6. Co-trimoxazole 240 mg/5 mL susp	72.2%	77.2%	57.7%	31%
7. Co-trimoxazole 480 mg tab	38.9%	45.6%	38.5%	59%
8. Co-trimoxazole 120 mg tab	0.0%	0.0%	3.8%	96.2%
9. Gentamycin 0.5% eye drops	0.0%	0.0%	0.0%	100%
10. Gentamycin 40 mg/mL inj 2 mL amp	72.2%	80.7%	69.2%	26%
11. Nystatin susp 100,000 lu	0.0%	0.0%	0.0%	100%
Key (% HF)	60–100%	30–60%	1–30%	0%

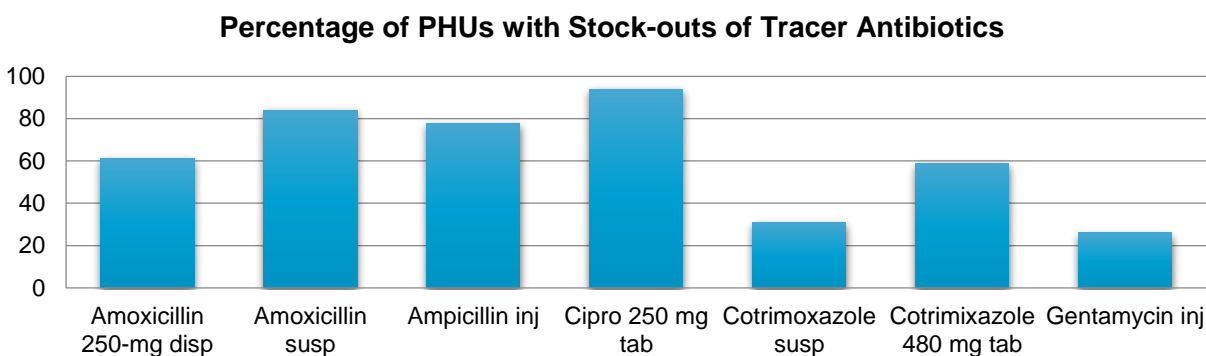


Figure 10. Percentage of PHUs with stock-outs of tracer antibiotics

4. Intravenous Fluid Stock Status in PHUs

Analysis showed that 60% of PHUs are stocked-out of the two commonly used intravenous (IV) fluids, dextrose 5% and normal saline. Ringer's solution was stocked-out in 25% of PHUs. This situation, particularly for the two commonly used IV solutions, indicates that a better forecasting and inventory control system is needed.

Table 4. Stock Status of IV Fluids by Facility Type

IV Fluids	CHC	CHP	MCHP	% of HFs with stock-outs
1. NaCl (NS) 0.9% IV inj 500 mL bag	27.8%	26.3%	26.9%	73%
2. Normal saline 0.9% 500 mL	66.7%	40.4%	46.2%	48.9%
3. Ringer's solution 500 mL	77.8%	75.4%	73.1%	24.6%
4. Ready-to-use therapeutic foods (RUTF) (Plumpynut)	33.3%	19.3%	19.2%	76.1%
5. Dextrose 5% 500 mL	50.0%	36.8%	30.8%	60.8%
6. Dextrose 50% 50 mL bottle	0.0%	0.0%	0.0%	100%

Key (% HF) 60–100% 30–60% 1–30% 0%

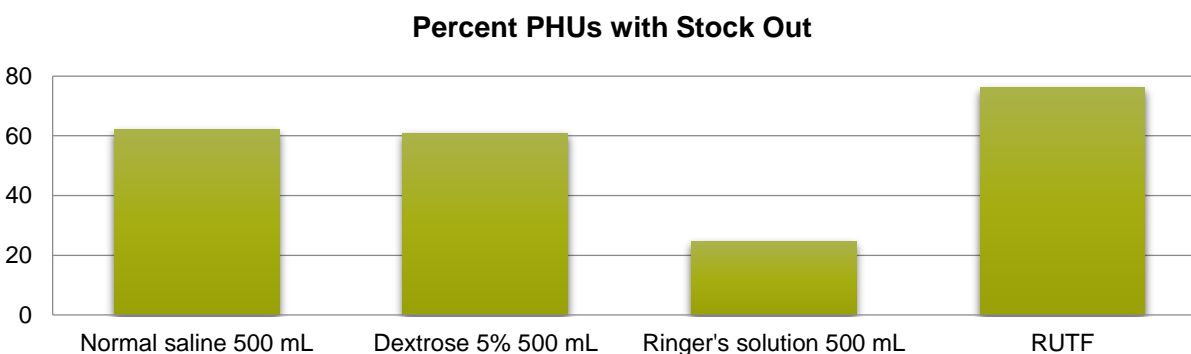


Figure 11. Percentage of PHUs with stock-outs of IV fluid

5. Antidiarrheal Product Stock Status in PHUs

The CRMS exercise considered oral rehydration salts (ORS) and zinc sulfate tablets. The data indicated modest availability of the products, with only 23% of PHUs stocked-out. Linking this information to MOS of zinc sulfate showed 31 months of available stock, which is equivalent to approximately a 2.5-year supply. This high quantity indicates an overstock of this product that could result in risk of expiry due to the short shelf life of zinc sulfate.

Table 5. Stock Status of Antidiarrheal Products by Facility Type

Antidiarrheal Products	CHC	CHP	MCHP	% of HFs with stock-outs
1. ORS sachet	88.9%	84.2%	80.8%	15.4%
2. Zinc sulfate 20 mg tab	77.8%	70.2%	61.5%	30.2%
Key (% HF)	60–100%	30–60%	1–30%	0%

6. Antiparasitic Medicines Stock Status

The analysis of metronidazole for amoeba/diarrhea showed that approximately 75% of PHUs had the medicine. For albendazole 400 mg tablets, 20% of PHUs reported stock. When the number of doses of albendazole dispensed (7,471) was compared to the number of patients treated (573), a discrepancy of approximately 92% was identified. Ideally, the number of doses and number of patients would be equal. More than 6,500 tablets were not accounted for. This discrepancy might be due to not adhering to the treatment protocol, a mistake in record keeping, or a diversion/use for unapproved purposes. Regular monitoring and mentoring can address such challenges.

Table 6. Stock Status of Antiparasitic Medicines by Facility Type

Antiparasitic Medicines	CHC	CHP	MCHP	% of HFs with stock-outs
1. Metronidazole 125 mg/5 mL 100 mL	66.7%	56.1%	73.1%	34.7%
2. Metronidazole 200 mg tab	38.9%	50.9%	38.5%	50.6%
3. Metronidazole 200 mg/5 mL	0.0%	0.0%	0.0%	100%
4. Metronidazole 250 mg tab	5.6%	0.0%	3.8%	96.9%
5. Albendazole 400 mg tab	88.9%	78.9%	73.1%	19.7%
Key (% HF)	60–100%	30–60%	1–30%	0%

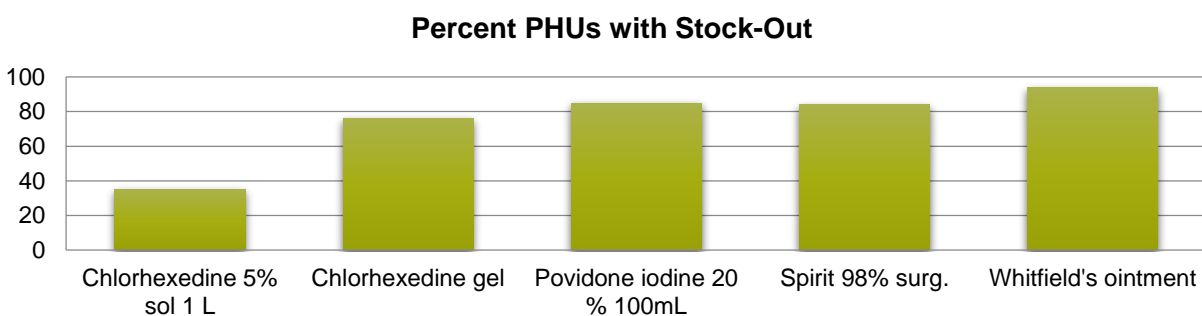
7. Disinfectant/Antiseptic Stock Status in PHUs

Approximately 65% of PHUs had chlorhexidine solution in stock, with a 30-month supply (equivalent to nearly 2.5 years). However, 81% of PHUs showed stock-outs of three key antiseptics (chlorhexidine gel, povidone iodine, and spirit). This high stock-out level for the three products at PHUs is a red flag because these are essential infection prevention and control products that must be available at all HFs at all times.

Table 7. Stock Status of Disinfectants/Antiseptics by Facility Type

Disinfectants/Antiseptics	CHC	CHP	MCHP	% of HFs with stock-outs
1. Chlorhexedine gluconate 5% sol 1000 mL	72.2%	68.4%	53.8%	35.2%
2. Chlorhexidine gel	33.3%	19.3%	19.2%	76.1%
3. Povidone iodine 20% 100 mL	16.7%	17.5%	11.5%	84.8%
4. Spirit, surgical 98%	11.1%	17.5%	19.2%	84.1%
5. Benzoic acid 6% + salicylic acid 3% ointment (Whitfield's) 30 g tube	11.1%	3.5%	3.8%	93.9%

Key (% HF) 60-100% 30-60% 1-30% 0%

**Figure 12. Percentage of PHUs with stock-outs of disinfectants/antiseptics**

8. Miscellaneous Product Stock Status

Sixty-five percent of PHUs had stock-outs of seven miscellaneous products, including analgesics, antacids, sedatives, anesthetics, and oral hypertensives. There was a 92-month supply (equivalent to 7.5 years) of dexamethasone injectable. Such high levels could be because of need of the product at these levels, which reflects the down side of a push system that in the future has to be replaced by a pull system where stocking is done on actual need. These stock-out levels and MOS are indicative of weaknesses related to data management, a push system of distribution, compromised inventory control, and noncompliance to standards of supply chain and use.

Table 8. Stock Status of Miscellaneous Products by Facility Type

Miscellaneous	CHC	CHP	MCHP	% of HFs with stock-outs
1. Aluminium hydroxide 500 mg tab	16.7%	29.8%	30.8%	74.2%
2. Dexamethazone 4 mg/mL inj	0.0%	3.5%	0.0%	98.8%
3. Diazepam 5 mg/mL, inj 2 mL amp	61.1%	66.7%	53.8%	39.5%
4. Lidocaine HCl 2% 50 mL vial	11.1%	5.3%	3.8%	93.3%
5. Hydralazine 20 mg/mL pdr for inj	0.0%	0.0%	0.0%	100%
6. Methyldopa 250 mg tab	38.9%	47.4%	26.9%	62.3%
7. Paracetamol 100 mg tab	5.6%	7.0%	7.7%	93.2%
8. Paracetamol 125 mg/5 mL susp	50.0%	50.9%	57.7%	47.1%
9. Paracetamol 250 mg tab	0.0%	0.0%	3.8%	98.7%
10. Paracetamol 500 mg tab	55.6%	61.4%	57.7%	41.8%

Key (% HF) 60-100% 30-60% 1-30% 0%

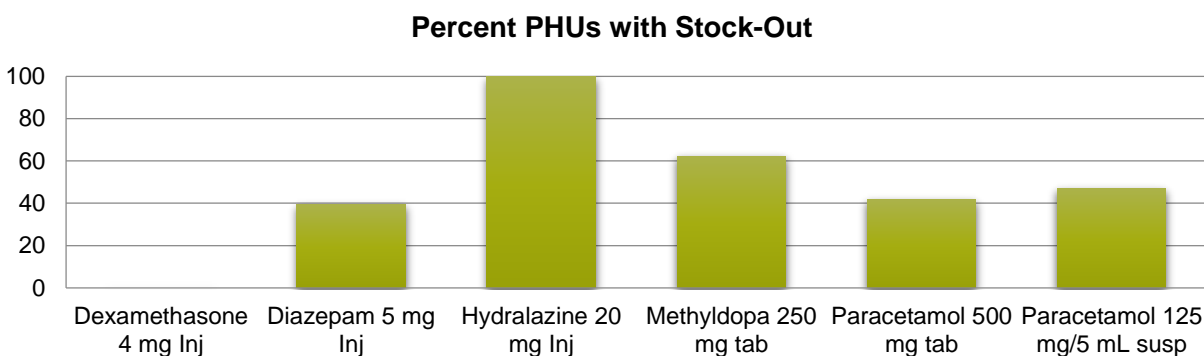


Figure 13. Percentage of PHUs with stock-outs of miscellaneous products

9. Medical Supplies Stock Status in PHUs

On average, 48% of PHUs had stock-outs of the medical supplies shown in below, with gauze pads and 21-gauge needles showing the highest proportion of stock-outs. Like antiseptics, medical supplies are a key category of infection prevention and control materials for Ebola and related infectious conditions. Such findings will help ensure stock status and use at all facilities at all times. Regular monitoring and stock status reporting are key to ensure uninterrupted service.

Table 9. Stock Status of Medical Supplies by Facility Type

Supplies	CHC	CHP	MCHP	% of HFs with stock-outs
1. Cotton wool 500 g roll	72.2%	56.1%	65.4%	35.4%
2. Face mask	44.4%	57.9%	50%	49.2%
3. Gauze pad 10 x 10 100 sheet	11.1%	17.5%	11.5%	86.6%
4. Glove, exam disp medium	77.8%	78.9%	65.4%	26%
5. Needle, disp 21 gauge	27.8%	21.1%	30.8%	73.4%
6. Syringe, disp 5 mL	66.7%	78.9%	73.1%	27.1%
7. Tape, adhesive 5 cm x 5 m	55.6%	68.4%	53.8%	40.7%
8. Tape, umbilical	44.4%	56.1%	46.2%	51.1%

Key (% HF) 60–100% 30–60% 1–30% 0%

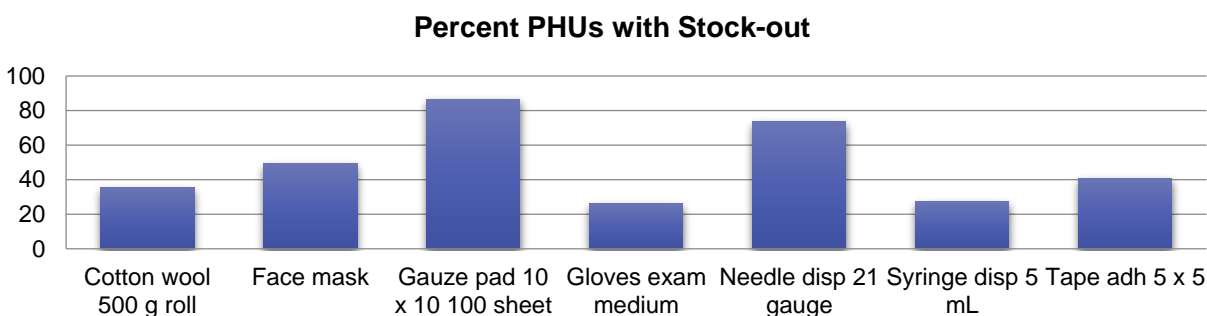


Figure 14. Percentage of PHUs with stock-outs of medical supplies

MONTH OF SUPPLY

Months of available, usable stock is determined by dividing consumption by the quantity of available medicine in HFs. By correlating the MOS with the average monthly consumption, the quantity that needs to be transferred or redistributed to facilities where supplies can be used optimally to avoid expiry can be determined. Using similar previous stock status data, HFs have transferred significant quantities of medicines to prevent the expiry of products and eliminate stock-outs.

The 2010 Sierra Leone LMIS SOP established limits of three MOS for maximum stock and two MOS for minimum stock. The MOS information for all reviewed products is shown in figure 15, which summarizes 50 products categorized in relation to MOHS-approved minimum/maximum levels. Sixty-eight percent of products are outside the minimum/maximum level, with 52% being above the maximum and 16% below the minimum, indicating a stock-out or low stock. Only 32% of products were within the approved levels. This indicates that optimal stock status was not maintained because of the push method, which creates a situation of over or understocking because distribution is made without the active involvement of the HFs and without adequate information on patient uptake, consumption, and morbidity.

To bring these facilities to optimum stock levels, the supply chain system must be strengthened, and stock status and consumption data have to be used to facilitate a pull system and stock transfer between HFs.

Percentage of PHUs with Status of MOS vs Minimum/Maximum Level

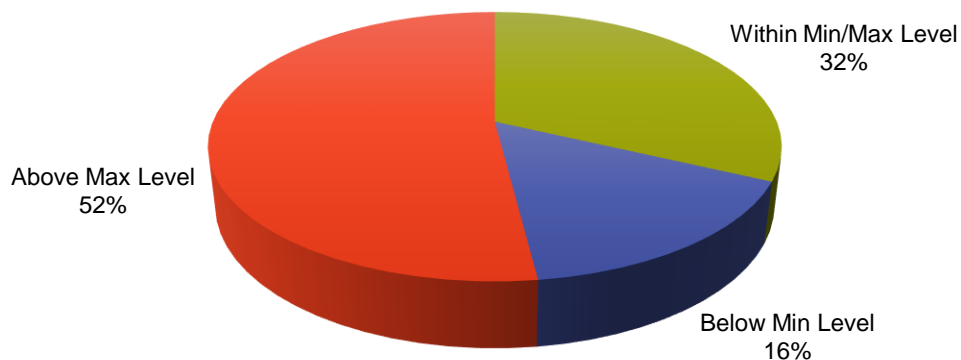


Figure 15. Status of MOS vs. minimum/maximum levels

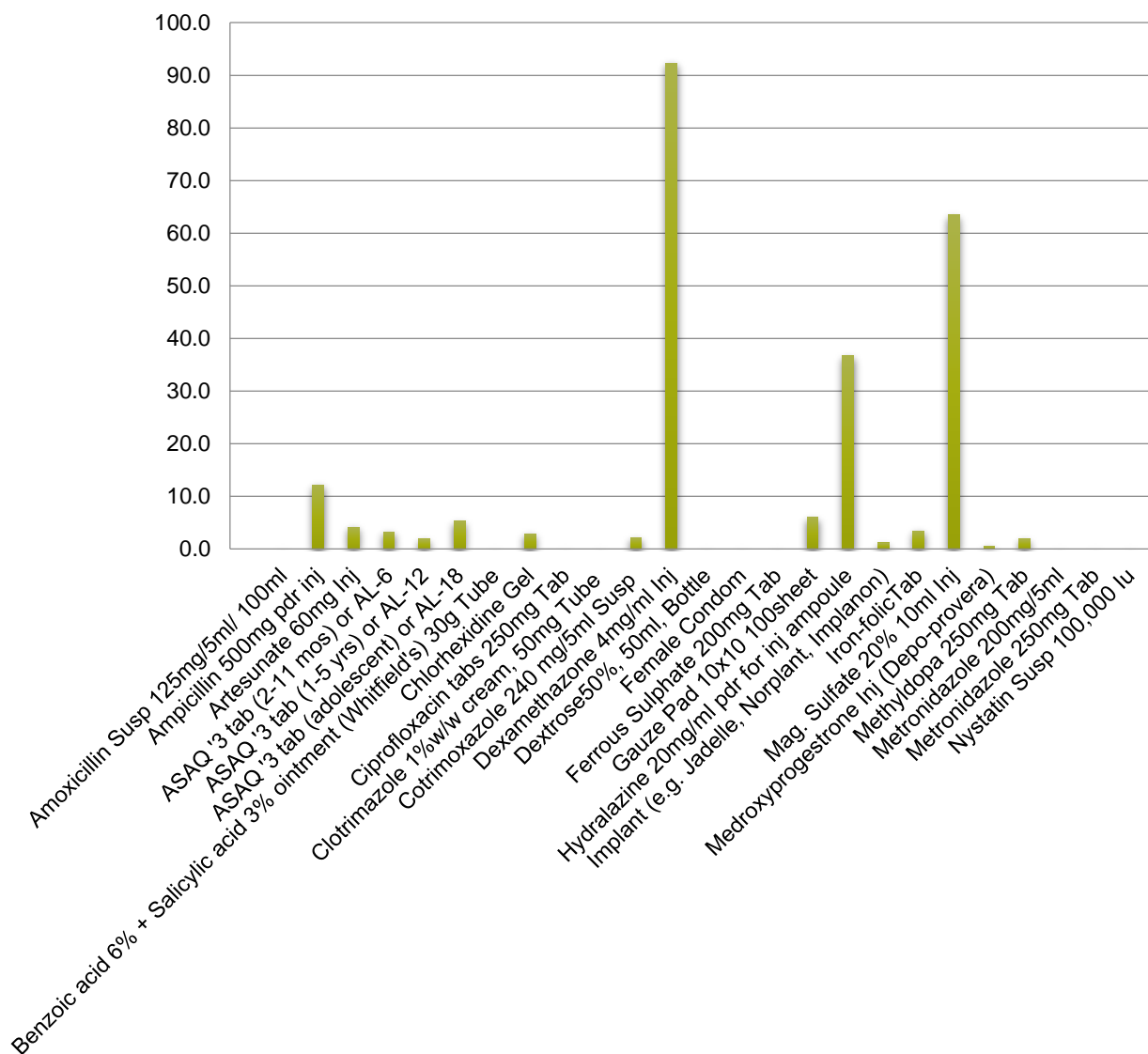


Figure 16. Percentage of HFs showing stock status by months of stock and minimum/maximum level

MEDICINE CONSUMPTION

The CRMS collects consumption data of the target products. The analysis focused on the consumption of two products in April 2016: antimalarial medicines and RMNCH products. The treatment data in the first section of this report show that malaria is the most common disease in Bombali District, which is collaborated by high consumption of the antimalarial medicine combination of artesunate-amodiaquine (ASAQ). According to the data, 16,879 doses of ASAQ were consumed, and 58% of those doses were consumed by patients between the ages of 1 and 5. For 13 lifesaving RH/FP and related products, the highest consumption was of iron-folic acid tablets, followed by folic acid, zinc sulfate tablets, and contraceptive pills.

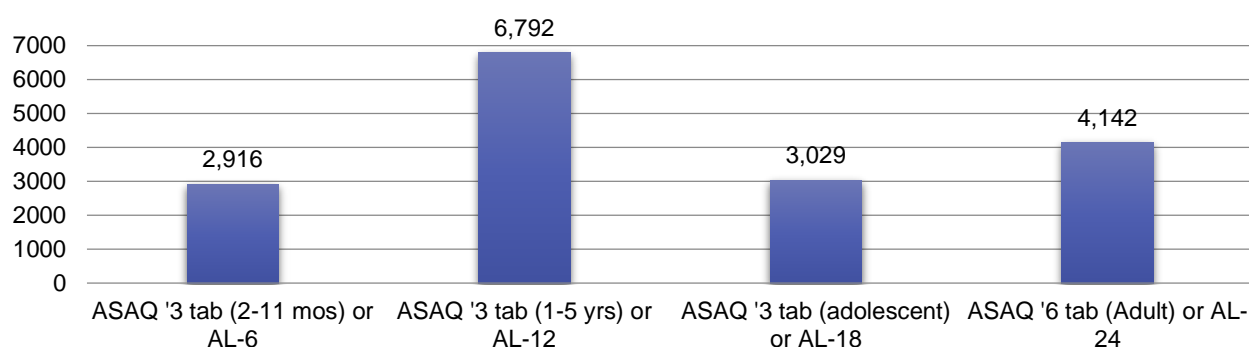


Figure 17. Antimalarial medicine (ACT) consumption

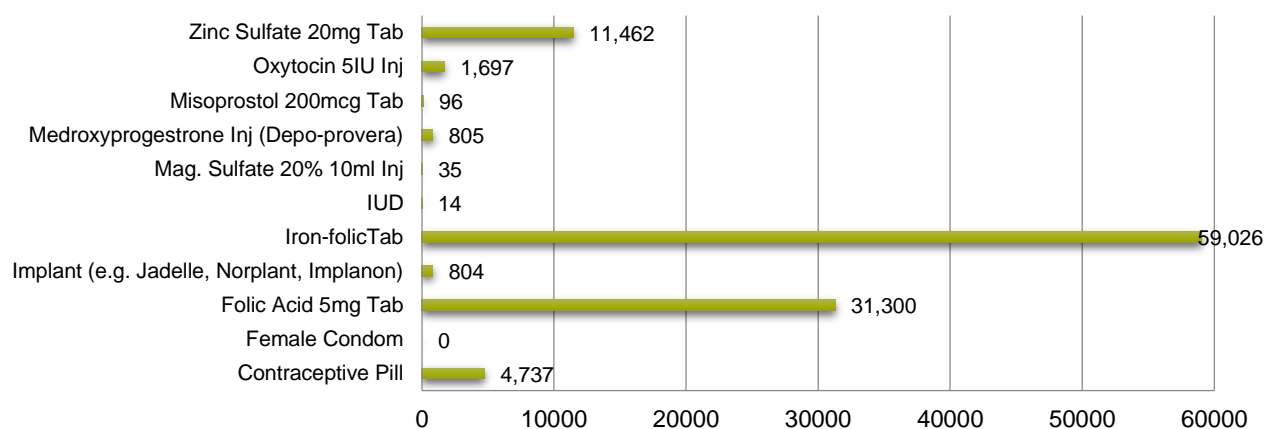


Figure 18. RMNCH product consumption

MEDICINE EXPIRY

Figure 19 shows the current status of expired drugs by whether they are segregated during storage, transferred to other facilities, or disposed. More than 50% of the HFs had segregated or separated expired drugs from usable products. CHCs, MCHPs, and the hospital had transferred the segregated expired drugs for disposal.

The value of expired products in Bombali District at the time of the CRMS exercise was USD 11,389. Antimalarial medicines represented 37% (USD 4,176), and malaria RDTs represented 39% (USD 4,480) (annex A).

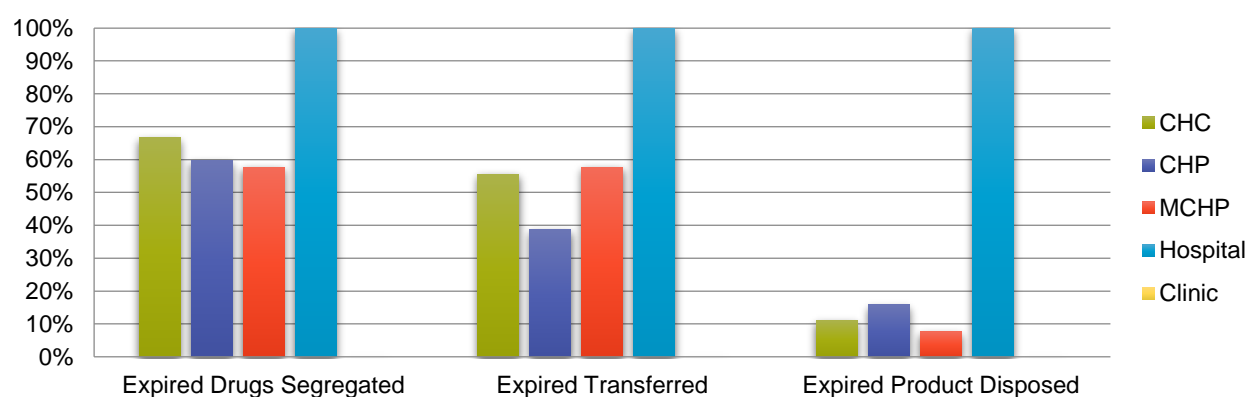


Figure 19. Percentage of HFs showing expired drugs status

Figure 20 shows the percentage of HFs with the number of expired medicines in a facility. The majority of HFs (approximately 65%) had between one and five expired products at the time of the review. The CRMS can be an important system for identifying where and how many expired products are found in the HFs, which simplifies recall or collection for appropriate disposal actions.

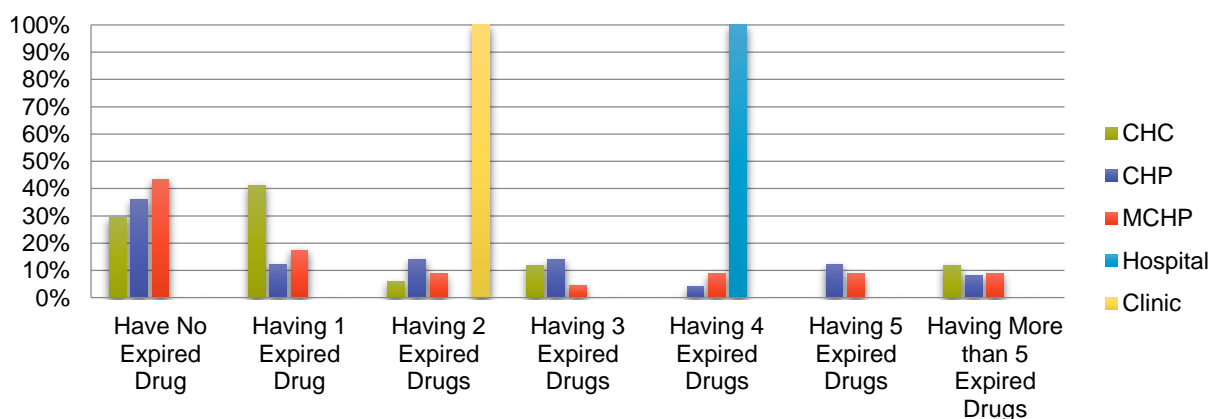


Figure 20. Percentage of expired products by facility type

PHARMACEUTICAL MANAGEMENT INFORMATION SYSTEM (PMIS)

The availability of basic inventory control/management tools, their proper use, and their accuracy are key supply chain management indicators that inform the movement of products and serve as critical instruments for monitoring stock status and rational use. Pharmacy registers, such as treatment or dispensing registers, are considered crucial for documenting consumption, treatment uptake, and testing parameters. These are key for tracking patient and product data, conducting medicine review studies, and identifying medicine use problems. Key index tools, including stock cards, treatment registers with monthly summary reports, and RR&IV, are tracked for the purpose of the CRMS evaluation. The current treatment register is neither user friendly nor appropriate to aggregate diagnosis and treatment data that can be converted to useful information for decision making. An enhanced treatment register is needed.

Figure 21 shows that only 70% of PHUs have stock cards, and less than 20% of those have been updated. This raises concern because if a facility lacks stock cards or does not use them regularly and accurately, inventory management and inventory control will be compromised. The first order of intervention is to ensure that all facilities have adequate stock cards, that every product has an accurate stock card, and that the stock cards are updated correctly during each transaction. The RR&IV fared better in terms of availability and accuracy. Although it is a positive practice, further analysis showed that adequate validation and analysis have not been conducted, and the consumption data are not reliable because the source for this information is hard to get. Approximately half of the PHUs completed the expiry and batch number information on the available stock cards, which makes tracking and tracing a difficult task if product loss or an adverse reaction occurs.

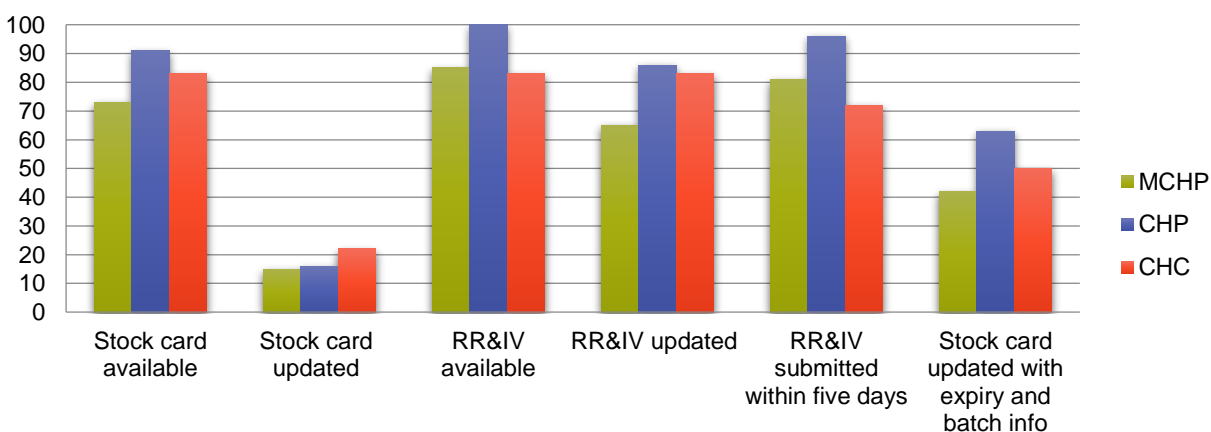


Figure 21. PMIS availability and use status by facility type

STORAGE CONDITIONS

Proper storage influences medicine quality, proper inventory management, store optimization, and ease of moving around in the store. Less than 60% of the PHUs had adequate storage space, and nearly half of them had shelves. No HF used a walled thermometer to monitor storage temperature. The availability of pallets at PHUs was extremely low, and this may be explained by the assumption that they don't need or don't have space for pallets. Shelves were also uncommon, and some PHUs did not keep medicines in the boxes/cartons they were delivered in because they lacked adequate space. More than 60% of PHUs had disorganized/unorganized storage, which affects the proper use of the available space and shelving. This does not allow for proper management, such as the practice of first expiring first out (FEFO), the use of bin cards, or conducting regular inventory/audits. Only the hospital was air conditioned. Congested spaces, coupled with no air conditioner or fans to help circulate the air, can affect the quality of medicines because temperature during the hot season may exceed the recommended storage range. The assessment did not look at cold storage. It was observed that more than 95% of the health facilities do not store oxytocin in refrigeration and this may result in early deterioration. For details on storage findings by HFs, see table 18 in annex A.

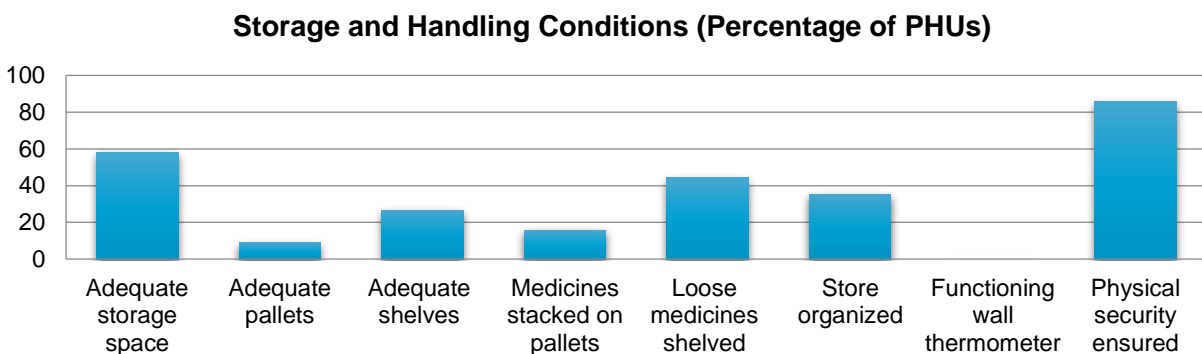


Figure 22. Storage and handling conditions in PHUs

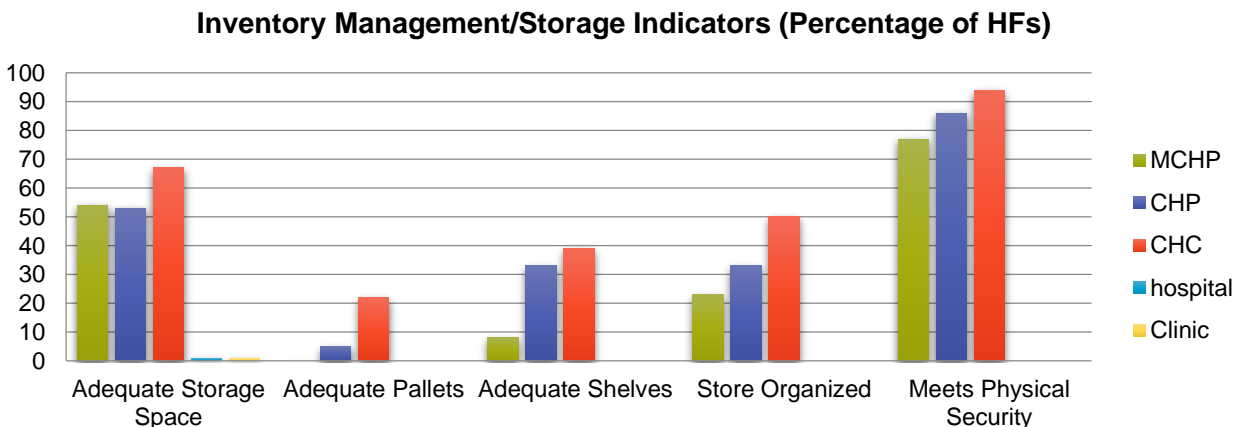


Figure 23. Inventory management/storage indicators in PHUs

INVENTORY CONTROL

Inventory control is used to measure drug supply management systems and facility practices. Figure 24 shows findings by percentage of HFs related to seven indicators. The percent of PHUs reporting their level of availability or practice was generally below 60%, and the practice of a pull system was insignificant. There were high percentages of short supplied facilities and products with a shelf life of less than six months, which are indicative of a push distribution practice. Approximately 35% of HFs reported experiencing some form of loss/pilferage. The introduction of a treatment/dispensing register, monthly stock status reports, a CRMS to track each HF on a regular basis, and proper quantification and procurement to meet the required quantities will all help to promote a pull system.

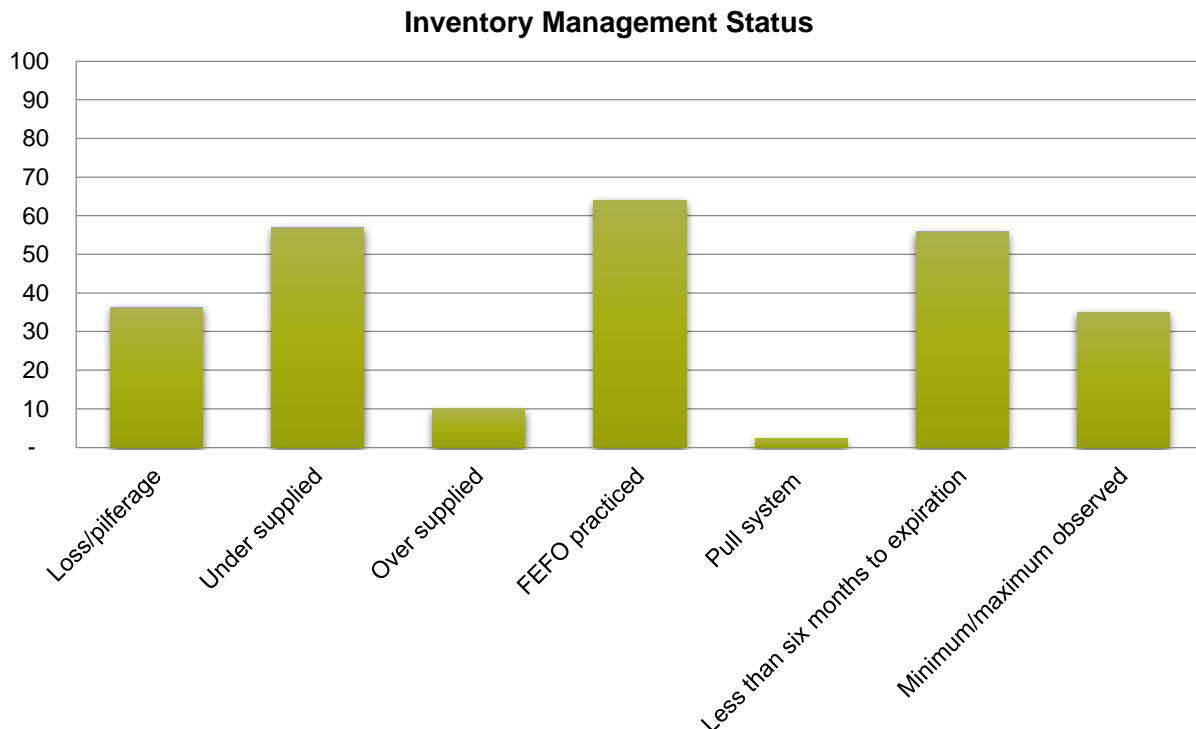


Figure 24. Percentage of facilities reporting inventory management indicators

STAFFING, TRAINING, AND MONITORING AND EVALUATION

Staffing by profession shows that the average PHU has 98 nurses, comprising approximately 40% of the technical work force in the assessed PHUs. Nearly an equal number of staff working in PHUs are volunteers. Almost all CHOs work in CHCs, while pharmacists and pharmacy technicians generally work in hospitals. The volunteer group is not broken down by type of profession. Personal interviews of some volunteers indicated that they have been volunteering for at least one to two years, and some are working as in-charges of PHUs. Although volunteering for a noble cause is laudable, in this situation it stems from the lack of paid positions. Because people have to earn income, volunteers may be forced to charge for services and products, and this can compromise the principle of free health care. In these conditions, inventory control can be difficult. Figure 25 shows that the majority of volunteers were working at CHPs, followed by MCHPs and CHCs.

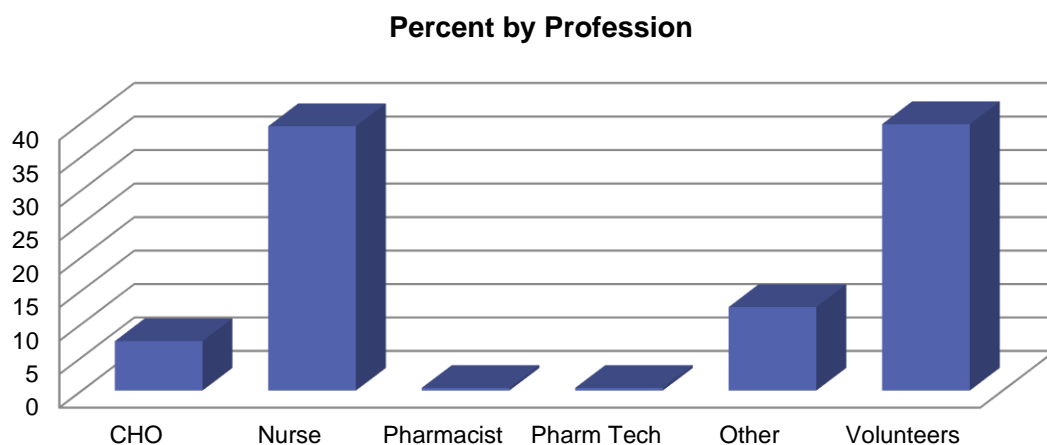


Figure 25. Percentage of HF staff reporting staffing availability by type

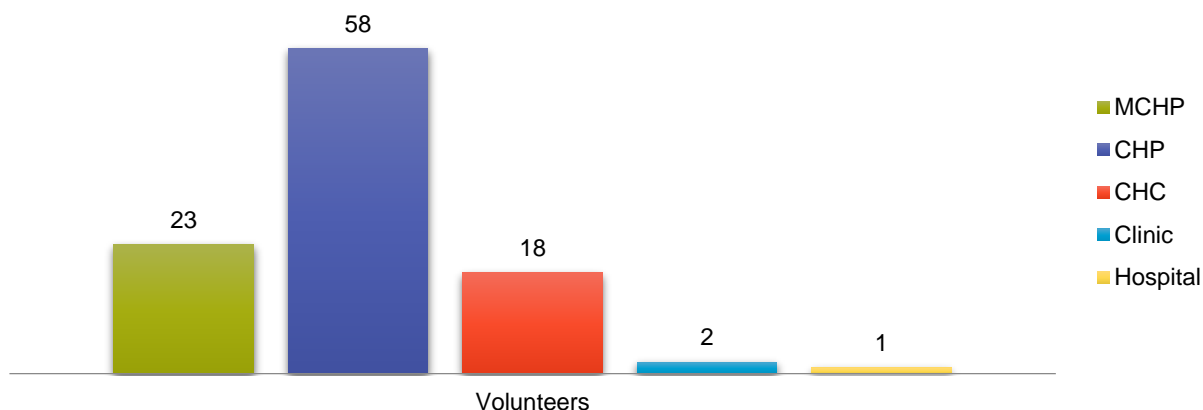


Figure 26. Number of volunteer staff by facility type

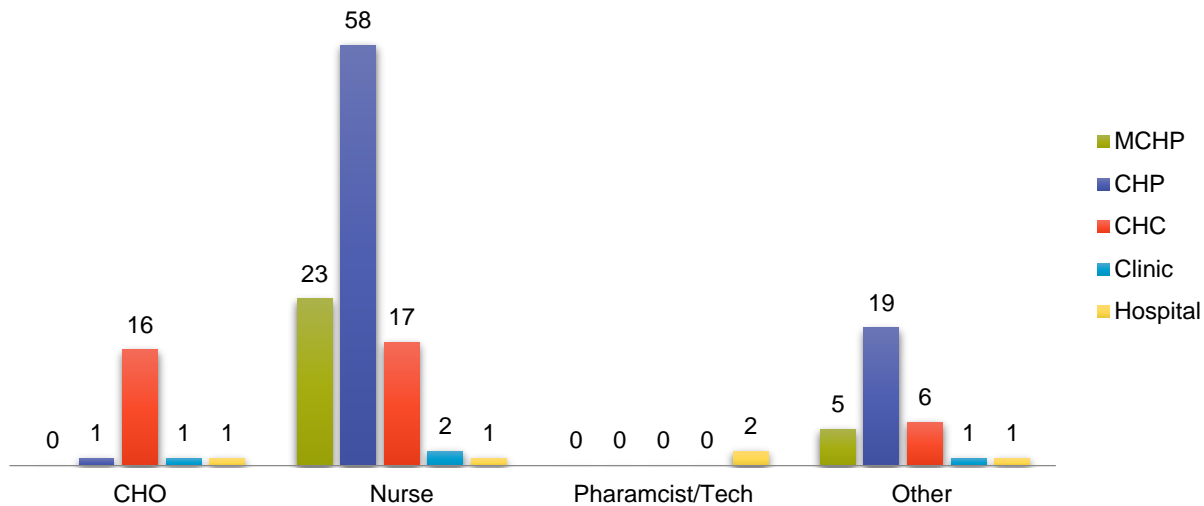


Figure 27. Health worker distribution by facility type

TRAINING

Training was assessed to determine whether technical staff had training in pharmaceutical management systems (e.g., drug supply management, LMIS, information systems). Only 35% of CHOs and nurses reported that they were trained over the past year. Very few reported being trained in LMIS or supply management. The limited training in LMIS and supply management is now identified as an area to be addressed through training workshops that will improve the knowledge and skills of the staff working at these facilities. This capacity building effort will be complemented with on-the-job training or mentoring during the CRMS process. Approximately 60% of HFs reported that they had received supportive supervision. Further analysis in this area indicated that supportive supervision is usually provided to members of the DHMT and does not focus on pharmaceutical management systems and support. Drug supply-related technical staff reported that they had not received supportive supervision specific to their area for at least one year. The CRMS, which is a proactive and real-time support system, is seen as a specific approach to ensure a robust supportive supervision and action-oriented system.

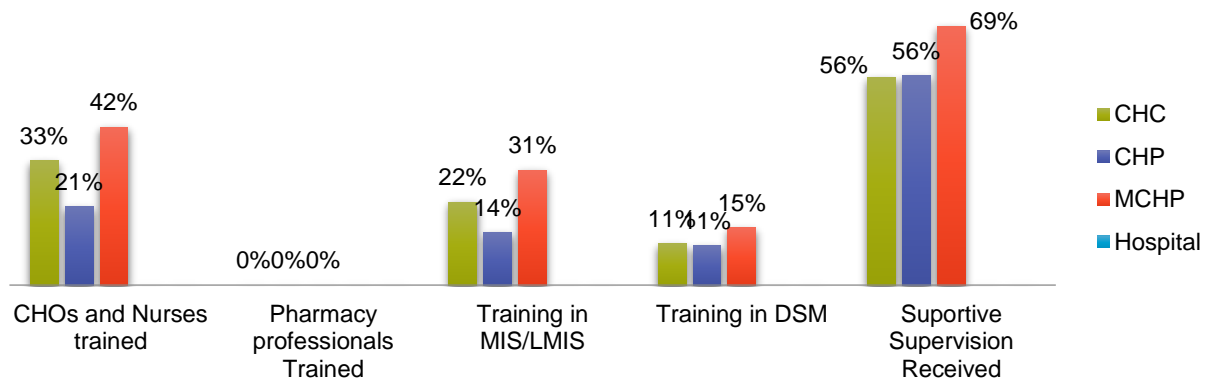


Figure 28. Training by facility type

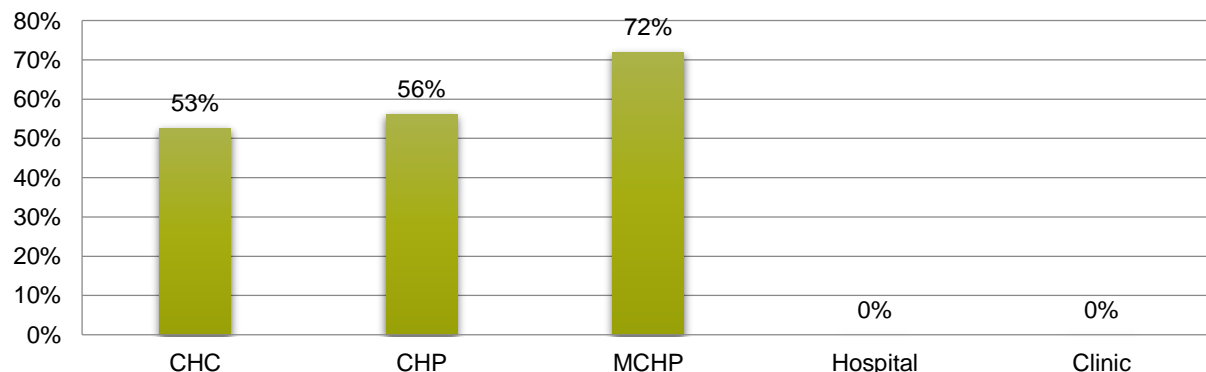


Figure 29. Supportive supervision by facility type

ANNEXES

Annex A. CRMS Indicator Finding Tables

Table 10. Number of Patient Visits by Facility Type and Age, Bombali District, April 2016

Diagnosis by age group		Hospital	CHC	CHP	MCHP	Clinic	Total	Percent
Under age 5		424	3,666	11,039	4,164	836	20,129	53.8%
<i>Male</i>	0–11 months	178	887	2,308	759	337	4,469	12.0
	12–59 months	26	1,002	3,349	1,256	105	5,738	15.3
<i>Female</i>	0–11 months	193	835	2,334	794	312	4,468	11.9
	12–59 months	27	942	3,048	1,355	82	5,454	14.6
Age 5 and above		1,176	2,485	8,681	4,006	914	17,262	46.2%
<i>Male</i>	5–14 years	71	150	812	358	39	1,430	3.8
	>14 years	186	618	1,784	712	75	3,375	9.0
<i>Female</i>	5–14 years	68	141	869	435	43	1,556	3.1
	>14 years	851	1,576	5,216	2,501	757	10,901	29.2
Total		1,600	6,151	19,720	8,170	1,750	37,391	100%

Table 11. Number of Patients Diagnosed by Age, Bombali District, April 2016

Diseases/Conditions	Under age 5			Age 5 and above					
	0–11		Total	5–14		Total	Percent	Aggr. %	
	months	months		years	years				
Anemia	254	431	685	3.4	85	360	445	3.1	3.3
Diarrhea	711	1,294	2,005	10	192	510	702	4.8	7.4
Eye Infection	193	211	404	2.2	58	160	218	1.5	1.9
HIV/AIDS	0	0	0	0	0	15	15	0.1	0.05
Hypertension				0	8	286	294	2	1
Indigestion				0	11	79	90	0.6	0.3
Malaria	2,712	4,650	7,362	36.9	1,474	3,133	4,607	31.7	34.3
Malnutrition	120	229	349	1.7	4	16	20	0.1	0.05
Pneumonia/ARI	2,734	3,438	6,172	30.9	469	1,487	1,956	13.5	25.2
Reproductive Health				0	16	1,430	1,446	10.0	5
Postpartum Hemorrhage				0	0	16	16	0.1	0.05
TB	2	0	2	0	1	19	20	0.1	0.05
Worms (Intestinal)	57	260	317	1.6	167	89	256	1.8	1.7
STIs				0	375	1,798	2,173	15	7.5
Skin Infection	374	619	993	5	328	279	607	4.2	4.6
Family Planning				0	0	949	949	6.5	3.2
Others	903	771	1,674	8.4	212	504	716	4.9	6.7
Total	8,060	11,903	19,963		3,400	11,130	14,530		

Table 12. Number of Patients Diagnosed by Facility Type, Bombali District, April 2016

Diseases/ Conditions	CHC		CHP		MCHP		Hospital		Clinic		All	
	< 5	≥ 5	< 5	≥ 5	< 5	≥ 5	< 5	≥ 5	< 5	≥ 5	< 5	≥ 5
Anemia	117	52	287	157	120	115	123	36	38	85	683	445
Diarrhea	372	24	1,025	248	501	72	48	30	59	10	2,005	384
Eye Infection	91	67	182	104	51	39	59	0	21	8	404	218
HIV/AIDS	0	7	0	0	0	0	0	8	0	0	0	15
Hypertension	0	74	0	125	0	62	0	23	0	10	0	294
Indigestion	0	14	0	68	0	8	0	0	0	0	0	90
Malaria	1,427	798	3,615	2,486	1,663	1,072	454	117	203	134	7,362	4,607
Malnutrition	57	8	185	9	52	3	0	0	55	0	294	20
Pneumonia/ARI	1,359	302	3,161	1,099	1,169	411	162	0	321	144	6,172	1,956
Reproductive Health	0	303	0	643	0	325	0	104	0	71	0	1,446
Postpartum Hemorrhage	0	3	0	4	0	2	0	7	0	0	0	16
TB	0	2	0	1	0	0	2	17	0	0	2	20
Worms (Intestinal)	62	67	194	88	37	70	0	24	24	7	317	256
STI	0	411	0	1,239	0	523	0	0	0	0	0	2,173
Skin Infection	190	106	414	324	323	177	38	0	28	0	993	607
FP	0	75	0	191	0	22	0	597	0	64	0	949
Other	184	184	1033	268	457	264	0	0	0	0	1,674	716

Table 13. Number of Patients Diagnosed by Condition

Diagnosis Conditions	Under 5 years	5 years and above	Total Patients Treated	Dispensed /Consumed Medicines	Discrepancy	Percent Discrepancy
Anemia	683	445	1,128	3,000	1,872	62%
Diarrhea	2,005	384	2,389	4,011	1,622	40%
Eye Infection	404	218	622	108	(514)	435%
HIV/AIDS	0	15	15	0	0	0
Hypertension	0	294	294	142	(152)	107%
Indigestion	0	90	90	330	240	73%
Malaria	7,362	4,607	11,979	16,919	4,940	29%
Malnutrition	294	20	314	21,907	21,593	99%
Pneumonia/ARI	6,172	1,956	8,128	6,104	(2,024)	33%
RH	0	1,446	1,446	0	0	0
Postpartum Hemorrhage	0	16	16	6,703	6,687	100%
TB	2	20	22	0	0	0
Worms (Intestinal)	317	256	573	7471	6,898	92%
STI	0	2,173	2173	0	0	0
Skin Infection	993	607	1,600	0	0	0
FP	0	949	949	1,778	829	47%
Other	1,674	716	2,390	0	0	0

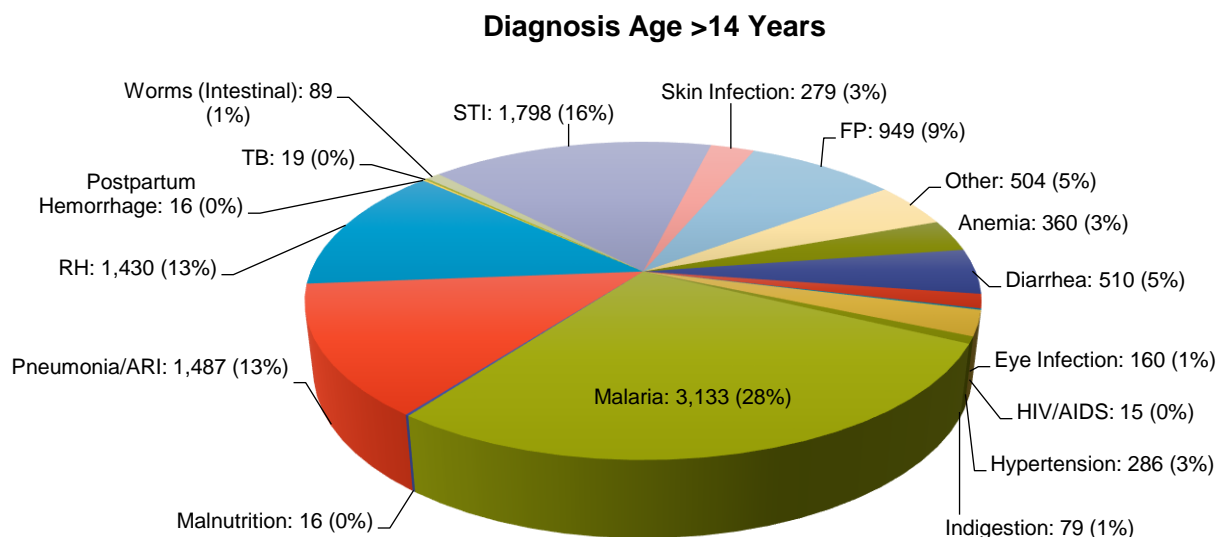


Figure 30. Number of patients older than 14 years of age by diagnosis

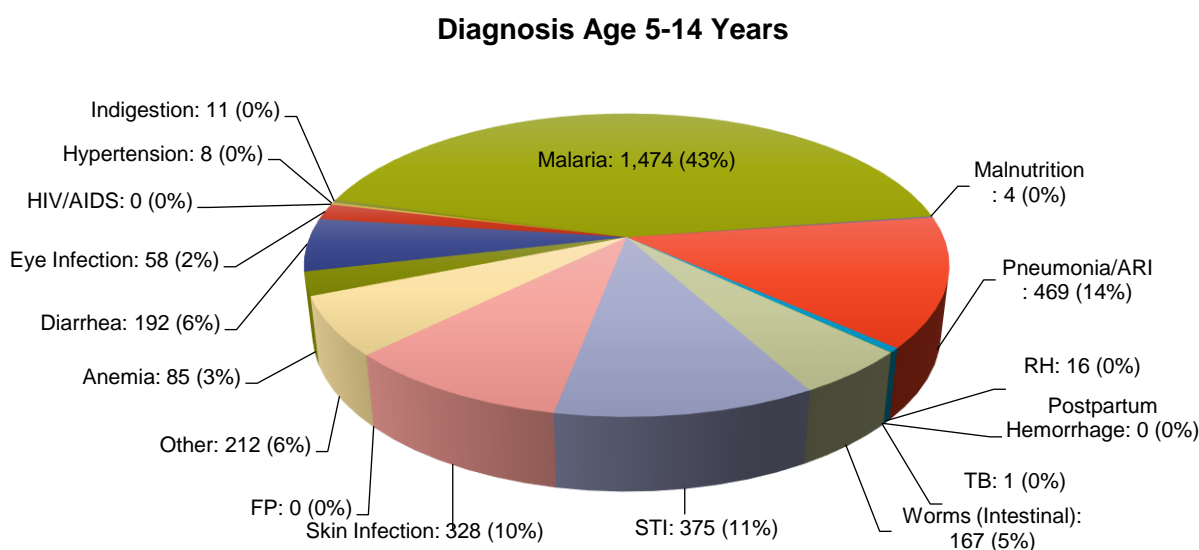


Figure 31. Number of patients between 5 and 14 years of age by diagnosis

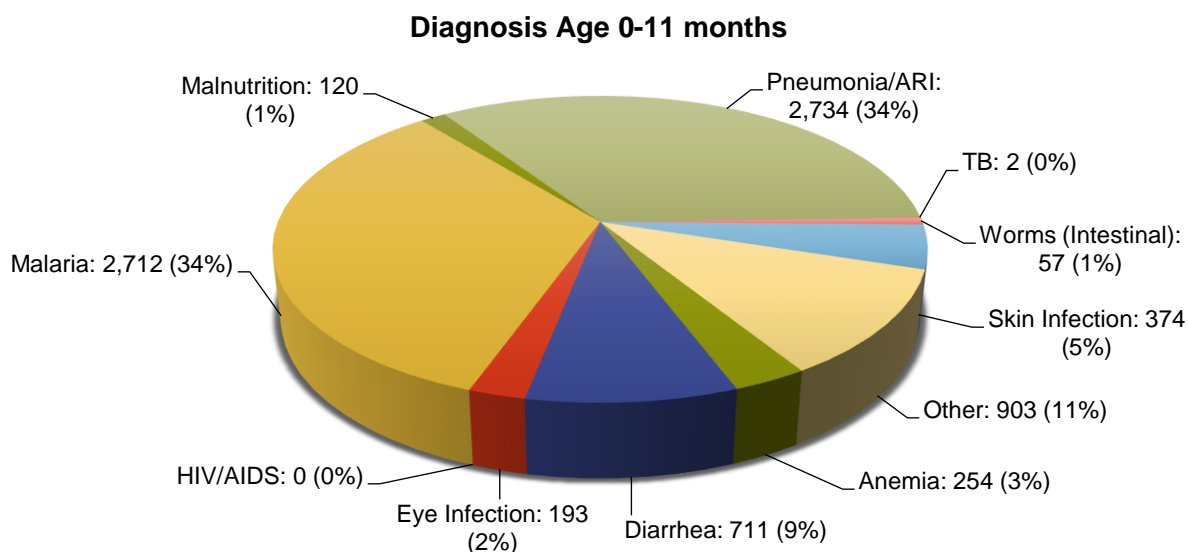


Figure 32. Number of patients between 0 and 11 months of age by diagnosis

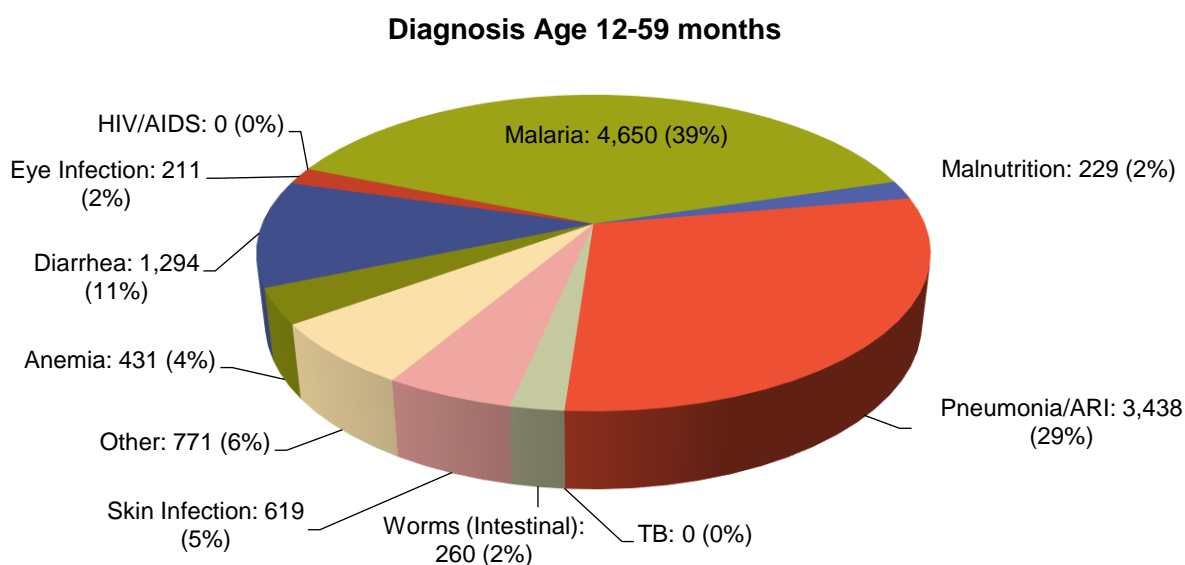


Figure 33. Number of patients between 12 and 59 months of age by diagnosis

Table 14. Quantity of Medicines Consumed, Bombali District, April 2016

Medicines and Medical Supplies	Total Consumption	
	Quantity	# of HFs
Artesunate 60 mg inj	456	42
ASAQ '3 tab (2–11 mos) or AL-6	2,916	73
ASAQ '3 tab (1–5 yrs) or AL-12	6,792	93
ASAQ '3 tab (adolescent) or AL-18	3,029	83
ASAQ '6 tab (adult) or AL-24	4,142	86
Sulphadoxine/pyrimethamine 500/25 mg	6142	54
Malaria RDT	NA	NA
Quinine sulfate 300 mg tab	1,187	10
Iron-folic tab	59,026	72
IUD	14	3
Magnesium sulfate 20% 10 mL inj	35	7
Medroxyprogesterone inj (Depo-Provera)	805	39
Misoprostol 200 mcg tab	96	3
Contraceptive pill	4,737	59
Oxytocin 5 IU inj	1697	76
Female condom	0	0
Folic acid 5 mg tab	31,300	64
Zinc sulfate 20 mg tab	11462	76
Implant (e.g., Jadelle, Norplant, Implanon)	804	20
Needle, disp 21 gauge	9,162	46
Cotton wool 500 g roll	78	35
Povidone iodine 20% 100 mL	31	26
Face mask	9,443	31
Gauze pad 10 x 10 100 sheet	1,853	29
Spirit, surgical 98%	41	22
Syringe, disp 5 mL	7,745	46
Tape, adhesive 5 cm x 5 m	216	34
Tape, umbilical	35	30
Glove, exam disp medium	42,112	44
Albendazole 400 mg tab	7,471	83
Aluminium hydroxide 500 mg tab	6,565	25
Amoxicillin 250 mg dispersible tabs	33,163	68
Ampicillin 500 mg pdr inj	3,921	60
Chlorhexedine gluconate 5% sol 1000 mL	29	24
Chlorhexidine gel	40	16
Co-trimoxazole 240 mg/5 mL susp	2,712	77
Co-trimoxazole 480 mg tab	20,587	63
Dexamethazone 4 mg/mL inj	173	13
Dextrose 5% 500 mL	382	29
Diazepam 5 mg/mL, inj 2 mL amp	205	41
Gentamycin 0.5% eye drops	108	7
Gentamycin 40 mg/mL inj 2 mL amp	7,702	79
Hydralazine 20 mg/mL pdr for inj amp	32	2
Lidocaine HCl 2% 50 mL vial	43	14
Metronidazole 200 mg tab	27,729	52
NaCl (NS) 0.9% IV inj 500 mL bag	917	30
Normal saline 0.9% 500 mL	2,923	38
ORS sachet	22,524	92
Methyldopa 250 mg tab	3,205	40
Paracetamol 125 mg/5 mL susp	5,992	66
Paracetamol 500 mg tab	86,327	88
Metronidazole 125 mg/5 mL 100 mL	3,011	68
Ringer Lact 500 mL	1,128	61
RUTF (Plumpynut)	21,907	37

Table 15. Available Medicines/MOS by Facility Type, Bombali District, April 2016

Medicines and Medical Supplies	% HF Showing Availability Status					MOS
	CHC	CHP	MCHP	Hospital	Clinic	
Albendazole 400 mg tab	88.9%	78.9%	73.1%	100.0%	100.0%	3.8
Aluminium hydroxide 500 mg tab	16.7%	29.8%	30.8%	100.0%	0.0%	5.8
Amoxicillin 250 mg dispersible tabs	22.2%	43.9%	50.0%	0.0%	0.0%	0.8
Amoxicillin susp 125 mg/5 mL/100 mL	11.1%	21.1%	15.4%	0.0%	50.0%	NCR
Ampicillin 500 mg pdr inj	33.3%	14.0%	19.2%	100.0%	50.0%	12.2
Artesunate 60 mg inj	55.6%	63.2%	61.5%	0.0%	100.0%	4.1
ASAQ '3 tab (2-11 mos) or AL-6	72.2%	59.6%	50.0%	100.0%	50.0%	3.3
ASAQ '3 tab (1-5 yrs) or AL-12	66.7%	73.7%	73.1%	100.0%	100.0%	1.9
ASAQ '3 tab (adolescent) or AL-18	77.8%	75.4%	65.4%	100.0%	50.0%	5.2
ASAQ '6 tab (adult) or AL-24	83.3%	86.0%	73.1%	0.0%	50.0%	4.7
Sulphadoxine/pyrimethamine 500/25 mg	38.9%	47.4%	34.6%	0.0%	0.0%	2.3
Benzoic acid 6% + salicylic acid 3% ointment (Whitfield's) 30 g tube	11.1%	3.5%	3.8%	0.0%	0.0%	NCR
Chlorhexedine gluconate 5% sol 1000 mL	72.2%	68.4%	53.8%	100.0%	50.0%	29.5
Chlorhexidine gel	33.3%	19.3%	19.2%	0.0%	0.0%	2.9
Ciprofloxacin 250 mg tab	5.6%	8.8%	3.8%	0.0%	0.0%	NCR
Clotrimazole 1% w/w cream, 50 mg tube	11.1%	7.0%	7.7%	0.0%	50.0%	NCR
Contraceptive pill	88.9%	78.9%	76.9%	100.0%	0.0%	15.9
Co-trimoxazole 240 mg/5 mL susp	72.2%	77.2%	57.7%	0.0%	100.0%	2.1
Co-trimoxazole 480 mg tab	38.9%	45.6%	38.5%	100.0%	0.0%	2.8
Co-trimoxazole 120 mg tab	0.0%	0.0%	3.8%	0.0%	0.0%	NCR
Cotton wool 500 g roll	72.2%	56.1%	65.4%	100.0%	50.0%	10.2
Dexamethazone 4 mg/mL inj	0.0%	3.5%	0.0%	100.0%	50.0%	92.3
Dextrose 5% 500 mL	50.0%	36.8%	30.8%	100.0%	50.0%	6.9
Dextrose 50%, 50 mL bottle	0.0%	0.0%	0.0%	0.0%	0.0%	SO
Diazepam 5 mg/mL inj, 2 ml amp	61.1%	66.7%	53.8%	100.0%	50.0%	4.5
Face mask	44.4%	57.9%	50.0%	0.0%	50.0%	4.9
Female condom	5.6%	7.0%	11.5%	0.0%	0.0%	NCR
Ferrous sulfate 200 mg tab	5.6%	3.5%	3.8%	0.0%	0.0%	NCR
Folic acid 5 mg tab	38.9%	45.6%	42.3%	100.0%	0.0%	1.9
Gauze pad 10 x 10 100 sheet	11.1%	17.5%	11.5%	0.0%	0.0%	6.0
Gentamycin 0.5% eye drops	0.0%	0.0%	0.0%	100.0%	0.0%	3.0
Gentamycin 40 mg/mL inj 2 mL amp	72.2%	80.7%	69.2%	100.0%	100.0%	1.7
Glove, exam disp medium	77.8%	78.9%	65.4%	100.0%	100.0%	26.7
Glucose 50% 500 mL	0.0%	0.0%	0.0%	0.0%	0.0%	SO
Hydralazine 20 mg/mL pdr for inj amp	0.0%	0.0%	0.0%	100.0%	0.0%	36.7
Implant (e.g., Jadelle, Norplant, Implanon)	50.0%	14.0%	3.8%	0.0%	50.0%	1.2
Iron-folic tab	50.0%	71.9%	69.2%	100.0%	0.0%	3.3
IUD	5.6%	0.0%	0.0%	0.0%	50.0%	10.4
Lidocaine HCl 2% 50 mL vial	11.1%	5.3%	3.8%	100.0%	0.0%	7.8
Magnesium sulfate 20% 10 mL inj	55.6%	59.6%	53.8%	100.0%	50.0%	63.2
Malaria RDT	16.7%	17.5%	11.5%	0.0%	50.0%	NCR
Medroxyprogesterone inj (Depo-Provera)	16.7%	26.3%	26.9%	0.0%	0.0%	0.6
Methyldopa 250 mg tab	38.9%	47.4%	26.9%	0.0%	50.0%	1.9
Metronidazole 125 mg/5 mL 100 mL	66.7%	56.1%	73.1%	0.0%	50.0%	2.8
Metronidazole 200 mg tab	38.9%	50.9%	38.5%	0.0%	50.0%	2.3
Metronidazole 200 mg/5 mL	0.0%	0.0%	0.0%	0.0%	0.0%	NCR
Metronidazole 250 mg tab	5.6%	0.0%	3.8%	0.0%	0.0%	SO
Misoprostol 200 mcg tab	5.6%	0.0%	0.0%	0.0%	0.0%	2.9

Medicines and Medical Supplies	% HF Showing Availability Status					
	CHC	CHP	MCHP	Hospital	Clinic	MOS
NaCl (NS) 0.9% IV inj 500 mL bag	27.8%	26.3%	26.9%	100.0%	50.0%	3.9
Needle, disp 21 gauge	27.8%	21.1%	30.8%	100.0%	0.0%	1.4
Normal saline 0.9% 500 mL	66.7%	40.4%	46.2%	100.0%	50.0%	2.5
Nystatin susp 100,000 IU	0.0%	0.0%	0.0%	0.0%	0.0%	SO
ORS sachet	88.9%	84.2%	80.8%	100.0%	100.0%	2.7
Oxytocin 5 IU inj	66.7%	71.9%	73.1%	100.0%	100.0%	6.3
Paracetamol 100 mg tab	5.6%	7.0%	7.7%	0.0%	0.0%	NCR
Paracetamol 125 mg/5 ml susp	50.0%	50.9%	57.7%	0.0%	0.0%	0.7
Paracetamol 250 mg tab	0.0%	0.0%	3.8%	0.0%	0.0%	NCR
Paracetamol 500 mg Tab	55.6%	61.4%	57.7%	0.0%	50.0%	0.5
Povidone iodine 20% 100 mL	16.7%	17.5%	11.5%	100.0%	0.0%	1.9
Quinine sulfate 300 mg tab	5.6%	15.8%	11.5%	100.0%	0.0%	35.9
Ringer Lact. 500 mL	77.8%	75.4%	73.1%	100.0%	100.0%	6.6
RUTF (Plumpynut)	33.3%	19.3%	19.2%	0.0%	50.0%	1.1
Spirit, surgical 98%	11.1%	17.5%	19.2%	100.0%	0.0%	3.9
Syringe, disp 5 mL	66.7%	78.9%	73.1%	100.0%	50.0%	5.0
Tape, adhesive 5 cm x 5 m	55.6%	68.4%	53.8%	0.0%	50.0%	10.2
Tape, umbilical	44.4%	56.1%	46.2%	0.0%	50.0%	21.4
Vitamin A cap	0.0%	0.0%	0.0%	0.0%	0.0%	SO
Zinc sulfate 20 mg tab	77.8%	70.2%	61.5%	100.0%	0.0%	31.0

Table 16. Quantity of Medicines Expired, Bombali District, April 2016

Antimalarials	Qty	# of HFs	GIT	Qty	# of HFs
ASAQ '3 tab (2–11 mos) or AL-6	2,087	19	Albendazole 400 mg tab	200	1
ASAQ '3 tab (1–5 yrs) or AL-12	1,868	14	Aluminium hydroxide 500 mg tab	1,500	2
ASAQ '3 tab (adolescent) or AL-18	1,054	15	Metronidazole 125 mg/5 mL 100 mL	29	2
ASAQ '6 tab (adult) or AL-24	1,142	13	Metronidazole 200 mg/5 mL	13	1
Sulphadoxine/pyrimethamine 500/25 mg	1,000	3	Zinc sulfate 20 mg tab	500	2
Quinine sulfate 300 mg tab	1,060	2			
Malaria RDT	4,148	7			
Miscellaneous	Qty	# of HFs	Antimicrobials	Qty	# of HFs
Diazepam 5 mg/mL, inj 2 mL amp	72	5	Ampicillin 500 mg pdr inj	1	1
Methyldopa 250 mg tab	900	5	Amoxicillin 250 mg dispersible tabs	100	1
Dexamethazone 4 mg/mL inj	54	3	Gentamycin 40 mg/mL inj 2 mL amp	108	2
Lidocaine HCl 2% 50 mL vial	22	7	Nystatin susp 100,000 IU	1	1
			Co-trimoxazole 240 mg/5 mL susp	4	1
RH/FP	Qty	# of HFs	Antiseptics/Disinfectants	Qty	# of HFs
Oxytocin 5 IU inj	240	2	Chlorhexedine gluconate 5% sol 1,000 ml	158	3
Female condom	51	5	Povidone Iodine 20% 100 ml	1	1
Magnesium sulfate 20% 10 mL inj	470	18			
Contraceptive pill	44,802	9			
			IV Fluids/Nutritionals	Qty	# of HFs
			Vitamin A cap	2,100	5
			Glucose 50% 500 mL	449	7
			Dextrose 5% 500 mL	127	7
			Dextrose 50%, 50 mL bottle	40	1
			Normal saline 0.9% 500 mL	1	1
			Ringer Lact. 500 mL	62	2

Table 17. Availability and Accuracy of PMIS Tools by Facility Type, Bombali District, April 2016

PMIS Conditions	CHC	CHP	MCHP	Hospital	Clinic	Average % for PHUs
Stock card available	83%	91%	73%	100%	100%	82.3%
Stock card updated	22%	16%	15%	0%	0%	17.7%
RR&IV available	83%	100%	85%	100%	100%	89.3%
RR&IV updated	83%	86%	65%	100%	100%	78%
RR&IV report submitted on 5th of month	72%	96%	81%	100%	100%	83%
Pharmacy register available	6%	5%	8%	0%	0%	6.3%
Pharmacy register fully completed	0%	5%	4%	0%	0%	3%
Pharmacy register monthly report submitted	0%	0%	0%	0%	0%	0%
Computer available and used for PMIS	0%	0%	0%	100%	0%	0%
Internet available	0%	0%	0%	100%	0%	0%
Expiry date and batch number up-to-date on stock card	50%	63%	42%	100%	100%	51.7%
Key (% HF)	60–100%	30–60%	1–30%	0%	0%	0%

Table 18: Adequate Storage Conditions by Facility Type, Bombali District, April 2016

Storage Conditions	CHC	CHP	MCHP	Hospital	Clinic	Average for PHUs
Adequate storage space	67%	53%	54%	100%	0%	58%
Adequate pallets available	22%	5%	0%	0%	50%	9%
Medicines stacked on pallets	33%	14%	0%	100%	50%	15.7%
Adequate shelves available	39%	33%	8%	100%	100%	26.7%
Loose products shelved	56%	46%	31%	100%	100%	44.3
Store organized (e.g., shelves, pallets, labeling)	50%	33%	23%	100%	0%	35.3
Functioning air conditioning	6%	0%	0%	100%	50%	2%
Functioning wall thermometer and temperature monitoring log	0%	0%	0%	0%	0%	0%
Physical security meets basic standards (e.g., locked, limited access, guard)	94%	86%	77%	100%	100%	85.7%

Table 19: Inventory Control Mechanisms by Facility Type, Bombali District, April 2016

Inventory Control								
HF Type	Discrepancy rate physical count vs. stock card record	Loss/pilferage	Supply short delivered	Supply over supplied	FEFO practiced	Pull system practiced	Medicines < 6 months to expire received	Minimum/maximum system observed
CHC	NA	22.2%	55.6%	11.1%	77.8%	0.0%	66.7%	44.4%
CHP	NA	35.1%	64.9%	8.8%	63.2%	3.5%	50.9%	35.1%
MCHP	NA	15.4%	50.0%	19.2%	53.8%	3.8%	50.0%	26.9%
Hospital	NA	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
Clinic	NA	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%

Table 20. Availability of Staff by Facility Type, Bombali District, April 2016

Profession	Personnel by Facility Type					Total	Percent
	CHC	CHP	MCHP	Hospital	Clinic		
CHO	16	1	0	1	1	19	7.4
Nurse	17	58	23	1	2	101	39.5
Pharmacist	0	0	0	1	0	1	0.4
Pharmacy tech	0	0	0	1	0	1	0.4
Other professionals	6	19	5	1	1	32	12.5
Volunteer staff	18	58	23	1	2	102	39.8
	57	136	51	6	6	256	100

Table 21. Training by Facility Type, Bombali District, April 2016

Training/M&E						
Health Facilities	CHOs and nurses trained	Pharmacy professionals trained	Training in MIS/LMIS	Training in DSM	Supportive supervision received	
CHC	33%	0%	22%	11%		56%
CHP	21%	0%	14%	11%		56%
MCHP	42%	0%	31%	15%		69%
Hospital	0%	0%	0%	0%		0%
Clinic	0%	0%	0%	0%		0%

Table 22. Supportive Supervision by Facility Type, Bombali District, April 2016

	% HFs that Received Supportive Supervision
CHC	56%
CHP	56%
MCHP	69%
Hospital	0%
Clinic	0%

Annex B. CRMS Indicators Definition

Availability products	<ul style="list-style-type: none"> Availability is defined as the presence of tracer products at the time of the visit. This information is collected from stock cards, reports, RR&IVs, and physical counts. The products monitored regularly include key program products, other key essential medicines, and medical supplies.
Availability of forms/tools	Inventory control/MIS forms monitored regularly for availability include stock cards, bin cards, stock status reporting forms, treatment/dispensing registers, and RR&IVs. Status of use/accuracy of these forms is also monitored.
Use of inventory control/MIS tools	<ul style="list-style-type: none"> Use of PMIS tools refers to the facility updating stock cards and treatment (or consultation) registers accurately and regularly. All transactions (receipts, issues, transfers, stock balances) are tracked through stock cards/RR&IVs. Number of persons treated by type of condition broken down by gender, age, and quantity of medicines dispensed is obtained from prescription papers or dispensing/treatment registers daily and totaled at least monthly to give an aggregated total for reporting.
Pull order system practiced	The pull system is preferred as an active model that ensures stock availability on the basis of actual consumption and need rather than allocation.
Adequate storage available	This indicator assesses the adequacy of space to store and handle products. It also looks at proper storage conditions, including shelves, cleanliness, and ambient temperature.
Medicine boxes stacked on pallets	Medicines should not be stacked directly on the floor because they may be exposed to water, vermin, etc. To avoid damage, cartons should be stacked on pallets, and the weight and nature of the product should be taken into consideration. This indicator measures whether these conditions are met and to what extent.
Boxes stacked away from wall	Medicine cartons should not be stacked directly against the wall for the same reasons they should not be stacked on the floor. The practice of stacking boxes away from the wall helps address such problems.
Loose medicines (containers) shelved	Smaller quantities should be shelved properly following acceptable categorization.
Store organized	Store organization means medicines are kept in order and stacked visibly, with the FEFO principle in force, bin cards attached to the shelves, obsolete/expired medicines separated, non-medicine supplies separated from medicines or chemicals, and organizing the store to simplify counting and managing supplies.
Expired medicines segregated for disposal	Expired medicines should be separated from active storage to provide room for active medicines and avoid mistaken dispensing.
Expired medicines disposed	National disposal guidelines state that expired medicines have to be formally and appropriately disposed of once they are listed.
Availability of staff	Availability of staff assesses the presence of a pharmacist, pharmacy technician, or other health professionals and support staff, such as data clerks. Pharmacists are required to staff hospitals, and pharmacy data clerks should manage treatment registers.
Training received	Training is usually provided in drug supply management and includes procurement, storage, and distribution. Training can also include PMIS/LMIS data collection, use, and reporting. Because most pharmacy professionals are not trained on the new products used for malaria management, it is necessary to orient them on the national drug supply chain SOP/manual. The indicator measures the status of training in pharmaceutical management systems, including LMIS.
Technical support/mentoring received	Technical assistance should be provided to facilities to offer support, such as SOPs and PMIS tools. The supervisors are required to make mentoring visits to their respective catchment facilities to provide on-the-job training and skills transfer.

**Annex C. Participants in Bombali CRMS Mentorship And Supportive Supervision
May 21–27, 2016**

Team	Position	Name
Team 1	District pharmacist (team lead)	Amara Bangali Sesay
	Chiefdom focal person	Idrissa Tarawallie
	Council M&E	Jonathan Combe
	SIAPS senior technical advisor-SCM	Marie Kolipha-Kamara
Team 2	Chiefdom focal person (team lead)	Umarr K. Dumbuya
	DDMS	Tamba Saquee
	SIAPS M&E	Momoh Jusu
	Pharmacist Port Loko	Abdul Kabia
Team 3	DIO (team lead)	Mustapha Kamara
	Chiefdom focal person	Sallieu Jalloh
	District Health Sister 1	Sis Hawa Kallon
	Pharmacist Western Area	Samuel Bailor
Team 4	DHMT M&E (team lead)	Zainab F. Conteh
	Chiefdom focal person	James Pessima
	Pharmacist Kambia	Mohamed I. Bangura
	Pharmacist Koinadugu	Idrissa Kamara
Team 5	Pharmacist Tonkolili	Bockarie Koroma
	District Health Sister 2 (team lead)	Sis Patricia Serry-Kamal
	Pharmacist Kono	Alpha Kabba
	Council Health Committee Chairman	Mohamed Y. Bangura

Annex D. CRMS HF's by Chiefdom and Teams

Team 1		Team 2		Team 3		Team 4		Team 5		
Chief dom	PHUs	Chief dom	PHUs	Chief dom	PHUs	Chief dom	PHUs	Chief dom	PHUs	
Bombali Seboru	Robat CHP	Safroko Limba	Kapethe CHP	Gbendembu Ngowahun	Kalangba CHC	Sanda Loko	Rothatha CHP	Makarie Gbanti	Masongbo CHC	
	Stocco CHP		Kabombeh CHP		Madina Loko CHP		Madina Fullah MCHP		Makarie CHP	
	Makeni Gov't Hospital		Masongbo Limba CHP		Masongbo Loko		Laminaya CHP		Kolisokoh CHP	
	Massory CHP		Kagbo CHP		Makieteh		Laiya MCHP		Fulla Town 1 CHP	
	Pate Bana CHC		Kayassie CHP		Tambiama CHP		Maharibo CHP		Mangay Loko MCHP	
	Masuba Clinic		Binkolo		Kortuhun CHP		Kamalo CHC		Thonkomba CHP	
	Red Cross CHP		Mabonkani MCHP		Gbendembu CHC	Sella Limba	Masankorie CHP		Punthun CHP	
	Makumbana CHP		Kabonka CHP	Maharie CHP	Kathanta Yimbo CHC		Yankasa CHP			
	Mabolleh CHP		Masselleh MCHP	Kagbere CHC	Kabba Ferry CHP		Magbainkoli CHP			
	Maforay CHP		Kathenneh MCHP	Mambiana MCHP	Kaponkie CHP		Mabayo MCHP			
	Police Clinic		Kamabai CHC	Hunduwa MCHP	Kamawornie MCHP		Matheneh MCHP			
	Tonko MCHP	Bumbandain MCHP	Mateboi CHC	Kamakwie CHP	Kerefay MCHP					
	Rokonta CHC	Kanikay CHP	Manack MCHP	Kamabaio CHP						
	Teko CHP	Kamasikie CHP	Mabunduka CHC	Kagboray MCHP	Matheneh					
	Makama CHP	Kagbaneh CHC	Rokulan MCHP	Tambaka	Samaya MCHP	Paki Masabong	Mapaki CHC			
	Fullah Town CHP	Manjoro MCHP	Rogbin CHP		Fintonia CHC		Makolor CHP			
	Panlap CHC	Karina CHP	Gbanti CHP		Sanya CHP		Kathantha Bana CHP			
	Kayonkoro CHP	Kamaranka CHC	Dombaya MCHP		Makeni Lol CHP					
Leibiesagahun	Matoto CHP	Biriwa	Kagbankona CHP	Borongoh/Makarankay CHP			18 facilities		Masingbi Lol MCHP	
	Magbaingba MCHP		Bumban CHP	Makaiba MCHP			Masabong Pil CHP			
	Mamaka CHP		Kayainkassa CHP	Royeama CHP			Yoni CHP			
	Batkanu CHC		Gbonkonka CHP				Kambia CHP		Kunsho CHP	
	21 facilities		Gbonkobana MCHP				21 facilities			
	Kiamunday MCHP		Gbainfay MCHP							
23 facilities			24 facilities							

Annex E. CRMS Checklists

CRMS PMIS Checklist

District/HF/Month			PMIS									
District	Facility	Period	Stock Card Available	Stock Card Updated	RUR& IV Available	RUR& IV Available and Analyzed	RUR& IV Report Submitted by PHN on 5th of Month	All RUR& IVs received from PHNs entered into CRMS	Pharmacy Register Available	Pharmacy Register fully completed	Pharmacy Register Quarterly Report Submitted	Computer Available and used for PMIS
									Inventory Available	Expiry Date and Batch Number updated in stock card	Chain and linker form available	Number of CHWs who were requested medication specified and of CHWs under PMIS
Bombali		Apr-16										
		May-16										
		Jun-16										
		Jul-16										
		Aug-16										
		Sep-16										
		Oct-16										
		Nov-16										
		Dec-16										
		Jan-17										
		Feb-17										
		Mar-17										

CRMS System Indicators Tracked

District/HF/Month			Staffing			Training/M&E			Rational Drug Use		
District	Facility	Period	Pharmacist	Pharm Tech	Clinic	Pharmacist	Pharm Tech	Clinic	% of stock card updated	% of stock card updated	Average # Moles per Prescription
Bombali		Apr-16									
		May-16									
		Jun-16									
		Jul-16									
		Aug-16									
		Sep-16									
		Oct-16									
		Nov-16									
		Dec-16									
		Jan-17									
		Feb-17									
		Mar-17									

CRMS Key Conditions Checklist

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 Hemorrhage
			Male	Female	Male	Female										
Bombali		Apr-16														
		May-16														
		Jun-16														
		Jul-16														
		Aug-16														
		Sep-16														
		Oct-16														
		Nov-16														
		Dec-16														
		Jan-17														
		Feb-17														
		Mar-17														

CRMS System (storage, expiry, inventory control) Indicators Tracked

District/HF/Month			Storage			Expired Drugs			Inventory Control		
District	Facility	Period	Adaptation Storage Space	Adaptation Policy Available	Stocked on Policy	Adaptation Storage Available	Adaptation Policy Available	Adaptation Policy Available	Supply Short delivered	Supply Over supplied	Full System Practice
Bombali		Apr-16									
		May-16									
		Jun-16									
		Jul-16									
		Aug-16									
		Sep-16									
		Oct-16									
		Nov-16									
		Dec-16									
		Jan-17									
		Feb-17									
		Mar-17									

CRMS Tracer Products Tracked for Consumption, Stock Status & Expiry

District/HF/ Month		# of patients Treated by Age		Tracer and Key Medicines																																																																																																																																																																																																																																																																																																																																																																																																								
District	Facility	Period	Male- Female		In Male to Female	Stock Status (Consumption / Availability / Expiry)	Tracer and Key Medicines																																																																																																																																																																																																																																																																																																																																																																																																					
			Consumed/ Dispensed Stock on Hand	Expired			Albendazole 400mg tab	Albendazole 200mg tab	Albendazole 200mg susp	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg tab	Albendazole 200mg 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