Sierra Leone Health Facility Survey 2014

Assessing the impact of the EVD outbreak on health systems in Sierra Leone

Survey conducted 6-17 October 2014

December 3, 2014

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CHAPTER 1: The Sierra Leone Rapid Health Facility Assessment, 2014

A rapid assessment of all peripheral health facilities in Sierra Leone was conducted to assess the impact of the EVD outbreak on Sierra Leone's health system. The Health Facility Survey had four major objectives:

1. To examine the uptake of essential maternal and child health services since the start of EVD outbreak.
2. To assess the availability of health services: open PHUs, health personnel available, commodities in stock.
3. To evaluate the impact of EVD outbreak on key maternal and child health tracer interventions: ANC4; Penta 3; birth deliveries in health centers; under-five children treated for malaria.
4. To assess the state of nutrition and HIV/AIDS services.

Additional information was collected on the following topics:

- Availability of health personnel and Community Health Workers (CHWs) at PHUs;
- Availability of essential medicines, water for handwashing, waste management services, referral services;
- Specific question related to Ebola were asked to probe health personnel's perception of the impact of Ebola on health services.

1.1 Survey Methodology

The rapid assessment covered all the 1,185 primary health facilities, commonly identified as Primary Health Units (PHUs). PHUs are composed of Community Health Centres (CHCs), Community Health Posts (CHPs), Maternal and Child Health Posts (MCHPs). The assessment did not cover secondary and tertiary health facilities, i.e. district hospitals nor private hospitals and clinics which are mostly located in the country's major urban centers.

The Maternal and Child Health Post (MCHP) is the first level of contact for patients in the village and grassroots level. One or more MCH Aides are posted at these centers serving a population of 500 to 5,000 within a 3-mile radius. The services provided include antenatal, delivery and postnatal care.

A Community Health Post is usually situated in a small town serving a population of 5000 to 10,000 within a 5-mile radius. These posts have similar functions to the MCHP with added curative functions. Community Health Posts are managed by Community Health Assistants and in some cases by SECHN supported by one or more MCH Aides.

The Community Health Centres have preventive, promotive and curative functions with a catchment population of 10,000 to 30,000 or more within a 5-10 mile radius. The centers have inpatient care, as well as a laboratory and are managed by Community Health Officers and are supported by several nurses, midwives and technicians. In addition to assisting normal deliveries, the community health centre can handle some complications; grave cases of childhood illness; treatment of complicated cases of malaria and inpatient and outpatient physiotherapy for disability.

Sierra Leone is divided into four major areas, Northern Province, Southern Province, Eastern Province and the Western Area where the capital Freetown is located. Provinces are further divided into fourteen districts. Districts are then sub-divided into chiefdoms. The survey was carried out across the country from 6 to 17 October 2014. Data was collected for the period May to September 2014. As the first reported case of Ebola was identified on 24 May 2014, data collected for the month of May can be treated as a baseline for the health system prior to the onset of the Ebola outbreak. Any impact of Ebola on the health system would become manifest from June 2014.

During the rainy season, access to health facilities is usually hampered and the uptake of various routine services declines. To distinguish the impact of Ebola outbreak on the uptake of services from that attributed to 'seasonality', monthly data from the Health Management Information System (HMIS) for the period from May to September 2013 was collated to serve as a reference point.

A standardized questionnaire was developed and pre-tested in 4 facilities in Freetown prior to data collection. It was designed to be administered to the PHU in-charge for each facility. The data collected was further validated by reviewing PHU registers, physically verifying the existence of stocks, and through direct observation by trained enumerators.

In five districts (Bo, Bonthe, Tonkolili, Western Area Urban and Western Area Rural), data collection was managed directly by the Ministry of Health and Sanitation (MoHS). In the remaining districts, data was collected through UNICEF's implementing partners[1]. The data collection was preceded by a one-day training for the enumerators in Freetown. Additional trainings for the enumerators at district level were organized, as only supervisors could travel to Freetown to attend the main training.

To accelerate the process of collecting data in the field, it was decided to do one round of data entry in the field. Every day the completed questionnaires were checked by supervisors and sent to the district headquarters for data entry. A simple data entry excel sheet was given to the districts for this purpose.

After the data collection process was completed, each district sent the completed data entry forms along with the filled paper-based questionnaires to Freetown. A four-member team worked for five days in Freetown to verify the data entered and check it with the hard copies of questionnaires. The data was further cleaned by the data analysis team while preparing this report.

Data collection was completed on October 17, 2014. Data entry and cleaning were completed within two weeks of completing the data collection. Preliminary findings were shared with the Ministry of Health and Sanitation and development partners on November 1, 2014. The dataset was verified to be of good quality, and shared with all partners on November 12, 2014.

The analysis team used Stata for generating tables. The dataset is available in both excel and Stata formats. The questionnaire is appended to the report as Annexure A.

[1] Save the Children, SILPA, CAUSE, CAWeC, World Hope

1.2 Limitations of the Health Facility Survey 2014

As with any research, the present assessment was subject to certain constraints and limitations.

The Health Facility Survey covered all 1,185 PHUs in the country but did not include district hospitals or private hospitals or clinics. Communities who resort to these facilities are thus not adequately represented. This will particularly affect results for populations living in urban areas (especially Freetown) who for the most part rely on government and private hospitals and not PHUs to address their health needs.

The Health Facility Survey was planned and implemented as a rapid assessment in an emergency context, at a time when the number of EVD cases was increasing exponentially throughout the country.

Shortcomings in the data collection were identified during the cleaning process. Many enumerators used 'zeroes' and 'blanks' interchangeably, although the instruction was to use blanks only in the case of missing data. Some enumerators collected information for questions which they should have skipped. Another critical issue was the use of different units to record data on nutrition commodities. Also, as mentioned earlier, the data was entered directly during the field survey and there was no double data entry. To the extent possible, gaps and inconsistencies in the data were checked against paper-based questionnaires during the cleaning process. The final dataset was subjected to rigorous consistency checks.

Other limitations of the Health Facility Survey stem from several shortcoming in the design of the survey questionnaire. Some of the questions formulated in the survey generated ambiguous responses on the following topics:

- Data were obtained on the number of personnel working at the health facility in April 2014 and currently employed. However, enumerators did not verify whether the personnel were actually physically present and working at the facility. Hence it is not possible to evaluate the extent to which health care workers regularly attend to their duties.
- The number of Community Health Workers (CHWs) might have been underreported. There are various types of CHWs across the country, known by different names: e.g. CHWs, CBPs, CDTs. However, if asked about CHWs, PHUs tend to report only those CHWs associated with iCCM.
- Several of the questions pertaining to Ebola were too ambiguous. For instance, questions on whether Ebola-related training and information are inadequate do not define what can be considered 'inadequate'.
- Similarly the question on referral mechanism asks whether the facility has a functional referral system. However, the 'functionality' of a system was not clearly defined.

Chapter 2 Assessing the impact of the EVD outbreak on Sierra Leone's health system

In 2014, Sierra Leone's health care system needs to address the needs of an estimated 1.4 million women of child-bearing age and 1.1 million under-five children. It is expected that about 260,400 women will be expecting a child[2], and approximately 2000 will die in child birth.[3] Among the population of under-five children, approximately 39,000 will die, include 11,000 during the neonatal period.

In Deputy Health Minister Madina Radman's own assessment, *"the country's failure to clearly separate its EVD treatment units from regular health facilities had destroyed confidence in hospitals and clinics. We are struggling to regain confidence in our health facilities because of this mistake. About 50 per cent of the deaths in the country are not Ebola but, because people fear to come to some of our healthcare facilities, they die needlessly due to other treatable disease*s."[4]

This report evaluates the extent to which the utilization of key maternal and child health interventions could be maintained in the midst of the EVD outbreak. As the epidemic progresses unabated, it is critical that the country's primary health care system continues to provide essential health services in order to prevent a secondary health crisis with potentially more deaths than caused directly by the EVD outbreak. Ultimately, efforts to control the EVD outbreak also depend on the strength of the country's primary health care system.

2.1 Overview of the EVD outbreak in Sierra Leone

For over 6 months, Sierra Leone has been confronted to an unprecedented outbreak of EVD in terms of speed and geographic spread of the epidemic. The first Ebola case was confirmed on 25 May 2014 when a young woman treated at the government hospital in Kenema tested positive for EVD. This first case was traced to the funeral of a respected traditional healer who had treated sick patients travelling from neighbouring prefectures in Guinea.[5]

At the start of the survey on 6 October 2014, Ebola had already spread to thirteen districts. The total number of estimated EVD cases had reached 2,823 (2,492 confirmed, 37 probable and 294 suspect). Two weeks later, when the survey ended, 685 new cases had been recorded. By November 27, 2014,

[2] Census Population projections
[3] WHO estimates for Sierra Leone, http://www.who.int/maternal_child_adolescent/epidemiology/profiles/maternal/sle.pdf
[4] UNMEER External Situation Report, 7 November 2014, http://www.un.org/ebolaresponse/pdf/Situation_Report-Ebola-07Nov14.pdf
[5] WHO, "Ebola at 6 months: Sierra Leone: a traditional healer and a funeral", Sep 2014, accessed 29 November 2014, URL: http://www.who.int/csr/disease/ebola/ebola-6-months/sierra-leone/en/

the number of EVD cases had doubled to 6,911.[6] EVD hotspots at the time of the survey were Western Area (Rural and Urban), Port Loko and Bombali.

Today, the epidemic has reached all fourteen districts across all settings, from remote rural areas to district towns, as well as the capital city, Freetown. As of 26 November 2014, it is estimated that 6911 people have been infected (including 5,683 confirmed cases, 79 probable and 1,149 suspect) and 1,830 have died of EVD.[7] Current hotspots include Western Area (Urban and Rural), Port Loko, Bombali. In recent weeks, the district of Tonkolili, Koinadugu and Kambia have started reporting higher number of cases whereas Kenema and Kailahun have recorded a significant decline in new cases.[8] The epidemic continues to spread in the capital city, Freetown as overcrowded living conditions and fluid population movements pose particular challenges for epidemic control.

Figure 1: Timing of EVD outbreak in Sierra Leone, May – October 2014

Timing of the EVD outbreak in Sierra Leone, May - Oct 2014 | EVD cases as of 10/31/2014

Epi Weel	w22	w23	w24	w25	w26	w27	w28	w29	w30	w31	w32	w33	w34	w35	w36	w37	w38	w39	w40	w41	w42	w43	w44	Total
	25-May	1-Jun	8-Jun	15-Jun	22-Jun	29-Jun	6-Jul	13-Jul	20-Jul	27-Jul	3-Aug	10-Aug	17-Aug	24-Aug	31-Aug	7-Sep	14-Sep	21-Sep	28-Sep	5-Oct	12-Oct	19-Oct	26-Oct		
NATIONA	17	35	49	60	45	84	92	81	90	140	140	150	198	240	220	337	430	434	345	383	421	276		4272
Kailahun	17	31	45	36	31	51	64	42	31	71	40	22	20	25	25	18	18	14	13	11	37	13		678
Kenema	0	1	1	19	12	29	21	29	39	39	48	57	54	33	43	25	18	32	20	41	30	38		629
Bo	0	0	1	2	0	2	2	4	6	11	14	11	25	48	19	20	18	29	22	20	40	3		297
Bombali	0	0	0	0	0	1	0	0	5	1	2	5	13	37	27	86	128	78	71	65	68	30		617
Port Lokc	0	2	1	0	0	0	2	0	1	4	15	17	25	31	35	59	70	90	49	97	110	115		724
WA Urba	0	0	0	0	1	0	2	3	3	1	9	11	19	20	15	46	52	56	31	35	16	23		344
WA Rura	0	0	0	0	0	0	0	0	0	0	1	5	22	20	12	34	55	69	53	69	79	47		466
Moyamb	0	0	0	0	0	0	0	0	2	4	3	3	3	1	8	3	42	22	13	11	14	6		135
Tonkolili	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	9	22	35	19	11	0		99
Kono	0	0	0	0	0	0	0	0	0	3	0	0	0	4	4	9	2	6	25	10	8	0		71
Pujehun	0	0	0	0	0	0	0	0	0	2	1	0	4	1	3	0	3	8	6	3	4	0		35
Kambia	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	5	5	0	0	0		12
Bonthe	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0		3
Koinadug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Unknowı	0	0	1	3	1	1	1	2	3	4	7	19	13	19	28	35	14	3	2	2	3	1		162

2.2 Sierra Leone's health system

2.2.1 The health system prior to the EVD outbreak

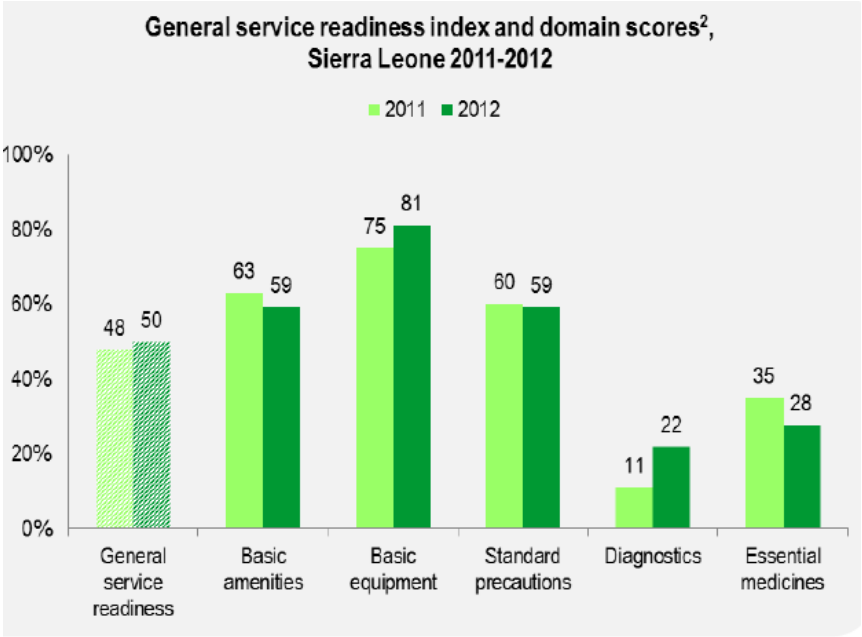
Since 2002, Sierra Leone has been on the path of recovery from a brutal civil war when Ebola struck on May 25, 2014. Although the process of rebuilding and rehabilitating its health infrastructure was underway, important gaps remained. Ebola exposed prior vulnerabilities of the health system. Most prominently, health human resources remain extremely scarce with just 0.2 doctor and 3 nurses per 10,000 people, a large gap compared with the 23 doctors, nurses and midwives per 10,000 inhabitants necessary to achieve 80% coverage in essential health services (vaccination, skilled birth attendance)[9].

A survey of the availability of health facilities and their readiness to deliver services performed in 2011 and updated in 2012 indicate that although most facilities offer Maternal and Child Health (MNCH)

[6] GoSL, MOHS, Ebola Virus Disease Situation Report Vol 132 (07 October) and Vol 142 (17 October)
[7] GoSL, MOHS, Ebola Virus Disease Situation Report Vol 183 (27 November)
[8] Presidential Task Force on Ebola, News Summary, 13 and 17, November 2014
http://www.ebolafight.gov.sl/news%20summary.html
[9] WHO, Strengthening the health workforce to strengthen health systems.
http://www.who.int/hrh/resources/hrh_flyer.pdf?ua=1

services, important gaps remains in terms of trained staff, equipment, diagnostic capacity, and medicines available. Diagnostic capacity was very low for child preventative and curative care as well as for antenatal care. Lack of equipment was a particular hindrance for the provision of comprehensive obstetric care. The availability of essential medicines was also of special concern.[10]

Figure 2: Health Service Availability and Readiness Assessment (SARA), 2011-2012



The quality of health services was not uniform across the country, some districts performing better than the others. The table below compares different districts along critical maternal and child health outcomes (as the coverage of DPT3 vaccination, the percentage of births delivered in health centers, and the percentage of children under-5 treated for malaria).

Routine services provided through health facilities were affected across all districts as the EVD outbreak progressed. Nonetheless, health systems in Kailahun and Kenema (the two original epicentres of the outbreak) appear to be performing better and have exhibited their capacity to bounce back. On the other hand, in other districts such as Kambia where health systems were very weak prior to the Ebola outbreak, the utilization of essential maternal and child health services started declining even before the EVD outbreak hit the district directly. This might be because of the already low trust people had in the health system in those districts, compounded by the news of outbreak from neighbouring districts (or even across the border in the case of Kambia), resulting in people shunning health facilities altogether.

[10] GoSL, MOHS Sierra Leone, Service Availability and Readiness Assessment (SARA) report for 2011 and 2012

Table 1: Selected child mortality outcomes and coverage of essential MCH interventions by district (2013 - 2014)

		U5MR (10-y period)	IMR (10-y period)	GAM(5)	% births delivered in health center	% DPT3	% of U5 treated for malaria	% of Children 6-59 months who slept under ITN the previous night of interview
		(1)	(1)	(5)	(2)	(3)	(4)	(5)
Northern	Bombali	113	71	6.8% (5.1- 9.0)	41	84	67	94%
	Kambia	131	75	6.5% (4.6- 8.9)	34	61	16	93%
	Koinadugu	202	113	4.1% (2.5- 6.8)	33	70	37	87%
	Port Loko	175	101	6.7% (5.2- 8.7)	39	74	27	90%
	Tonkolili	190	106	5.3% (3.9- 7.3)	35	70	19	86%
Eastern	Kailahun	186	110	N/A	84	89	89	N/A
	Kenema	224	147	5.5% (3.6- 8.4)	77	83	83	92%
	Kono	171	110	4.5% (2.7- 7.4)	53	80	80	82%
Southern	Bo	173	119	4.3% (2.9- 6.2)	72	93	93	97%
	Bonthe	77	55	N/A	74	81	81	N/A
	Moyamba	199	144	4.4% (3.3- 5.9)	33	79	79	97%
	Pujehun	217	130	4.0% (3.0- 5.4)	62	87	87	95%
Western	WA Rural	175	124	2.3% (1.6- 3.5)	57	72	72	87%
	WA Urban	152	103	1.9% (1.2- 3.1)	62	69	69	81%
National		194	127	4.7% (4,3 – 5,2)	54	78	78	90%

(1) DHS 2013, infant and under-five mortality rates for the 10-year period preceding the survey, page 103; (2) DHS 2013, page 114; (3) DHS 2013 page 129; (4) Children with fever who took any ACT, DHS 2013 page 185; (5) SIERRA LEONE NATIONAL NUTRITION SURVEY 2014, June 30 – August 12, 2014

2.2.2 Sierra Leone's health care system caught in the EVD outbreak

The EVD outbreak has impacted the health system in two distinct ways. First, Ebola has inflicted a large toll on the country's scarce health human resources. When Ebola struck, health workers found

themselves in insufficient numbers, under-equipped, and underprepared to control the disease.[11] Lacking hygiene training and equipment, they were unable to implement demanding Infection Prevention and Control (IPC) measures, leaving them exposed to infection during routine contact and enabling further transmission to other health workers, patients and family members. As a result, health workers became infected with EVD. By early October, 129 health care workers had reportedly been infected with EVD.[12] By end of November, the number of infected health care workers has nearly doubled to 239, including 179 confirmed EVD cases and 77 confirmed EVD deaths.[13]

Table 2: Reported numbers of EVD cases & deaths (confirmed, probable & suspected) among healthcare workers, Nov 9, 2014

HEALTH CARE WORKERS	District	Cases	Deaths
Northern	Bombali	25	5
	Kambia	1	1
	Koinadugu		
	Port Loko	33	5
	Tonkolili	17	0
Eastern	Kailahun	31	15
	Kenema	71	49
	Kono		
Southern	Bo	21	11
	Bonthe		
	Moyamba	3	0
	Pujehun	4	1
Western	WA Rural	13	1
	WA Urban	20	8
National		**239**	**96**
Source: WHO, Weekly epidemiological report, Sierra Leone, 9 Nov 2014			

Secondly, the impact of Ebola goes far beyond its lethality. Indeed, the lack of cure and high fatality rates create fear, panic and confusion among the population. As several health facilities were transformed into Ebola Holding Centers or Treatment Centers, regular health facilities have become associated with Ebola. At the same time, the continued lack of sufficient Ebola treatment facilities increases distrust, pushes families to keep sick members at home, while Ebola patients remain unattended, further spreading the disease.

Visits to health centre or through infected health workers are among the largest causes of EVD transmission in Sierra Leone after contacts, funerals and travels. According to data on patients collected as of 21 October 2014, hospitals accounted for 10% of EVD infections nationally, up to 17%

[11] Hayden, "Infectious disease: Ebola's lost ward", Nature, 24 Sep 2014, http://www.nature.com/news/infectious-disease-ebola-s-lost-ward-1.15990
[12] WHO RoadMap SitRep dated 05 October 2014
[13] WHO RoadMap SitRep dated 26 November 2014

in Bo, 18% in Kenema and 13% in Western Area Urban. This situation has undermined the confidence in the health system reportedly prompting people to stay away from health centers.

Table 3: Reported numbers of EVD cases by context of transmission

EVD cases as of 21 Oct 2014	Major contexts of transmission except hospital (*)	Transmission through hospital	Total EVD cases	% Hospital
Bo	197	41	238	17%
Bombali	209	8	217	4%
Bonthe	3	0	3	0%
Kailahun	316	24	340	7%
Kambia	9	0	9	0%
Kenema	308	67	375	18%
Koinadugu	-	-	-	-
Kono	66	6	72	8%
Moyamba	68	8	76	11%
Port Loko	372	26	398	7%
Pujehun	21	1	22	5%
Tonkolili	30	3	33	9%
WA Rural	227	14	241	6%
WA Urban	187	29	216	13%
National	2013	227	2240	10%

Source: WHO data management team, VHF EVD analyses.
(*)Major contexts of transmission include contact, funeral, travel, traditional healer.

2.2.3 Mapping the impact of the EVD outbreak on health systems: a typology of regions

To analyse the impact of the Ebola outbreak on health systems, districts were classified[14] into three categories that take into account the way the EVD outbreak unfolded across the country between May and September 2014.

Category 1 – Initial hotspots: Kailahun and Kenema

Kailahun and Kenema are the two districts where the EVD outbreak started late May 2014. The first official case was reported in Kailahun before quickly spreading to the adjacent district of Kenema. Up until mid-July 2014, Kailahun and Kenema were the two active EVD hot spots in the country. Early September, the number of new EVD cases started declining in both districts. These two districts

[14] This typology has been done for the specific purpose of assessing the link between the onset of the EVD outbreak and the uptake of essential MNCH services between May and September 2014 and should be treated as such.

experienced a significant drop in health services utilization coinciding with both the EVD outbreak and the onset of the rainy season.

Category 2 – Present Hotspots: Bombali, Port Loko, Bo, Western Area, Tonkolili and Moyamba

The initial cases in these districts were reported as early as July, but it really started to explode by mid-August. Bombali, Port Loko, Bo along with Western Area were the first ones off the block, followed by Tonkolili and Moyamba. The number of cases continues to be very high in all the districts. A significant drop in services was noticed in these districts as EVD outbreak started to spread its wings.

Category 3 – Late start of EVD but significant decline in uses of health services throughout the period

The surge in EVD in districts like Kono, Kambia, Koinadugu, Bonthe and Pujehun has been more recent. In fact the first cases in Koinadugu were reported as late as in mid-October. However, significant decline in uses of health services was noticed throughout the period. While some of it may be attributable to the impact of the rainy season, comparisons with data from last year's HMIS for the same period indicates a sharper decline this year. Although these districts were not immediately affected by the outbreak, news coming from neighbouring districts about the spread of Ebola together with fear and misconceptions accompanying these news may explain for the reluctance to visit facilities for routine services.

2.3 Key MNCH interventions since April 2014

Major interventions rolled out during the period under study influenced the utilization of health services across the country. Some of these interventions were continuing from previous years, others were one-time events, and some were scaled up during the year.

Free Healthcare Initiative

The government launched the national Free Healthcare Initiative (FHCI) in April 2010. The nationwide initiative provides free services to pregnant and breastfeeding women as well as children less than 5 years of age seen at public healthcare facilities. Funding was provided by the United Kingdom and United Nations to refurbish hospitals, supply drugs and healthcare professionals' wages. The Free Health Care Initiative has contributed to improve the availability of essential drugs for the management of childhood illnesses in health facilities and reduced health care costs for women and children.

Community Case Management (iCCM)

UNICEF in partnership with its implementing partners have been running the ICCM programme in six districts Kenema, Kono, Kambia, Pujehun, Kailahun and Tonkolili. The programme is now in the process of being scaled up. As part of the programme, Community Health Workers (CHWs) are trained on community case management. The CHWs are then linked to the nearest PHU and meet there once a month for reporting and to address emerging issues. A portion of the FHC drugs (at present fixed at

20% to 30%) received by each health facility is meant to be distributed to CHWs to treat three diseases[15] at the community level, malaria, diarrhoea and pneumonia.

Bednet distribution

The National Malaria Control Programme (NMCP) in partnership with various donors, UN agencies and NGOs undertook a mass distribution campaign of Long Lasting Insecticide Treated Nets (LLINs) across the country at the start of the rainy season, between 5-11 June 2014, with a total of 3.5 million nets being distributed.

Distribution of RUTF

Three rounds of RUTF distributions took place since the beginning of the year. These distributions cover quarterly needs in RUTF consumption estimated by each PHU. Estimated needs for the months of January and February were covered by a distribution in December 2013. The first round of RUTF distribution took place in March and covered needs from March to May 2014. The second distribution was done in June for the quarter from June to August 2014. The third distribution occurred at the end of September, covering RUTF needs for the quarter from September to November 2014.

Distribution of essential drugs

As part of the Free Healthcare Initiative, Ministry of Health and Sanitation distributes twenty essential drugs to the various health facilities in the country. Starting April 2014, National Pharmaceutical and Procurement Unit (NPPU) took over the responsibility of procurement and distribution of drugs and equipment. The drug distribution is carried out periodically. The last distribution (as of the time of data collection), was carried out end of July and early August 2014.

Vaccination

Sierra Leone has adopted the World Health Organization (WHO) guidelines for childhood immunizations that call for all children to receive the following: a BCG vaccination against tuberculosis; three doses of DPT to prevent diphtheria, pertussis and tetanus; three doses of polio vaccines; and a measles vaccine during the first year of life. In addition to these standard vaccinations, the Ministry of Health and Sanitation (MoHS) has recommended that children receive three doses of the hepatitis B vaccine, with the first dose given at birth or at first clinical contact. The pentavalent vaccine, recently introduced, has replaced the DPT and hepatitis B vaccines, except for the first dose of the hepatitis B given at birth. The pentavalent vaccine contains, in addition to DPT, the hepatitis B vaccine and a vaccine against Haemophilus influenza type B (Hib), and is supposed to be given according to the same schedule as DPT.

[15] Evidence shows that these three diseases are the largest contributors to under-five mortality

Distribution of ARV and Test Kits

Test kits and ARVs are supplied from the central store to the District Hospitals on a quarterly basis. The District Hospitals in turn in turn supply to the PHUs on the basis of the request received from them.

3. Status of primary health care facilities

3.1 Open and closed PHUs

There are 1,185 peripheral health units across Sierra Leone: 577 MCHP (or 49% of all PHUs), 343 CHPs (29%), and 265 CHC (22%). In 8 out of 14 districts, MCHPs constitute more than 50% of PHUs, in particular in Port Loko (64%), Tonkolili (73%), Pujehun (64%), Bo, Moyamba and Kono (55%).

At the time of the survey, 48 (4.1%) out of the 1,185 PHUs were found closed, including 32 MCHP, 9 CHPs and 8 CHCs. These closed facilities cover a catchment population of 263,196 inhabitants.

Western Area had the highest proportion of facilities closed (7.4%, 7 PHUs) while Eastern province had the lowest (1.4%, 4 PHUs). In Kailahun, where the epidemic started, all PHUs were found open. The highest proportion of facilities were found to be closed in Bombali (8.5%, 9 PHUs), Western Area (7.4%, 7 PHUs), and Bonthe (8.8%, 5 PHUs). The breakdown of closed facilities by district is presented in Table 1 below. The list and location of closed PHUs can be found in the Annex.

Among the 1,137 PHUs open at the time of the visit, 47 had closed temporarily during the 4 months preceding the survey, including 12 PHUs in Kailahun, and 10 PHUs in Port Loko and Tonkolili each.

Table 4: Number and percentage of PHUs closed and open

Province	District	Total number of PHUs	Number of PHUs surveyed	Number of PHUs found open	Number of PHUs found closed	Number of PHUs temporarily closed in last four months	Percentage of PHUs closed (Closed/Surveyed)	Pop catchment area of closed PHUs*	Population catchment area by district 2014*
Northern	Bombali	106	106	97	9	2	8.5%	39,125	493,894
	Kambia	67	67	66	1	0	1.5%	3,526	341,741
	Koinadugu	69	69	66	3	0	4.3%	12,397	335,516
	Port Loko	106	106	101	5	10	4.7%	22,575	557,791
	Tonkolili	106	106	103	3	10	2.8%	15,543	434,936
	Northern	454	454	433	21	22	4.6%	93,166	2,163,878
Eastern	Kailahun	81	81	81	0	12	0.0%	-	465,347
	Kenema	121	121	119	2	1	1.7%	1,765	653,674
	Kono	85	85	83	2	2	2.4%	6,506	323,494
	Eastern	287	287	283	4	15	1.4%	8,271	1,442,515
Southern	Bo	120	120	113	7	2	5.8%	25,004	655,626
	Bonthe	57	57	52	5	3	8.8%	12,798	168,618
	Moyamba	99	99	96	3	1	3.0%	5,984	277,306
	Pujehun	74	74	73	1	1	1.4%	-	336,533
	Southern	350	350	334	16	7	4.6%	43,786	1,438,084
Western	WA Rural	41	41	37	4	0	9.8%	24,046	764,400
	WA Urban	53	53	50	3	3	5.7%	93,927	701,660
	Western	94	94	87	7	3	7.4%	117,973	1,306,751
National		1185	1185	1137	48	47	4.1%	263,196	6,351,227

Source: Sierra Leone MOH, PHU population catchment area by district

Table 5: Type of health facilities (including both open and closed) in percentages

	District	CHC	CHP	MCHP
Northern	Bombali	18%	45%	37%
	Kambia	24%	22%	54%
	Koinadugu	22%	39%	39%
	Port Loko	16%	20%	64%
	Tonkolili	15%	12%	73%
	Northern	**18%**	**27%**	**54%**
Eastern	Kailahun	17%	60%	22%
	Kenema	25%	24%	51%
	Kono	19%	26%	55%
	Eastern	21%	35%	44%
Southern	Bo	24%	21%	55%
	Bonthe	26%	46%	28%
	Moyamba	18%	26%	56%
	Pujehun	18%	19%	64%
	Southern	21%	26%	53%
Western	WA Rural	29%	34%	37%
	WA Urban	53%	26%	21%
	Western	43%	30%	28%
National		**22%**	**29%**	**49%**

3.2 Reasons for closure of PHUs

Respondents were asked to cite reasons for the closure of PHUs. The respondents could choose one or more options from a list of pre-coded choices or specify any additional reason not previously cited. Table 6 presents reasons for the closure of PHUs at the time of the survey whereas Table 7 presents the reasons for closing PHUs at any time during the previous five months.

There are two major reasons for the current closure of the 48 PHUs mentioned above: absence of staff (across almost all districts) and quarantine (in Bo, Western Area, Kenema and Port Loko). In addition, three PHUs in Port Loko, Bombali, and Western Area respectively reported closing down because of lack of patients coming to the facility.

For PHUs which are currently open but were temporarily closed between May and September 2014, absence of staff, lack of patients coming to the facilities, and quarantine were the three major reasons cited for closure. Kailahun and Tonkolili were particularly hard hit. In Kailahun, 7 out of 12 PHUs were temporarily closed because there was no more patient coming. As mentioned earlier, it is important to note that all facilities have now reopened in Kailahun. In Tonkolili, 10 PHUs were closed during the 5 months prior to the survey. Among them, 7 reported receiving no patient, and five having no staff. At the time of survey, 3 PHUs were still closed, including one because of lack of staff.

Table 6: Reasons for current closure of PHU

district	Number of closed health	No staff	lo supplies	No Patient	Quarantine	Don't know	Others
Bo	7	3	0	0	3	1	0
Bombali	9	5	0	1	0	0	2
Bonthe	5	4	0	0	0	0	0
Kailahun	0	0	0	0	0	0	0
Kambia	1	0	0	0	0	0	0
Kenema	2	0	0	0	1	0	0
Koinadugu	3	2	1	0	0	0	1
Kono	2	1	0	0	0	0	0
Moyamba	3	2	0	0	0	0	1
Port Loko	5	1	0	1	1	0	3
Pujehun	1	1	0	0	0	0	0
Tonkolili	3	1	0	0	0	0	1
Western Area	7	2	1	1	4	0	2
Total	**48**	**22**	**2**	**3**	**9**	**1**	**10**

Table 7: Reasons for temporary closure of health facility in the past 4 months

district	Closed4	No staff	No supplies	No Patient	Quarantine	Others	Don't Know
Bo	2	0	0	0	0	1	0
Bombali	2	1	0	0	1	0	0
Bonthe	3	0	0	0	0	3	0
Kailahun	12	3	0	7	4	2	0
Kambia	0	0	0	0	0	0	0
Kenema	1	0	0	0	0	1	0
Koinadugu	0	0	0	0	0	0	0
Kono	2	0	0	0	0	0	0
Moyamba	1	1	0	0	0	0	0
Port Loko	10	1	0	0	0	5	0
Pujehun	1	0	0	0	0	0	0
Tonkolili	10	5	0	7	2	2	0
Western Area	3	0	0	0	0	3	0
Total	**47**	**11**	**0**	**14**	**7**	**17**	**0**

4. Maternal and child health during the EVD outbreak

Data was collected from HMIS reports at health facilities for each month between May and September 2014 on four essential health services chosen as tracer interventions for essential child and maternal health interventions delivered at primary health care facilities. In this section, we present results on:

1. The monthly number of pregnant women coming to PHUs for the fourth antenatal care visit
2. The number of ITNs given during ANC visits
3. The number of children who received Penta 3 vaccination
4. The number of birth delivered in health facilities
5. The number of under-five children treated for malaria
6. The availability of PMTCT services, including the number of PMTCT visits, and stock levels of test kits and ARVs
7. The availability of nutrition services, including the number of children admitted in OTP, RUTF consumption, number of weeks of RUTF stockout, the number of children who attended growth monitoring programme

Summary of main findings

Trends on the take-up of four essential maternal and child health interventions between May and September 2014 are presented in Table 8 below.

- The number of antenatal care visits[16] declined by 27% nationally during the period from May to September 2014. Western Area (33%) and the Northern Province (32%) were the worst affected areas. Among the districts, Kambia witnessed a staggering 48% drop in the number of women coming for the 4th ANC visit. At the other end of the spectrum, Moyamba registered a decline of only 10%.
- The number of ITNs distributed during ANC visits dropped by 63% nationally. The period under study coincided with the mass campaign (5-11 June 2014) to distribute ITNs to all households in the country. Hence, the decline can be largely attributed to the effect of the campaign.
- The number of women coming to health facilities for delivery also declined significantly, by 27% nationally. Among provinces, the Northern Province experienced the strongest decline at 30%. Among districts, Kambia and Pujehun saw the largest declines at 41% each, whereas in Pujehun, the number of deliveries in health facilities declined by only 5%.
- The number of children coming to health facilities for the third dose of Penta declined by 21% nationally between May and September 2014. Consistent with trends mentioned earlier, the Northern Province experienced the strongest decline at 27%. The major contributor to this was Kambia which witnessed a 49% decline. Moyamba registered the lowest decline at 2%.

[16] The fourth ANC visit was taken to represent all the ANC visits

- The number of children under-five treated for malaria declined by 39% between May and September. This decline took place at the height of the malaria season which normally witnesses a spike in malaria cases (in 2013, during the same period, under five children coming for malaria treatment had increased by 20%). The mass distribution campaign of ITNs during June 2014 covered almost 100% of the households and may have contributed to the decline in malaria cases among children. The KAP study indicates that 86% of households (72% in Port Loko and 97% in Kambia) have mosquito nets.[17] However, the impact of Ebola cannot be ruled out since malaria and Ebola exhibit similar symptoms (fever in particular) and parents may have been afraid to bring their children to health facilities for treatment.

Table 8: Essential maternal and child health interventions delivered at PHU – percentage change between May and Sep 2014

	District	ANC4	Penta 3	Deliveries	U5 children treated for malaria
Northern	Bombali	-15%	-19%	-20%	-16%
	Kambia	-48%	-49%	-41%	-46%
	Koinadugu	-34%	-22%	-24%	-42%
	Port Loko	-37%	-26%	-41%	-50%
	Tonkolili	-23%	-22%	-26%	-39%
	Northern	-32%	-27%	-30%	-39%
Eastern	Kailahun	-21%	-12%	-21%	-25%
	Kenema	-25%	-11%	-21%	-38%
	Kono	-31%	-27%	-19%	-51%
	Eastern	-25%	-16%	-21%	-37%
Southern	Bo	-22%	-14%	-13%	-41%
	Bonthe	-39%	-40%	-38%	-42%
	Moyamba	-10%	-2%	-16%	-38%
	Pujehun	-16%	-12%	-5%	-37%
	Southern	-20%	-14%	-15%	-40%
Western	WA Rural	-36%	-24%	-33%	-41%
	WA Urban	-31%	-20%	-19%	-48%
	Western	-33%	-21%	-24%	-45%
National		-27%	-21%	-23%	-39%

Accounting for seasonality in the uptake of MCH services

Long distances to health facilities, poor road networks, and inadequate transport services, compounded by low incomes have long been known to adversely impact the utilization of health services. This is particularly true during the rainy season when the number of people being able to access routine services at peripheral health units may drop significantly.

[17] Table EVD.14, Relevant facts in the household relating to the EVD" in "Assessing Public Knowledge, Attitudes, Practices, and Behaviors Relating to Ebola Virus Disease (EVD) in Sierra Leone" 12 Sep 2014

The onset of the EVD outbreak coincided with the start of the rainy season which starts in April, peaks in July and August and ends in November.[18] In normal times, rains act as a barrier in accessing health services by making roads impassable and by increasing the costs of transportation. Transport problems become even more acute in riverine areas (districts like Bonthe and Kambia) where large number of villages are cutoff from the mainland and boats or ferries become regular mode of transport.

The acceleration in the Ebola outbreak also coincided with the peak of the lean season (from June to August) when households are most vulnerable to negative income shocks and price increases. Although most of the routine health services provided by PHUs are meant to be free, households bear significant opportunity costs associated with health services such transport costs and foregone daily wages to access facilities. With 70% of the population estimated to live below the national poverty line of US$2 per day, the majority of families have little to spare, particularly during the lean season. All these factors usually contribute to lower the uptake of health and nutrition services during the rainy season with fewer people turning up at health centers for routine services.

Quarantine and travel restrictions to control the EVD outbreak have further compounded a situation of chronic poverty and food insecurity throughout the country. On July 30, Kailahun and Kenema in Eastern province were put under quarantine, followed by Port Loko, Bombali and Moyamba on September 24, 2014.

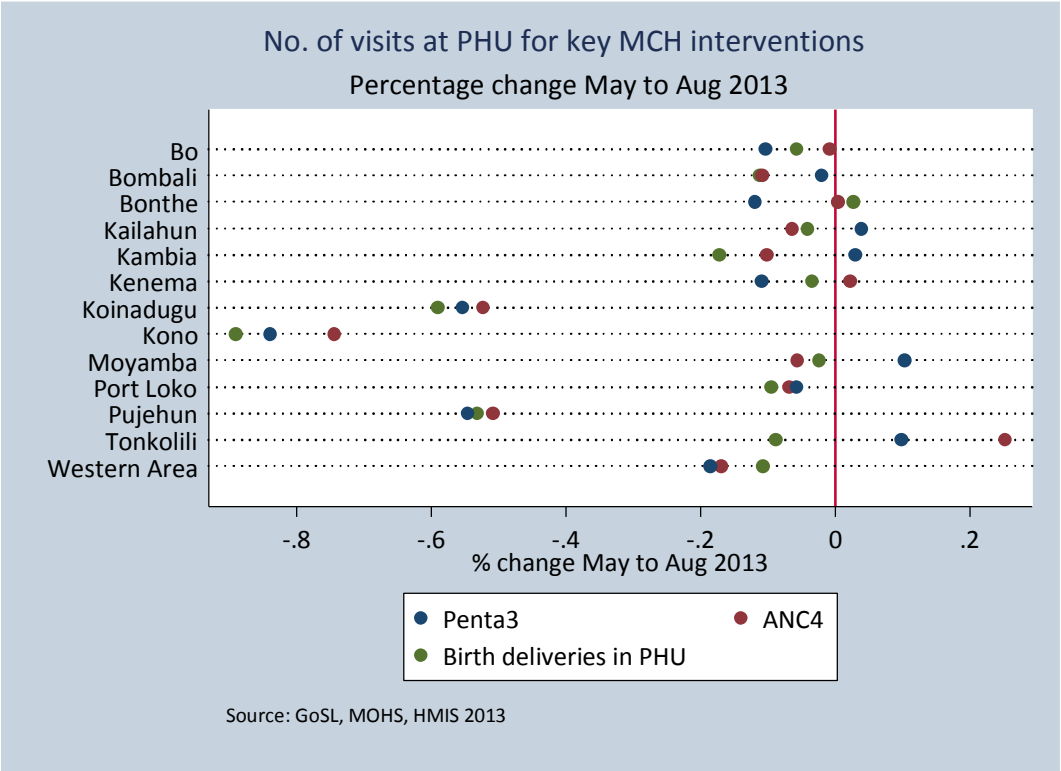
HMIS data for 2013 confirm that health service utilization exhibits seasonal patterns with the uptake of maternal and child health services dropping at the onset of heavy rains in June-July until August before picking up as rains subside in September-October. For instance, in 2013, the number of ANC visits dropped by 13% from May to July, before picking up by 17% between July and September. Overall, in September, the number of ANC visits was more or less back at the level of May in all districts. Similar seasonal trends are also apparent for other essential MCH services delivered at PHUs.

Therefore, this analysis of the uptake of MCH interventions between May to September 2014 needs to take into account seasonal effects which would have occurred even in the absence of Ebola.

Nevertheless, the decline in the utilisation of essential MCH services between May and September 2014 is noticeably larger compared to what happened the previous year. Most strikingly, in 2014, the seasonal decline in ANC visits between May and July was not followed by the usual upsurge associated with the end of the rainy season and the start of the harvest season in August and September. As a result, in 2014, the number of ANC4 visits declined by an overall 27% nationally between May and September.

[18] WFP (2011) The State of Food Insecurity and Nutrition in Sierra Leone 2011, Comprehensive Food Security and Vulnerability Analysis.

Figure 3: Number of visits at PHU for Penta 3, ANC4 and deliveries – Percentage change between May to Sep 2013



Accounting for positive behaviour change related to the prevention of Ebola

A national study on knowledge, attitudes and practices related to EVD released in September 2014 revealed encouraging facts about positive behaviour change since the start of the EVD outbreak. Respondents were asked whether they changed their behaviour after hearing about Ebola and if so, what these changes were. Across the 10 districts covered for the study, 95% of respondents reported changing their behaviour in relation to Ebola: 66% reported washing hands with soap and water as one positive behaviour change, and 37% reported using other disinfectants to clean their hands. There are wider and longer-term health benefits to this behaviour change, for instance by inducing a lower the prevalence of diarrhoea among under-five children.

Table 9: Percentage of respondents who have changed their behaviour since hearing about Ebola Sierra Leone, 2014

	Respondents who reported change of behaviour since hearing of Ebola	**Type of behaviour change**	
		Wash hands with soap and water	Clean hands with other disinfectants
District			
Kambia	80	58	16.9
Koinadugu	95	81.7	11
Port Loko	95.9	54.8	20.4
Bo	98	84.1	86.8
Moyamba	98.4	65.4	28.3

	Respondents who reported change of behaviour since hearing of Ebola	Type of behaviour change	
		Wash hands with soap and water	Clean hands with other disinfectants
Kailahun	97.7	78.5	56.2
Kenema	99.3	49.6	74.8
Western Urban	95.3	69.6	21.2
Western Rural	93.5	40.2	33.7
Total	**95.2**	**65.9**	**37.3**

Common trends across districts

Kailahun and Kenema, the first two epicentres of the Ebola outbreak, experienced a large drop in maternal and child health service take-up between May to June, and June to July respectively. As discussed above, this drop may be partly attributable to seasonality. Additionally, part of the decline is clearly linked to the timing of the Ebola outbreak in these two districts. Both districts showed signs of recovery by September when the rains end and Ebola started slowing down. Outcome and health coverage data according to the Demographic and Health Survey 2013 clearly suggests that these two districts have stronger health systems than in the rest of the country, which must have aided in their quick recovery.

On the other hand there are the present hotspots, districts like **Bombali, Port Loko, Bo, Moyamba, Western Area, and Tonkolili**. In these districts, though the initial decline was not as significant as Kailahun and Kenema, as the EVD outbreak progressed, the decline became much sharper. The second major distinction is that even with the rains getting over, the decline has continued, albeit at a slower pace and there are no visible signs of recovery yet. This can be attributed to the continuing impact of the increasing caseloads of Ebola in these districts.

Kambia district emerged as an outlier. It did not report any case of Ebola until September (except for one case in June) and the current caseload continues to be low. However, the number of people accessing health services in Kambia started declining in June and has steadily gone down since then without any recovery. As evident from the DHS 2013 as well as the LQAS survey done the same year, Kambia has a particularly weak health system. The KAP study conducted in 2014 also relatively lower levels of awareness on Ebola. Only 65% of the people in the district know that Ebola is transmitted through wild animals like bats and monkeys (the national average is 74%) and at the same time almost 13% in the district believe that traditional healers can treat Ebola successfully (national average 6%). All these factors may explain why Kambia has experienced the largest decline in health service utilisation among districts (in percentage terms).

4.1 Antenatal care

This section presents trends in the number of pregnant women coming to PHUs for the fourth antenatal care (ANC4) visit between May and September 2014 (Table 10).

Overall, over the five month period, the number of ANC4 visits dropped by 27% in. According to a survey conducted in 2013 in Kambia, Pujehun, Tonkolili, Kailahun, long distance and the time to reach the ANC site together with the levels of fees to be paid were major impediments for pregnant women to use ANC services.[19]

In Kailahun and Kenema, the first epicenters of the EVD outbreak, significant drops were observed between May and July: by 25% in Kailahun and 23% in Kenema. In the following months, the number of ANC4 visits did not recover.

The largest decline in ANC visits (48%) was observed in Kambia although the district did not officially report any Ebola cases during the surveyed period. The largest drop took place between May and June, which can largely be attributed to the onset of rainy season since Kambia has large riverine areas which quickly become inaccessible. Kambia may also have been influenced by rumours spreading from neighbouring areas in Guinea where the EVD outbreak was already spreading fast. The national study on knowledge, attitudes and practices related to EVD released in September 2014 confirmed that Kambia has the lowest levels of knowledge and high levels of misconceptions regarding EVD.

In new Ebola hotspots (Bombali, Port Loko, Bo, Moyamba, Western Area, and Tonkolili), the number of ANC visits declined twice during the surveyed period. An initial drop in ANC visits took place between May and July which can be attributed to the onset of the rainy season (19% decline in Bo, Western Area and Tonkolili). A second significant drop can be observed after August. The drop between May to September, ranged from 37% for Port Loko to 10% in Moyamba. This was the period (August-September) when the number of EVD cases started climbing rapidly in these districts.

[19] The findings are based on a midline survey conducted by the MoHS and UNICEF in the four districts using the Lot Quality Assurance Survey methodology as part of the Health for the Poorest Population (HPP) project.

Table 10: ANC4 visits at PHUs, percentage change between May and Sep 2014

ANC4 visits, changes over time (May - Sep 2014)

ANC4 visits	District	Cumulative change, May / Sep	May/June	June/July	July/aug	Aug/sep
Northern	Bombali	-15%	-2%	-4%	-7%	-4%
	Kambia	-48%	-27%	10%	-18%	-22%
	Koinadugu	-34%	-1%	-11%	-24%	-1%
	Port Loko	-37%	-8%	5%	-12%	-26%
	Tonkolili	-23%	-3%	-10%	-15%	5%
	Northern	-32%	-8%	-2%	-15%	-11%
Eastern	Kailahun	-21%	-30%	8%	0%	6%
	Kenema	-25%	-17%	-7%	7%	-10%
	Kono	-31%	-20%	17%	-23%	-5%
	Eastern	-25%	-23%	3%	-2%	-3%
Southern	Bo	-22%	-13%	-7%	-12%	10%
	Bonthe	-39%	-27%	-19%	0%	2%
	Moyamba	-10%	-5%	6%	-8%	-3%
	Pujehun	-16%	-7%	-11%	-2%	4%
	Southern	-20%	-12%	-6%	-8%	5%
Western	WA Rural	-36%	-11%	-10%	-9%	-13%
	WA Urban	-31%	-10%	-10%	-15%	1%
	Western	-33%	-10%	-10%	-13%	-5%
National		-27%	-13%	-3%	-10%	-4%

Table 11: Monthly number of women coming for ANC4 at PHUs, May-Sep 2014

Table 4.1: Monthly number of women who came for the fourth ANC visit to the facilities, May to September 2014

Province	District	May	June	July	August	September	Average of five months	Number of PHUs found open
Northern	Bombali	961	946	911	849	814	896.2	97
	Kambia	1,270	927	1,024	842	658	944.2	66
	Koinadugu	1,116	1,104	987	746	739	938.4	66
	Port Loko	1,642	1,514	1,589	1,406	1,037	1,438	101
	Tonkolili	1,554	1,512	1,354	1,147	1,201	1,354	103
	Northern	6543	6003	5865	4990	4449	5570	433
Eastern	Kailahun	1,712	1,193	1,285	1,286	1,357	1,367	81
	Kenema	1,849	1,539	1,426	1,528	1,378	1,544	119
	Kono	832	664	779	599	572	689.2	83
	Eastern	4,393	3,396	3,490	3,413	3,307	3,600	283
Southern	Bo	2,247	1,952	1,820	1,596	1,748	1,873	113
	Bonthe	519	380	308	309	314	366	52
	Moyamba	909	865	916	844	821	871	96
	Pujehun	1,050	972	869	851	883	925	73
	Southern	4,725	4,169	3,913	3,600	3,766	4,035	334
Western	WA Rural	997	892	806	735	637	813.4	37
	WA Urban	1530	1370	1229	1045	1058	1246.4	50
	Western	2,527	2,262	2,035	1,780	1,695	2,060	87
National		18,188	15,830	15,303	13,783	13,217	15,264	1,137

4.2 ITN during ANC visits

The number of ITNs distributed during ANC visits to a facility dropped significantly, by 63% nationally. This trend can be linked to the mass distribution campaign of LLINs which took place across the country in June 2014. A total of 3.5 million nets were distributed, ensuring an almost 100% coverage of the population. A survey conducted in August 2014 confirms that ownership levels of mosquito nets are currently very high: 90% nationally, varying from 72% in Port Loko to 97% in Kambia.

Table 12: Percentage of Children 6-59 months who slept under Mosquito net, Sierra Leone, 2014

Province	District	Proportion of Children 6-59 months who slept under Mosquito net the previous night of interview
Northern	Bombali	94%
	Kambia	93%
	Koinadugu	87%
	Port Loko	90%
	Tonkolili	86%
Eastern	Kailahun	n/a
	Kenema	92%
	Kono	82%
Southern	Bo	97%
	Bonthe	n/a
	Moyamba	98%
	Pujehun	95%
Western	WA Rural	87%
	WA Urban	81%
National		**90%**
Source: Sierra Leone National Nutrition Survey 2014		

Table 13: Number ITNs given during ANC visits at PHUs, percentage change May to Sep 2014

ITN given during ANC visits, changes over time (May - Sep 2014)

ITN given during ANC visits	District	May /sep	May/June	June/July	July/aug	Aug/sep
Northern	Bombali	-52%	-27%	0%	-14%	-22%
	Kambia	-62%	-34%	-10%	-21%	-19%
	Koinadugu	-59%	-32%	-19%	-37%	16%
	Port Loko	-62%	-34%	2%	-38%	-9%
	Tonkolili	-79%	-43%	-40%	-43%	6%
	Northern	-64%	-35%	-14%	-32%	-7%
Eastern	Kailahun	-61%	-45%	-3%	-20%	-8%
	Kenema	-58%	-30%	-31%	6%	-17%
	Kono	-56%	-31%	-21%	-21%	2%
	Eastern	-58%	-34%	-23%	-8%	-10%
Southern	Bo	-66%	-58%	-13%	-13%	6%
	Bonthe	-54%	-34%	-31%	8%	-7%
	Moyamba	-52%	-34%	-7%	-29%	9%
	Pujehun	-61%	-24%	-33%	-16%	-9%
	Southern	-60%	-40%	-20%	-17%	1%
Western	WA Rural	-70%	-42%	14%	-52%	-8%
	WA Urban	-79%	-68%	-43%	12%	3%
	Western	-76%	-59%	-16%	-29%	-2%
National		-63%	-39%	-17%	-23%	-5%

4.3 Place of birth delivery

The number of deliveries in facilities declined by 23% nationally between May and September 2014. Large declines can be observed across the Northern Province, with Kambia (41%), Port Loko (41%) and Bonthe (38%) districts particularly standing out. By contrast, in Pujehun, the decline is only 5%. In September, eight of the fourteen district showed signs of recovery with an increase in the number of deliveries over the previous month or stabilising at the same level. The only exception was Kambia, which registered a massive drop of 20% attributable to various factors discussed earlier.

Table 14: Number of birth deliveries at PHUs, percentage change between May and Sep 2014

DELIVERIES, changes over time (May - Sep 2014)

Deliveries	May /sep	May/June	June/July	July/aug	Aug/sep
Bombali	-20%	-3%	**-7%**	**-9%**	-2%
Kambia	-41%	**-10%**	-8%	-11%	**-20%**
Koinadugu	-24%	6%	-15%	-8%	-8%
Port Loko	**-41%**	-8%	-9%	**-23%**	-8%
Tonkolili	-26%	-9%	-6%	**-16%**	4%
Northern	-30%	-6%	-9%	-14%	-5%
Kailahun	**-21%**	**-26%**	**0%**	**3%**	**3%**
Kenema	**-21%**	**-5%**	**-18%**	**-4%**	**6%**
Kono	-19%	-6%	-5%	-10%	0%
Eastern	-21%	-12%	-10%	-3%	4%
Bo	-13%	-5%	-7%	-1%	-1%
Bonthe	**-38%**	**-16%**	**-16%**	**-17%**	7%
Moyamba	-16%	-4%	-9%	-8%	5%
Pujehun	-5%	-3%	-6%	-2%	6%
Southern	-15%	-6%	-9%	-5%	3%
WA Rural	-33%	-6%	-4%	-13%	-14%
WA Urban	-19%	6%	-6%	-18%	0%
Western	-24%	1%	-5%	**-16%**	**-6%**
National	-23%	-6%	-9%	-10%	-1%

4.4 Childhood immunizations

The Penta 3 vaccine protects children against 5 life-threatening diseases and requires that it is injected in three doses (at 6, 10, and 14 weeks of age). As it requires repeat visits to the health facility, it is used as an indicator of routine immunization coverage.

The number of children who received Penta 3 vaccine declined by 21% nationally between May and September 2014. Among provinces, the Northern Province saw the largest decline at 27%. Among districts, Kambia (49%) and Bonthe (40%) witnessed the largest declines with Moyamba registering the lowest decline at 2%. As many as eight districts showed signs of recovery in September with an increase in number of children coming for immunization compared to August. Kambia again saw a sharp decline in the number of vaccinated children by 37% between August and September. Significant declines in routine vaccination can also be observed during September in Port Loko (12%) and Western Area Rural (15%).

Another worrying trend which emerged from the analysis is the increasing number of facilities which did not receive any children for Penta3 vaccination during a given month. In May, 34 PHUs did not receive any children for Penta3 vaccination. By September, this number had climbed to 97. As of September as much as 9% of the open PHUs were not receiving any children for immunization. Half of these PHUs (48 out of 97) were in Northern Province.

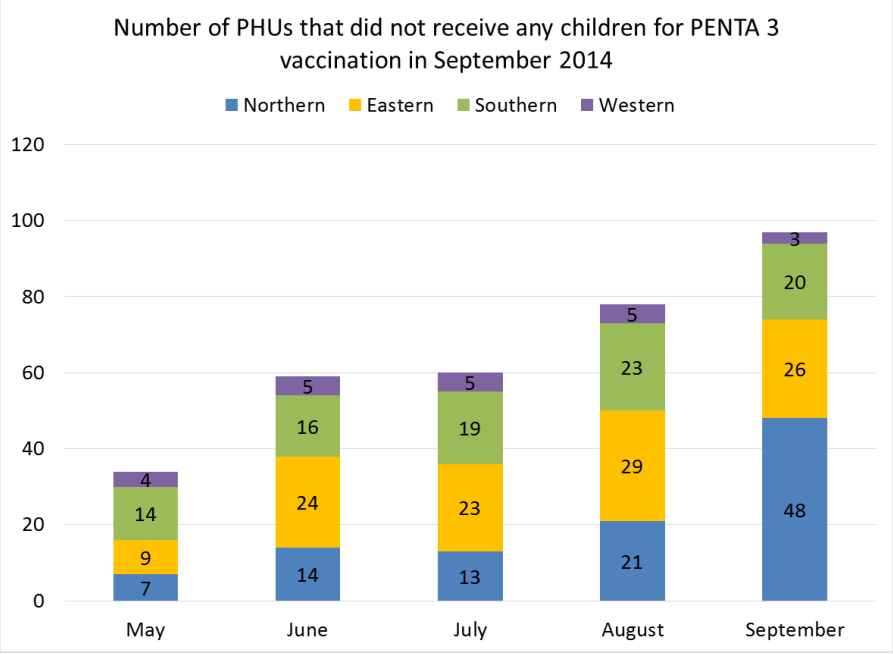
These trends are worrying as children may find themselves exposed to illnesses such as measles, Rota virus, yellow fever or polio in the absence of adequate and timely vaccination. While the vaccinations provided through routine services at the health facilities continue, in line with WHO guidelines for immunization programmes during the Ebola outbreak, mass vaccination campaigns (e.g., polio) have been suspended. New guidelines for routine vaccination in the context of Ebola have recently been issued.

Table 15: Number of children vaccinated with Penta 3 at PHUs, percentage change May-Sep 2014

PENTA 3, changes over time (May - Sep 2014)

PENTA 3	District	May /sep	May/June	June/July	July/aug	Aug/sep
Northern	Bombali	-19%	-6%	-5%	-17%	10%
	Kambia	-49%	-27%	19%	-8%	-37%
	Koinadugu	-22%	-2%	-12%	-20%	13%
	Port Loko	-26%	-3%	-5%	-9%	-12%
	Tonkolili	-22%	-2%	-11%	-12%	2%
	Northern	-27%	-7%	-5%	-13%	-5%
Eastern	Kailahun	-12%	-28%	11%	7%	3%
	Kenema	-11%	-11%	-12%	2%	10%
	Kono	-27%	-11%	3%	-16%	-5%
	Eastern	-16%	-16%	-1%	-2%	4%
Southern	Bo	-14%	-6%	-16%	12%	-4%
	Bonthe	-40%	-13%	-39%	-1%	15%
	Moyamba	-2%	5%	-3%	-3%	-1%
	Pujehun	-12%	-6%	-3%	-10%	7%
	Southern	-14%	-4%	-12%	0%	2%
Western	WA Rural	-24%	0%	-22%	14%	-15%
	WA Urban	-20%	-7%	-9%	-11%	7%
	Western	-21%	-4%	-15%	-2%	-3%
National		-21%	-8%	-7%	-6%	-1%

Figure 4: Number of PHUs with no children received for Penta 3 vaccination, Sep 2014



4.5 Care seeking treatment for fever

Malaria is the major cause of deaths among children, accounting for 23% of all under-five deaths every year (i.e. approximately 9,000 deaths among under-five children). The prevalence of malaria peaks during the rainy season which lasts between May and September. According to HMIS data for 2013, the number of children treated for malaria increased by 20% nationally during the rainy season. By contrast, over the same period in 2014, the number of under-five children treated for malaria declined by 39%. There are several explanations for such a decline.

Coinciding with the start of the outbreak in Kailahun and Kenema, the number of under-five children treated for malaria declined by 25% between May and June, before the mass distribution of bednets, and continued to decline until July. By August, the number of children treated for malaria started increasing again. In Kenema, the number of children treated for malaria declined by an overall 38% between May and September. Substantial declines can be observed during July to August in all other districts.

These trends are concerning because they occur at the height of the malaria season which normally witnesses a spike in malaria cases. In 2013, during the same period, the number of under-five children coming for malaria treatment had increased by 20%. The mass distribution of bednets in June 2014 which covered almost 100% of the population may have prevented a number of children from getting malaria. And indeed, a nationally representative study published in October 2014 indicates that 90% of children under five were sleeping under a mosquito net.[20] However, the impact of Ebola cannot be ruled out since malaria and Ebola exhibit similar symptoms (fever in particular). With Ebola spreading fast across the country, fear may have prompted families to avoid bringing their children to health centers.

[20] Sierra Leone National Nutrition Survey 2014, October 2014

Figure 5: Number of children with fever treated with ACT at PHU – Percentage change May - Sep 2013

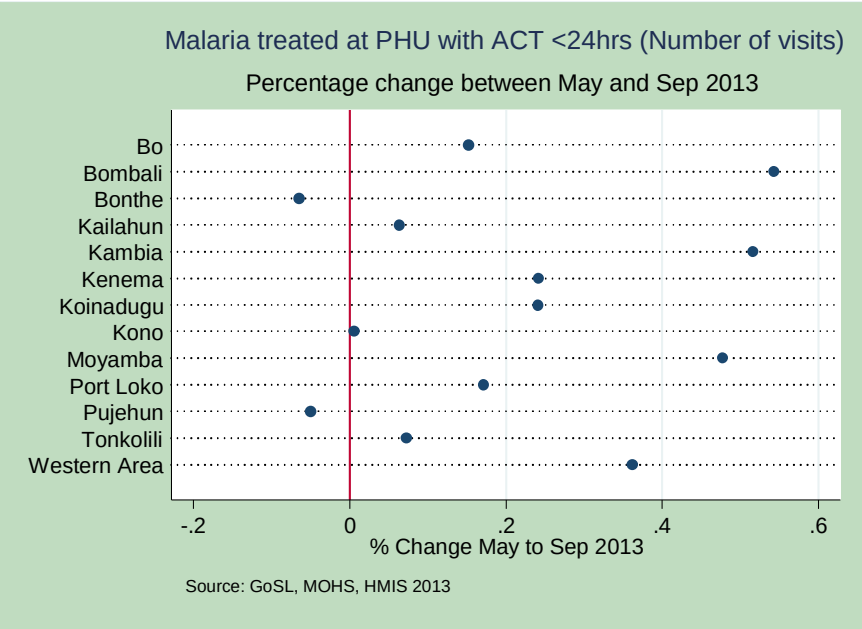


Table 16: Number of children under five treated for malaria at PHU, percentage change May - Sep 2014

U5 treated for malaria, changes over time (May - Sep 2014)

	May /sep	May/June	June/July	July/aug	Aug/sep
Bombali	-16%	40%	**-21%**	**-20%**	-6%
Kambia	-46%	**34%**	-28%	-20%	**-31%**
Koinadugu	-42%	30%	-28%	-26%	-16%
Port Loko	**-50%**	4%	-16%	**-33%**	-14%
Tonkolili	-39%	6%	-10%	**-30%**	-8%
Overall	-39%	18%	-19%	-27%	-13%
Kailahun	**-25%**	**-24%**	**-14%**	**8%**	**6%**
Kenema	**-38%**	**-25%**	**-17%**	**-3%**	**3%**
Kono	-51%	-5%	-21%	-20%	-17%
Overall	-37%	-20%	-18%	-4%	-1%
Bo	-41%	-13%	-23%	-9%	-4%
Bonthe	**-42%**	**26%**	**-41%**	**-16%**	-8%
Moyamba	-38%	12%	-21%	-25%	-7%
Pujehun	-37%	1%	-27%	-12%	-3%
Overall	-40%	0%	-26%	-15%	-5%
WA Rural	-41%	-14%	-20%	-17%	4%
WA Urban	-48%	11%	-16%	-39%	-8%
Overall	-45%	0%	-18%	**-31%**	**-3%**
National	-39%	2%	-20%	-19%	-7%

4.6 PMTCT

Increasing the general knowledge about transmission of HIV from mother to child and reducing the risk of transmission through the use of antiretroviral drugs is critical for the prevention of mother-to-child transmission (PMTCT) of HIV. This section provides information on PHUs providing PMTCT services, the stock levels of test kits as well as antiretroviral drugs (ARVs) available in primary health facilities.

About 55% of the facilities provide PMTCT services, including 88% of CHC facilities, 54% among CHPs (54%), and only 40% among MCHPs.

Figure 6: PHUs providing PMTCT services by type of facility (in %)

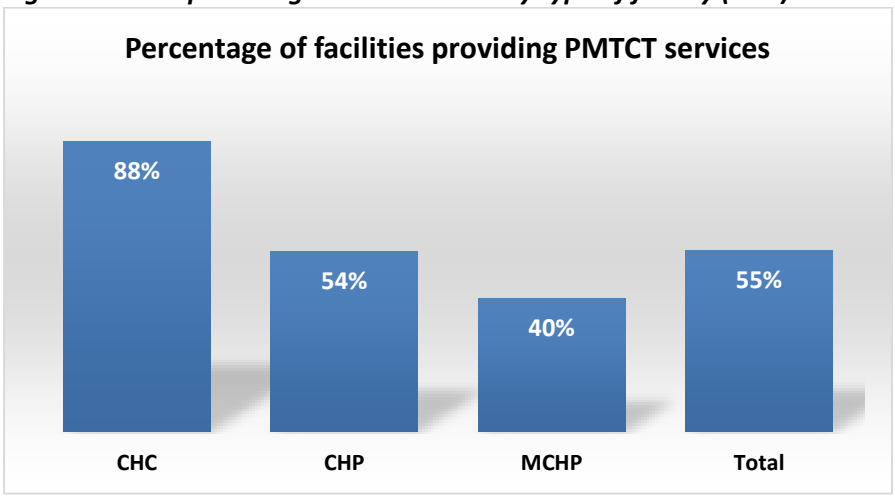
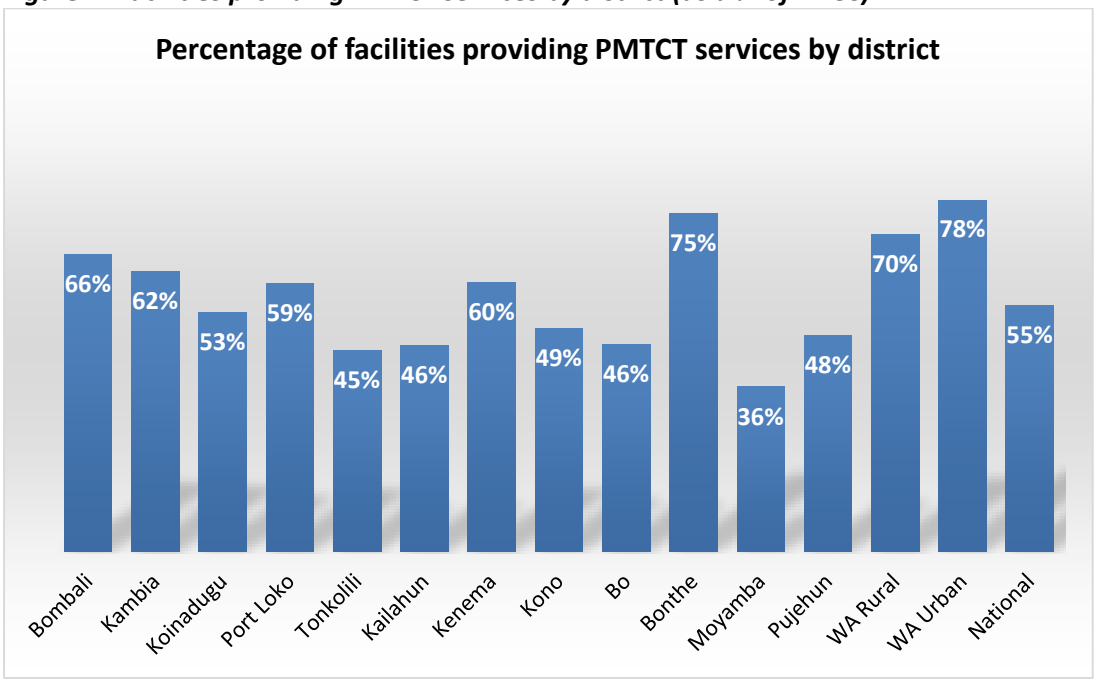


Figure 7: Facilities providing PMTCT services by district (as a % of PHUs)



The number PMTCT visits between May to September 2014 declined by 23% nationally. The largest decline occurred in Northern Province (34%). All districts except Bombali in the Northern Province witnessed significant declines, particularly during the months of July and August. Bonthe (41%) and Western Area Rural (34%) also saw sharp drops in PMTCT visits. Kailahun and Kenema saw large declines in PMTCT visits starting in May and June, coinciding with the onset of the EVD outbreak in these 2 districts. Numbers started picking up both districts in August and September across the country, except for districts in the Northern Province and Western Area Rural.

Table 17: Number of PMTCT visits at PHUs, percentage change May - Sep 2014

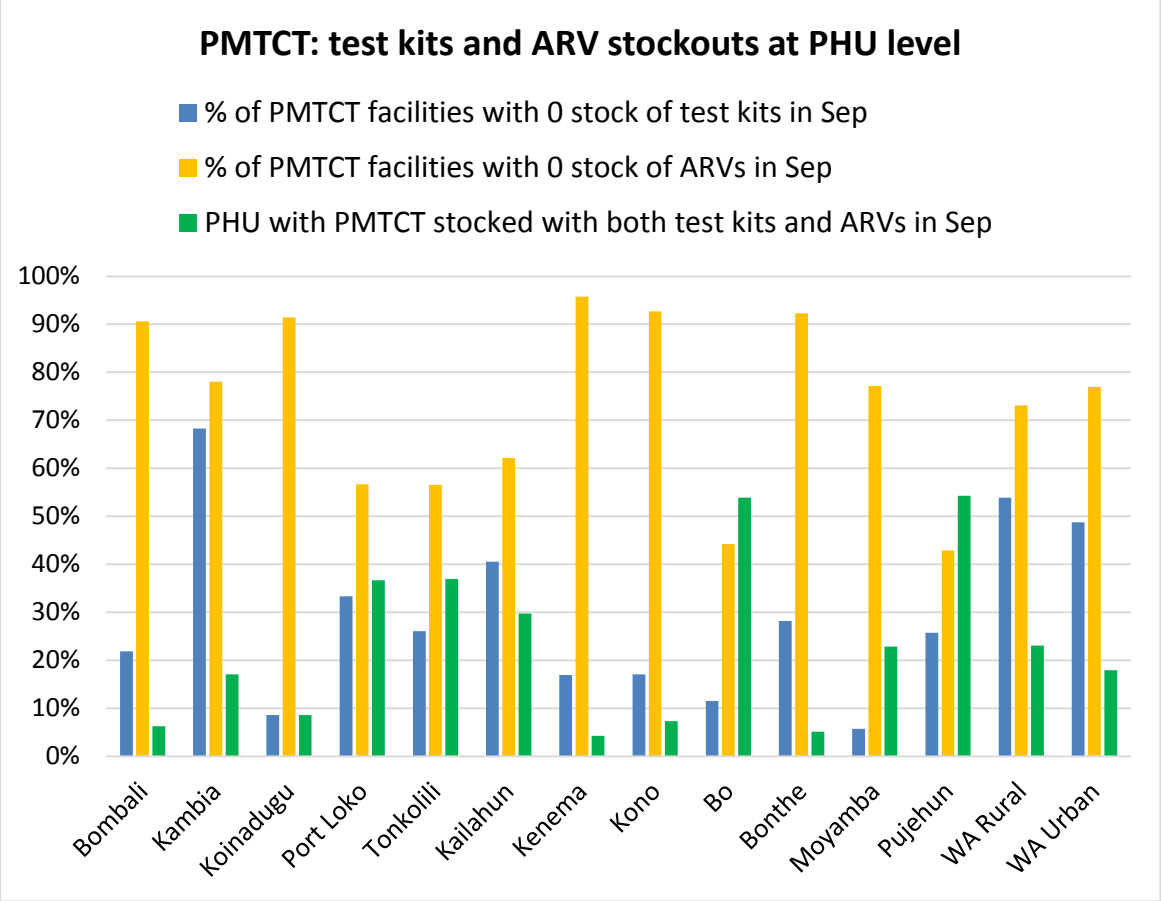
PMTCT visits, changes over time (May - Sep 2014)

PMTCT visits	May /sep	May/June	June/July	July/aug	Aug/sep
Bombali	-16%	1%	1%	5%	-21%
Kambia	-40%	-19%	24%	-23%	-22%
Koinadugu	-30%	-12%	-1%	-22%	3%
Port Loko	-45%	-18%	24%	-37%	-14%
Tonkolili	-34%	-13%	26%	-39%	-2%
Overall	-34%	-13%	16%	-26%	-12%
Kailahun	-18%	-36%	1%	11%	13%
Kenema	-22%	-6%	-25%	11%	0%
Kono	-12%	-13%	-3%	-7%	11%
Overall	-19%	-16%	-14%	6%	6%
Bo	1%	-11%	14%	2%	-2%
Bonthe	-41%	-31%	-11%	-8%	6%
Moyamba	-8%	-21%	21%	-14%	13%
Pujehun	0%	-3%	-7%	8%	2%
Overall	-8%	-14%	6%	-1%	2%
WA Rural	-34%	-11%	6%	-11%	-22%
WA Urban	-22%	-23%	-2%	-6%	10%
Overall	-26%	-19%	1%	-8%	-1%
National	-23%	-15%	4%	-11%	-3%

Data collected on the stock levels of test kits and ARVs available at health facilities paint a concerning picture. Nationally, only 23% of facilities with PMTCT services reported having stocks of both test kits and ARVs. 28% of PMTCT facilities have no test kits available at all. Western Province has the highest proportion of facilities (51%) with no stock of test kits. The situation is even worse for ARVs as 74% of PMTCT facilities nationally declared having no stock of ARVs. Eastern Province is worse off with 87% of PMTCT facilities having no ARV stocks (96% in Kenema district).

Test kits and ARVs are supplied from the central store to the District Hospitals on a quarterly basis. The District Hospitals in turn in turn supply to the PHUs on the basis of the request received from them. There have been reports that over the last two quarters the EVD outbreak disrupted this supply chain. This can be one of the explanations of the large stock outs observed in the facilities during the assessment. It is possible that the stocks were present in District Hospitals, but could not be delivered to the PHUs due to the EVD outbreak. However, as the assessment did not cover the District Hospitals, in the absence of data about stock levels in these hospitals, it is difficult to ascertain this.

Figure 8: Percentage of PMTCT facilities experiencing stockouts of test kits and ARVs, Sep 2014



4.7 Nutrition

4.7.1 Availability of OTP services and number of children admitted according to OTP reports, registers and cards

Outpatient Therapeutic Programmes (OTP) for severe and acutely malnourished children without complications are provided in 35% of PHUs. Every month, an average of 2,309 children are admitted and provided with home-based treatment and rehabilitation using Ready To-Use Therapeutic Food (RUTF). Once admitted, children should come for follow-up visits at the health facility every week.

The data on children admitted in OTP were gathered from three different sources which should report similar numbers: OTP cards, OTP registers maintained by health personnel, and OTP reports. The monthly OTP reports are compiled in OTP reporting format and sent to DHMT. Quarterly reports are used to forecast and request additional RUTF supplies based on the number of children to be admitted in OTP in the forthcoming quarter.

Large discrepancies were found in the number of OTP admissions between the three data sources. In particular, data from OTP reports seem to be considerably inflated compared to those reported in OTP cards or registers. Large differences are particularly noticeable for facilities located in Kenema, Port Loko and Western Area Rural (see Figures 7, 8, 9 below). In Koinadugu (Figure 10), we do not see significant differences in numbers extracted from reports, card and registers but notice large outliers

across all three sources. In other districts such as Kailahun (Figure 11), Tonkolili, Pujehun, Kambia, Kono, and Western Area Urban, data on the number of children admitted in OTP are similar across all three sources.

Table 18: PHUs providing OTP services and number of OTP admissions by district, May to Sep 2014

Table 11.1: Percentage of facilities providing OTP services, number of staff for OTP and number of children admitted in OTP

				Number of Staff		Number of children admitted in OTP					
Province	District	Number of PHU providing OTP services	Percentage of facilities providing OTP services	Trained	Managing	May	June	July	August	September	Average of five months
Northern	Bombali	17	18%	24	31	131	138	200	109	147	145
	Kambia	34	52%	52	60	127	109	291	212	152	178
	Koinadugu	31	47%	43	47	259	209	324	281	294	273
	Port Loko	50	50%	87	76	164	131	362	229	219	221
	Tonkolili	17	17%	30	30	132	84	151	51	69	97
	Northern	149	34%	236	244	813	671	1328	882	881	915
Eastern	Kailahun	14	17%	27	36	139	111	192	198	203	169
	Kenema	60	50%	106	103	195	159	343	257	214	234
	Kono	16	19%	19	22	124	138	151	160	85	132
	Eastern	90	32%	152	161	458	408	686	615	502	534
Southern	Bo	20	18%	51	39	239	243	291	280	229	256
	Bonthe	27	52%	39	31	132	158	180	109	130	142
	Moyamba	39	41%	81	56	199	258	282	147	203	218
	Pujehun	35	48%	51	39	224	158	277	164	207	206
	Southern	121	36%	222	165	794	817	1030	700	769	822
Western	WA Rural	15	41%	34	25	76	59	70	54	48	61
	WA Urban	28	56%	72	57	155	135	201	113	109	143
	Western Are	43	49%	106	82	231	194	271	167	157	204
	National	403	35%	716	652	2296	2090	3315	2364	2309	2475

Figure 9: Kenema, Number of children admitted in OTP (May to Sep 2014)

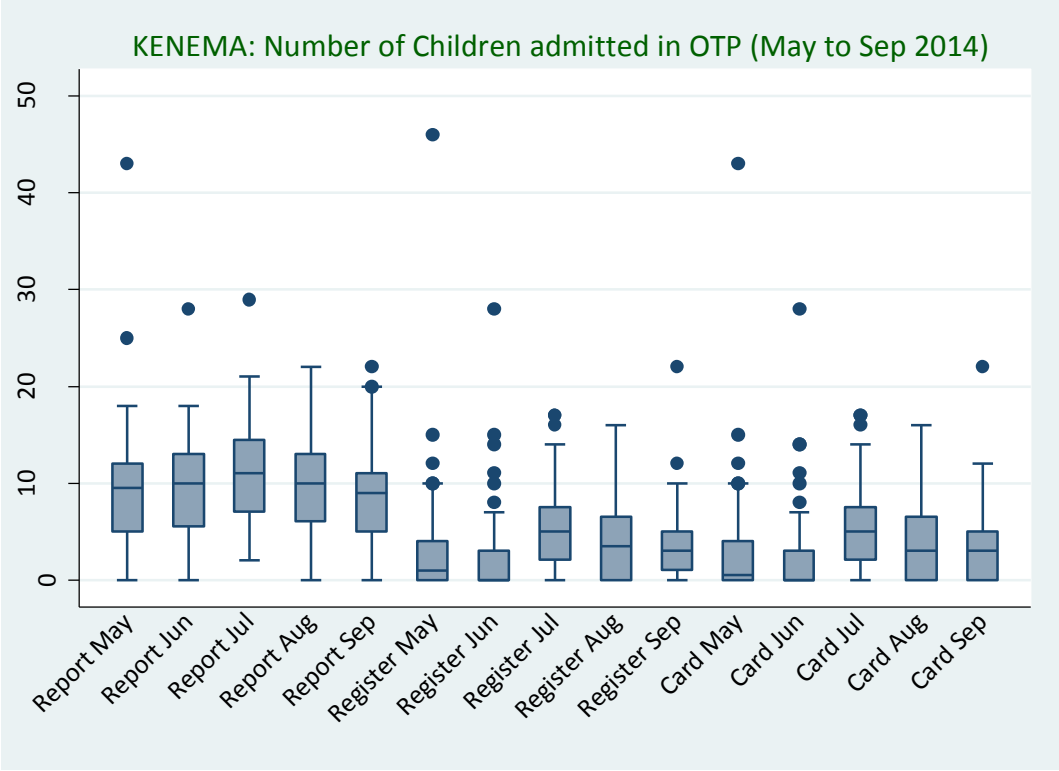


Figure 10: Port Loko, Number of children admitted in OTP (May to Sep 2014)

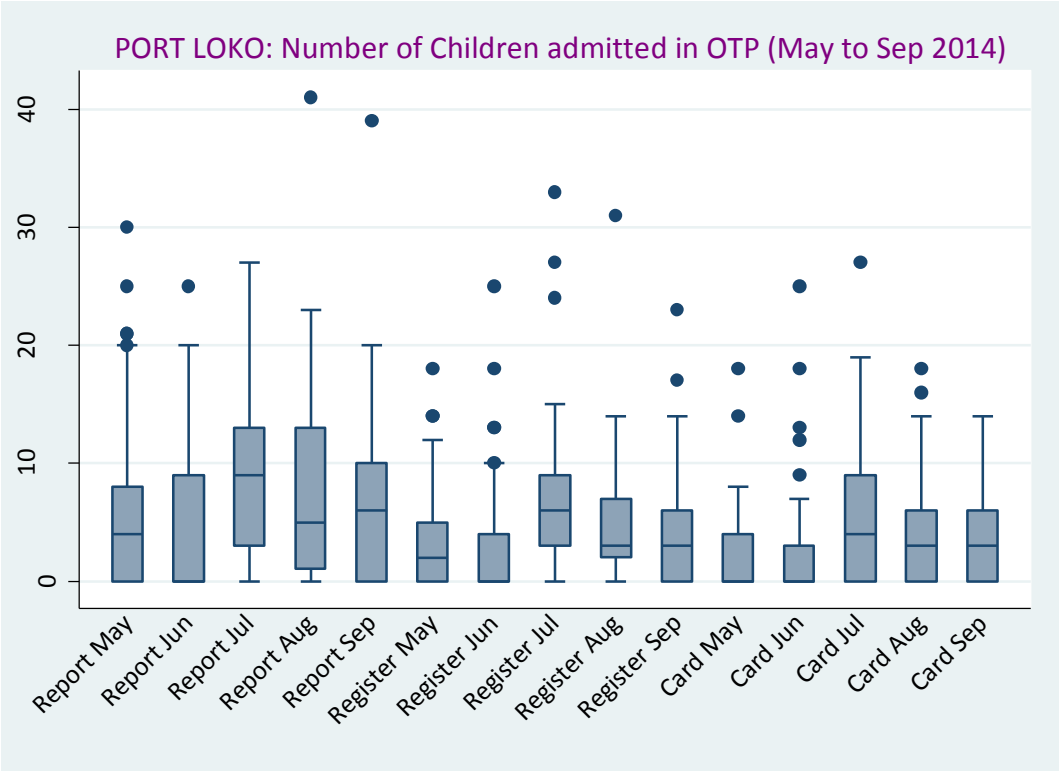


Figure 11: Western Area Rural, Number of children admitted in OTP (May to Sep 2014)

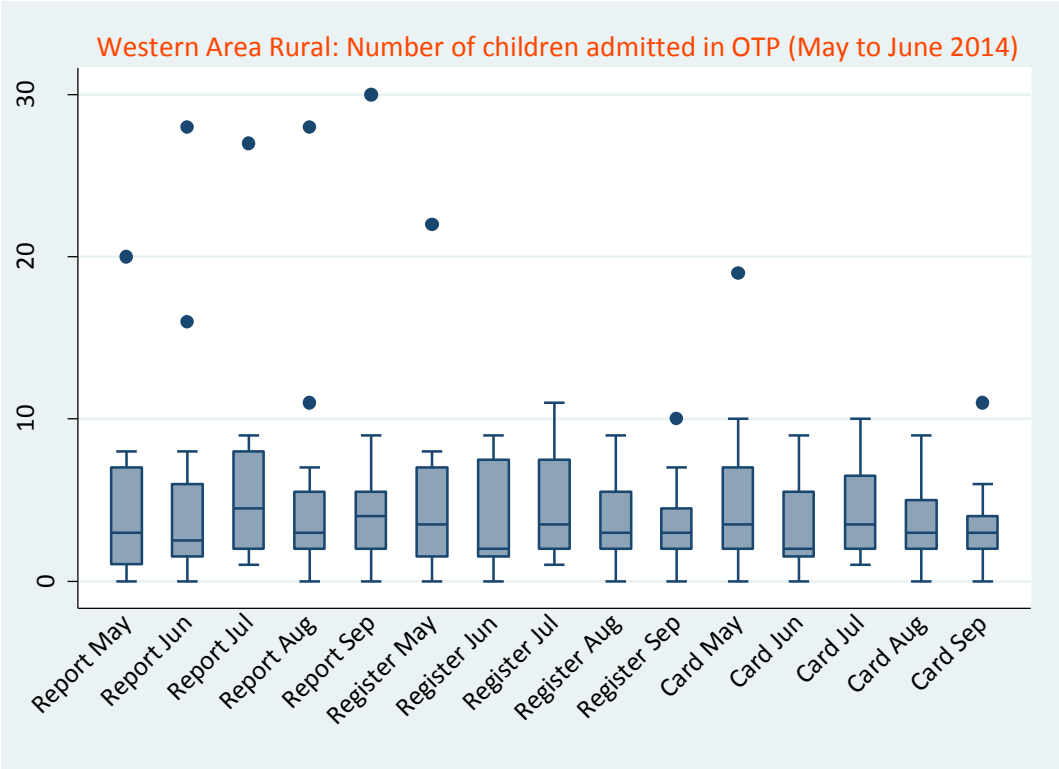


Figure 12: Koinadugu, Number of children admitted in OTP (May to Sep 2014)

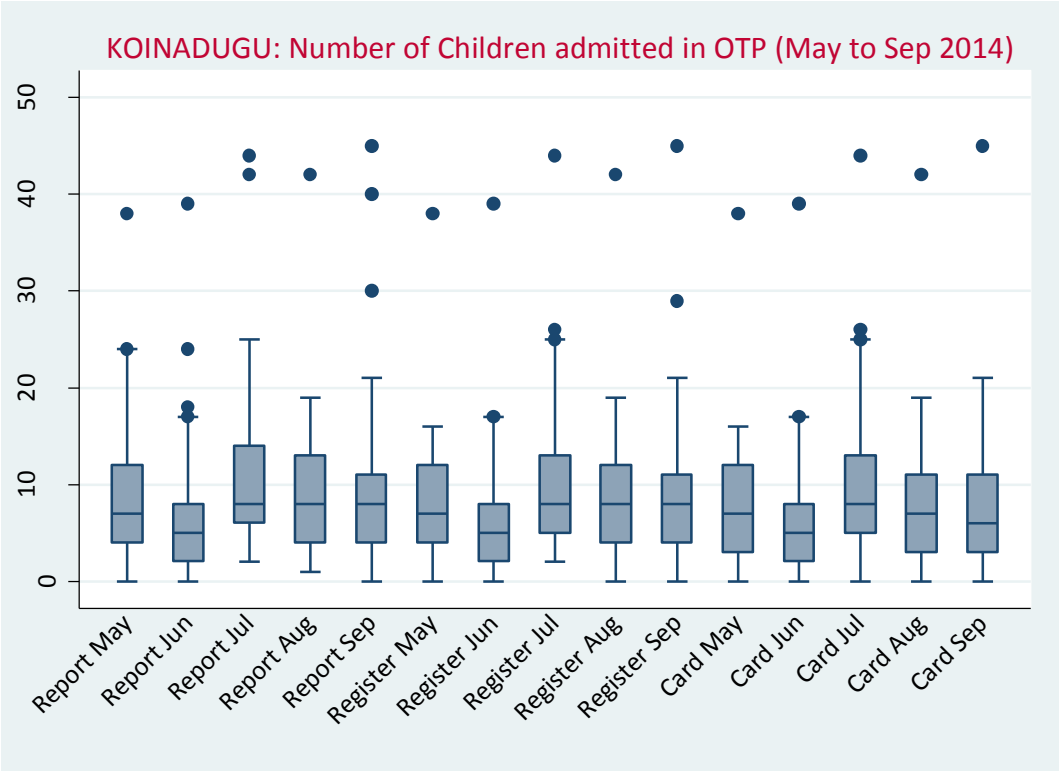
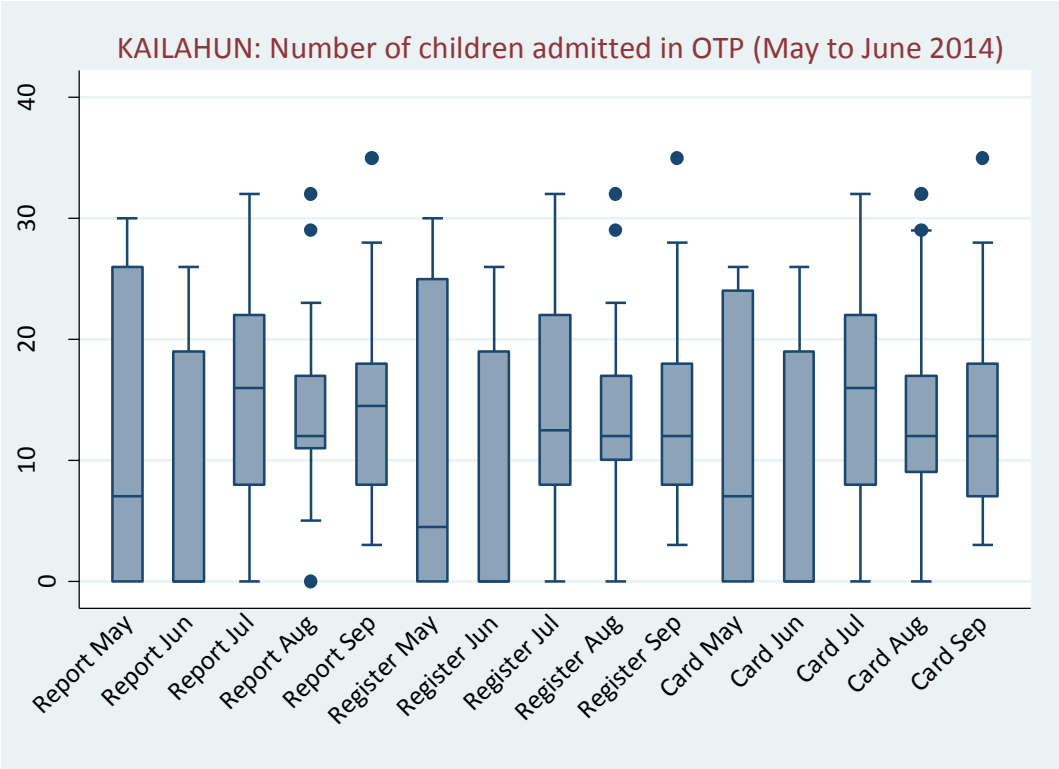


Figure 13: Kailahun, Number of children admitted in OTP (May to Sep 2014)



4.7.2 OTP admissions and RUTF consumptions

The number of OTP admissions varies widely from one month to another (Table 16). It increases by 60% nationally between June and July (more than doubling in Kenema, Kambia and Port Loko) before decreasing by large amounts the following months, between July and August. The large increase in OTP admissions from June to July follows the distribution of RUTF in June 2014.

The previous supply of RUTF arrived at health facilities in March 2014. By May, 35% of PHUs reported suffering prolonged periods of RUTF stockouts during the months of May and June. PHUs in Northern and Eastern Provinces were particularly affected: nearly 50% of PHUs experienced RUTF stockout lasting 3 to 4 weeks during these 2 months.

By contrast, Southern and Western provinces appear to be less adversely affected. 90% or more of all PHUs were not confronted to stockout during May and June, although instances of stockout increased during August and September in the Southern province.

There are 13 PHUs which are particularly worse-off with prolonged period of RUTF stockouts during 4 months, including four in Kenema, four in Pujehun, and one each in Bo, Bombali, Kambia, Koidadugu, and Port Loko.

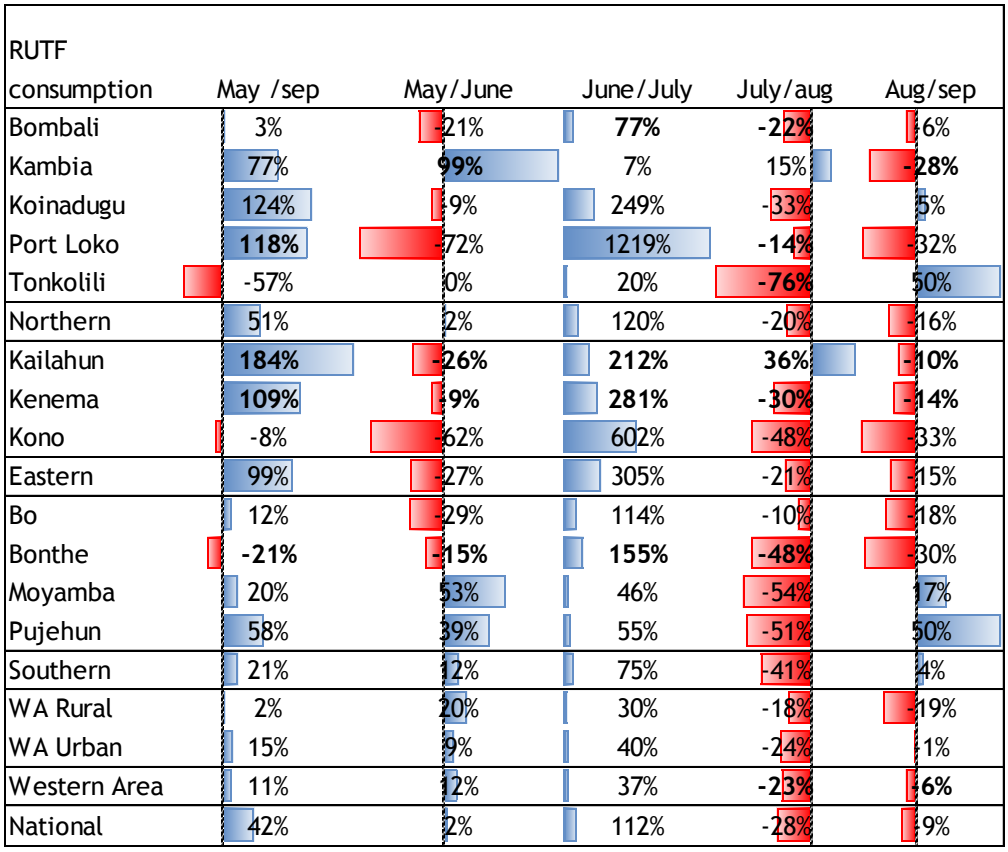
Table 19: Number of children admitted in OTP at PHU level, percentage change May to Sep 2014

OTP admissions, changes over time (May - Sep 2014)

Admission in OTP services	May /sep	May/June	June/July	July/aug	Aug/sep
Bombali	12%	5%	45%	-46%	35%
Kambia	20%	-14%	167%	-27%	-28%
Koinadugu	14%	-19%	55%	-13%	5%
Port Loko	34%	-20%	176%	-37%	-4%
Tonkolili	-48%	-36%	80%	-66%	35%
Overall	8%	-17%	98%	-34%	0%
Kailahun	46%	-20%	73%	3%	3%
Kenema	10%	-18%	116%	-25%	-17%
Kono	-31%	11%	9%	6%	-47%
Overall	10%	-11%	68%	-10%	-18%
Bo	-4%	2%	20%	-4%	-18%
Bonthe	-2%	20%	14%	-39%	19%
Moyamba	2%	30%	9%	-48%	38%
Pujehun	-8%	-29%	75%	-41%	26%
Overall	-3%	3%	26%	-32%	10%
WA Rural	-37%	-22%	19%	-23%	-11%
WA Urban	-30%	-13%	49%	-44%	-4%
Overall	-32%	-16%	40%	-38%	-6%
National	1%	-9%	59%	-29%	-2%

Table 20: RUTF consumption, percentage change May to Sep 2014

RUTF consumption, changes over time (May - Sep 2014)



RUTF consumption	May /sep	May/June	June/July	July/aug	Aug/sep
Bombali	3%	-21%	**77%**	**-22%**	-6%
Kambia	77%	**99%**	7%	15%	**-28%**
Koinadugu	124%	-9%	249%	-33%	-5%
Port Loko	**118%**	-72%	**1219%**	**-14%**	-32%
Tonkolili	-57%	0%	20%	**-76%**	50%
Northern	51%	2%	120%	-20%	-16%
Kailahun	**184%**	**-26%**	**212%**	**36%**	**-10%**
Kenema	**109%**	**-9%**	**281%**	**-30%**	**-14%**
Kono	-8%	-62%	602%	-48%	-33%
Eastern	99%	-27%	305%	-21%	-15%
Bo	12%	-29%	114%	-10%	-18%
Bonthe	**-21%**	**-15%**	**155%**	**-48%**	-30%
Moyamba	20%	53%	46%	-54%	17%
Pujehun	58%	39%	55%	-51%	50%
Southern	21%	12%	75%	-41%	4%
WA Rural	2%	20%	30%	-18%	-19%
WA Urban	15%	9%	40%	-24%	1%
Western Area	11%	12%	37%	**-23%**	**-6%**
National	42%	2%	112%	-28%	-9%

Table 21: RUTF consumption and stockout, May – Sep 2014

Table 11.2: RUTF consumption

Province	District	May	June	July	August	September	Average of five months	Number of PHUs with stockout May-Sep 2014	% of PHU providing OTP services with RUTF stockout	Number of weeks with RUTF stockout May-Sep 2014	% of time between May-Sep 2014 when RUTF was not in stock
Northern	Bombali	14,882	11,749	20,839	16,268	15,370	15,822	6	35%	57	17%
	Kambia	12,734	25,301	26,972	31,139	22,537	23,737	20	59%	117	17%
	Koinadugu	10,719	9,758	34,049	22,922	24,033	20,296	20	65%	184	30%
	Port Loko	10,135	2,828	37,290	32,222	22,048	20,905	38	76%	256	26%
	Tonkolili	9,967	9,920	11,935	2,885	4,333	7,808	15	88%	98	29%
	Northern	58,437	59,556	131,085	105,436	88,321	88,567	99	66%	712	24%
Eastern	Kailahun	8,043	5,981	18,688	25,457	22,851	16,204	8	57%	63	23%
	Kenema	14,830	13,480	51,342	35,818	30,951	29,284	43	72%	312	26%
	Kono	7,819	2,944	20,656	10,760	7,187	9,873	11	69%	91	28%
	Eastern	30,692	22,405	90,686	72,035	60,989	55,361	62	69%	466	26%
Southern	Bo	25,405	18,070	38,591	34,764	28,496	29,065	5	25%	22	6%
	Bonthe	10,481	8,933	22,744	11,904	8,290	12,470	16	59%	81	15%
	Moyamba	19,490	29,805	43,499	19,971	23,449	27,243	22	56%	111	14%
	Pujehun	19,148	26,607	41,147	20,179	30,206	27,457	17	49%	128	18%
	Southern	74,524	83,415	145,981	86,818	90,441	96,236	60	50%	342	14%
Western	WA Rural	5,693	6,813	8,842	7,215	5,823	6,877	3	20%	9	3%
	WA Urban	15,797	17,184	24,112	18,279	18,105	18,695	9	32%	47	8%
	Western Area	21,490	23,997	32,954	25,494	23,928	25,573	12	28%	56	7%
	National	185,143	189,373	400,706	289,783	263,679	265,737	233	58%	1,576	20%

Figure 14: Percentage of PHUs providing OTP services experiencing RUTF stock out, May – June 2014

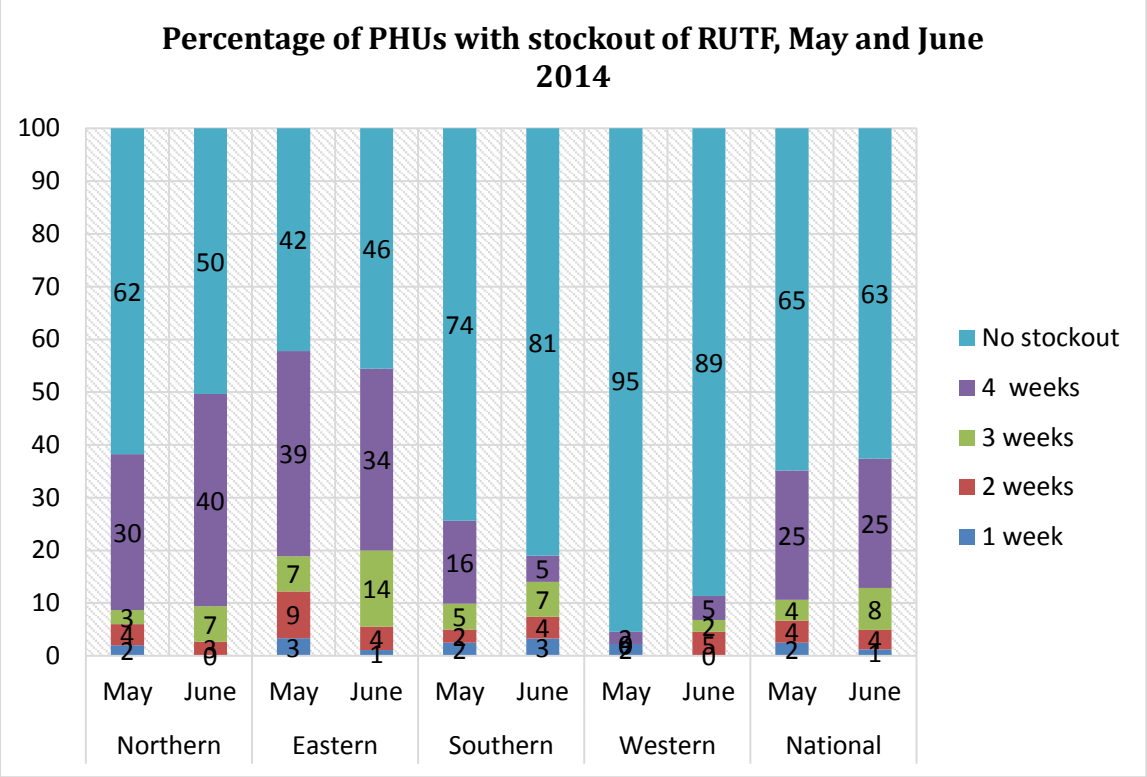
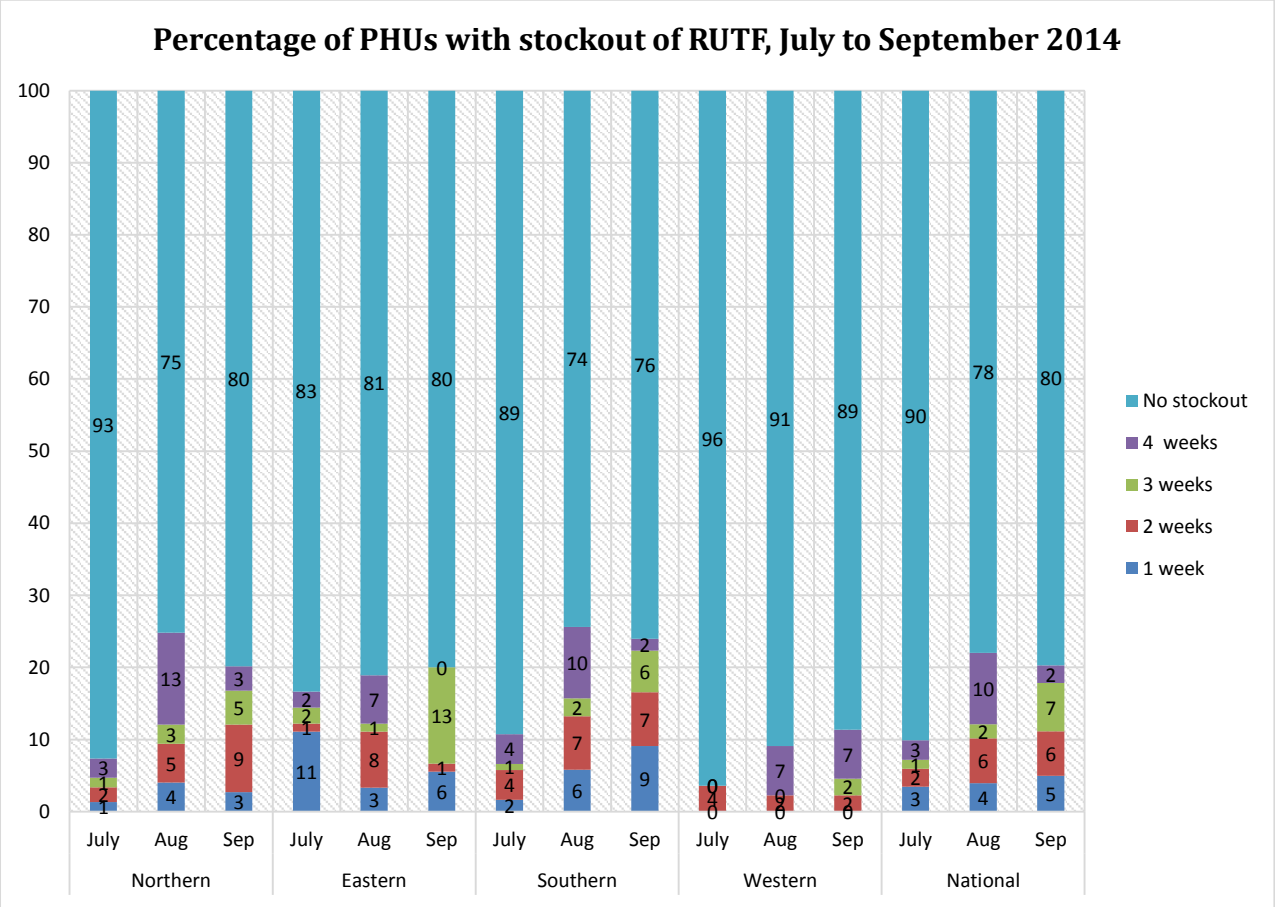


Figure 15: Percentage of PHUs providing OTP services experiencing RUTF stock out, Jul – Sep 2014



4.7.3 Growth monitoring of children

The number of children attending growth monitoring programmes declined by 40% between May and September 2014. Growth monitoring not being a life-saving intervention in the context of Ebola, parents are not bringing their children to the health facility.

Table 22: Children attending growth monitoring programme, percentage change May-Sep 2014

Children attending growth monitoring programme, changes over time (May - Sep 2014)

Province		May /sep	May/June	June/July	July/aug	Aug/sep
Northern	Bombali	-27%	4%	**-10%**	**-16%**	-7%
	Kambia	-46%	**16%**	-26%	-14%	**-26%**
	Koinadugu	-40%	-2%	-11%	-22%	-12%
	Port Loko	**-53%**	-8%	-3%	**-32%**	-23%
	Tonkolili	-42%	-9%	-10%	**-20%**	-11%
	Northern	-42%	-3%	-10%	-22%	-14%
Eastern	Kailahun	**-21%**	**-35%**	**21%**	**-13%**	**17%**
	Kenema	**-45%**	**-30%**	**-28%**	**-1%**	**11%**
	Kono	-54%	10%	-23%	-39%	-10%
	Eastern	-42%	-26%	-19%	-11%	10%
Southern	Bo	-30%	-15%	-19%	-5%	7%
	Bonthe	**-9%**	**-1%**	**-22%**	**-16%**	39%
	Moyamba	-26%	-3%	-9%	-16%	1%
	Pujehun	-38%	-15%	-29%	3%	-1%
	Southern	-29%	-10%	-18%	-9%	5%
Western	WA Rural	-44%	-13%	-13%	-27%	2%
	WA Urban	-46%	9%	-22%	-17%	-24%
	Western	-45%	0%	-19%	**-21%**	**-15%**
National		-39%	-8%	-15%	-17%	-6%

5. Health system resources

5.1 Availability of health personnel

The presence of health personnel at health facilities is key to providing timely and quality essential services to communities. As the EVD outbreak unfolded, it was widely believed that many facilities had closed down or were no longer functional. The data collected through this assessment indicate that this was not the case. Most primary health care facilities remained open and there was scant evidence of health personnel not being present in their posts. The PHU in-charge did not report significant changes in number of facility personnel since April 2014, before the onset of the EVD outbreak. However, it is important to note that the survey enumerators did not physically check the presence of health personnel when visiting the facility, and relied on information provided by the PHU in-charges and on data recorded in the registers.

Table 23: Number of health personnel working in PHUs at time of survey (Oct 2014)

				Health personnel currently working in PHUs						
	District	Population 2014*	Number of PHUs found open and surveyed	Nurse	Midwives	MCH aides	CHO	Other health personel	Other non technical	Number of CHWs
Northern	Bombali	493,894	97	87	16	117	32	94	244	748
	Kambia	341,741	66	17	9	120	19	53	166	839
	Koinadugu	335,516	66	39	10	73	12	302	262	696
	Port Loko	557,791	101	27	9	155	16	51	316	0
	Tonkolili	434,936	103	155	11	138	27	245	319	964
	Overall	2,163,878	433	325	55	603	106	745	1307	3247
Eastern	Kailahun	465,347	81	57	2	104	21	86	692	776
	Kenema	653,674	119	168	13	182	27	324	464	1132
	Kono	323,494	83	30	9	104	13	324	342	984
	Overall	1,442,515	283	255	24	390	61	734	1498	2892
Southern	Bo	655,626	113	87	26	254	46	151	505	1022
	Bonthe	168,618	52	73	4	58	14	151	186	690
	Moyamba	277,306	96	14	9	154	16	46	274	862
	Pujehun	336,533	72	16	5	116	15	80	246	961
	Overall	1,438,084	333	190	44	580	91	428	1211	3535
Western	WA Rural	764,400		120	8	112	14	37	188	244
	WA Urban	701,660		292	35	237	38	95	340	1075
	Western area	1,306,751	87	412	43	349	52	132	528	1319
National		6,351,227	1,136	1,182	166	1,922	310	2,039	4,544	10993
Per facility				1.04	0.15	1.69	0.27	1.79	4.00	9.68

A total of 51 health personnel were reported to have been died of Ebola in the facilities surveyed. Northern and Eastern reported the highest number of deaths (26 and 23 respectively). Among districts, Kailahun and Bombali also reported high number of deaths (19 and 13 respectively).

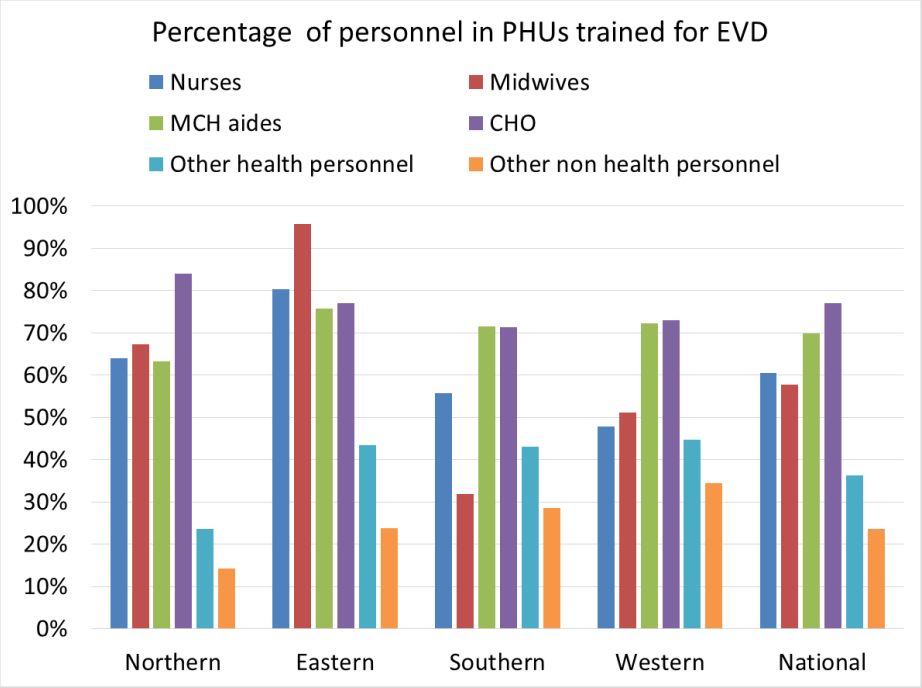
Table 24: Total personnel in health facilities infected or died, Oct 2014

Province	District	Infected	Died
Northern	Bombali	15	13
	Kambia	0	0
	Koinadugu	1	3
	Port Loko	8	7
	Tonkolili	3	3
	Northern	27	26
Eastern	Kailahun	23	19
	Kenema	3	3
	Kono	1	1
	Eastern	27	23
Southern	Bo	0	0
	Bonthe	0	0
	Moyamba	0	0
	Pujehun	1	1
	Southern	1	1
Western	WA Rural	0	0
	WA Urban	4	1
	Western	4	1
National		59	51

Since the EVD outbreak, several trainings (of varying duration, coverage and quality) have been carried out to orient, sensitize and equip the health personnel to deal with the outbreak and its impact on their daily work. Some of these trainings were conducted by the Government of Sierra Leone. Others were conducted by various development agencies operating in the country. During the assessment, data was collected on the coverage of such trainings. It was not an attempt to assess the quality of the trainings provided nor to ascertain its adequacy.

Analysing the data by type of health personnel revealed that the coverage among CHOs was the highest (77%), followed by MCH Aides (70%), Nurses (61%) and Midwives (58%). The coverage among other health personnel (36%) and also among the non-health personnel (24%) was relatively low. Lab technicians are categorised under 'other health personnel', yet they have to deal with various body fluids while performing lab tests. Cleaners are included among 'non-health personnel', yet they are in charge of cleaning facilities as well as waste management. Hence, it is critical that these categories of staff are provided with adequate IPC trainings on Ebola, especially on the various modes of transmission and on how to prevent getting infected with the virus.

Figure 16: Health personnel in PHUs trained on Ebola (% by type of personnel), Oct 2014



5.2 Community health workers – iCCM

Community Health Workers (CHWs) have been playing a critical role in providing basic health services and creating awareness for essential maternal and child interventions, especially in hard-to-reach areas. As per the data collected through the assessment, 88% of the facilities have CHWs supporting their work in the catchment area. The coverage is almost universal except for Port Loko which does not have any CHWs operating in the district.

Adequate supervision of CHW is a critical indicator to ascertain the functionality and quality of the CHW programme. Every month, CHWs come to the health facility for a meeting when they report on their monthly activities and can discuss challenges, support required or other emerging issues. The data show that the number of monthly meeting has declined over the study period of May to September from 76% of facilities reporting monthly meetings of CHWs to 63% of facilities in September.

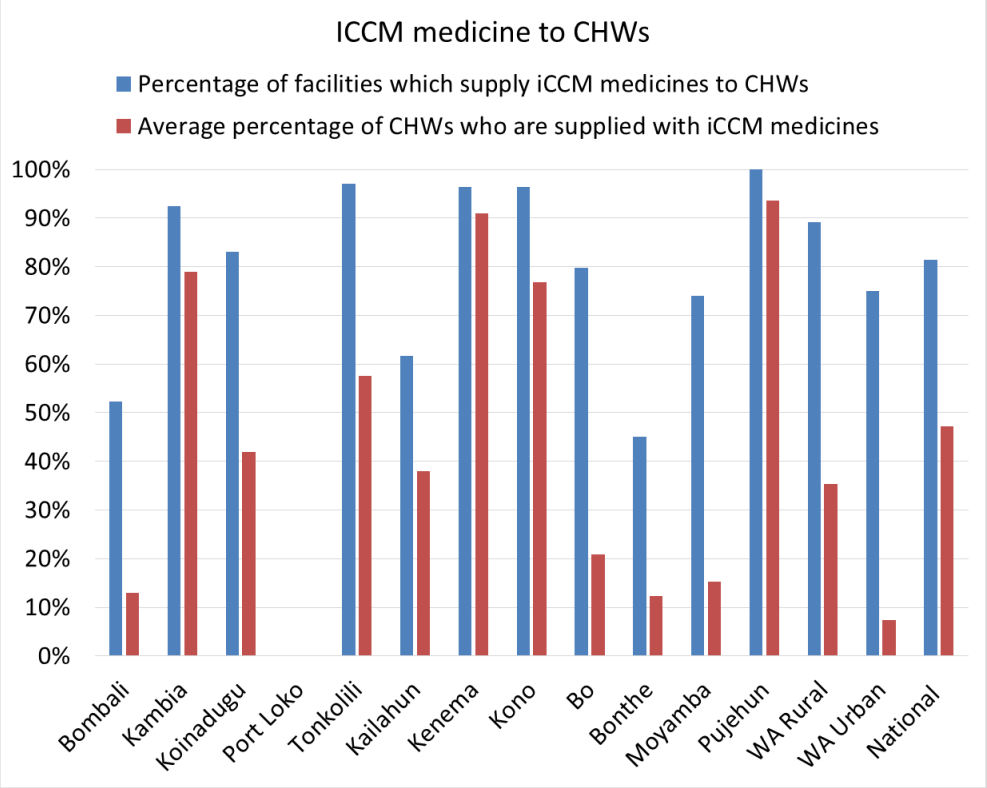
Table 21: Number of CHWs and monthly meetings of CHWs at PHUs, Oct 2014

Table 15.1: Number of CHWs and percentage of facilities who had monthly meetings with CHWs

					Percentage of facilities who had monthly meeting of CHWs				
Province	District	Number of facilities with CHW	Percentage of facilities with CHW	Number of CHWs	May	June	July	August	September
Northern	Bombali	85	88%	748	75%	75%	78%	73%	69%
	Kambia	66	100%	839	86%	85%	83%	85%	77%
	Koinadugu	65	98%	696	80%	69%	69%	63%	71%
	Port Loko	0	0%	0	0%	0%	0%	0%	0%
	Tonkolili	101	98%	964	94%	91%	89%	74%	59%
	Northern	317	73%	3247	85%	83%	81%	74%	68%
Eastern	Kailahun	81	100%	776	67%	52%	48%	49%	51%
	Kenema	112	94%	1132	99%	99%	99%	99%	99%
	Kono	83	100%	984	95%	90%	94%	90%	100%
	Eastern	276	98%	2892	88%	83%	83%	82%	82%
Southern	Bo	109	96%	1022	62%	54%	49%	51%	38%
	Bonthe	51	98%	690	53%	53%	45%	41%	41%
	Moyamba	96	100%	862	23%	21%	24%	19%	18%
	Pujehun	73	100%	961	89%	92%	85%	78%	78%
	Southern	328	98%	3535	55%	52%	49%	46%	41%
Western	WA Rural	37	100%	244	76%	73%	76%	65%	65%
	WA Urban	44	88%	1075	84%	75%	84%	68%	64%
	Western	81	93%	1319	80%	74%	80%	67%	64%
National		1002	88%	10993	76%	72%	71%	66%	63%

CHWs also supply medicines to treat the three critical childhood illnesses of malaria, diarrhoea and pneumonia. This is critical as CHWs are often the first line of contact people have with the health care system, especially in remote areas. However, it appears that the majority of CHWs do not have access to an adequate supply of essential life-saving medicine. In May 2014, only 53% of CHWs were received medicines from their health facility. By September 2014, only 39% of CHWs had essential medicine at their disposal.

Figure 17: CHWs provided with iCCM medicine (% of CHWs and % of PHUs), Oct 2014



5.3 Supportive supervision provided to PHUs

Supportive supervision plays a critical part in strengthening the health system. Periodic visits are carried out from the DHMTs to the PHUs to provide required technical support and also address bottlenecks. The data collected during the assessment shows a sharp decline in the average number of supportive supervision visits carried out to PHUs each month.

Nationally, on average, 3.2 visits were carried out to each PHU in May, However, by September, there were only 1.8 visits. Overall 35% of the facilities reported that having received no supportive supervision visits for two or more months since May 2014. 6% reported having received no visit at all since May 2014.

Figure 18: Monthly number of supportive supervision provided to PHUs by province, May to Sep 2014

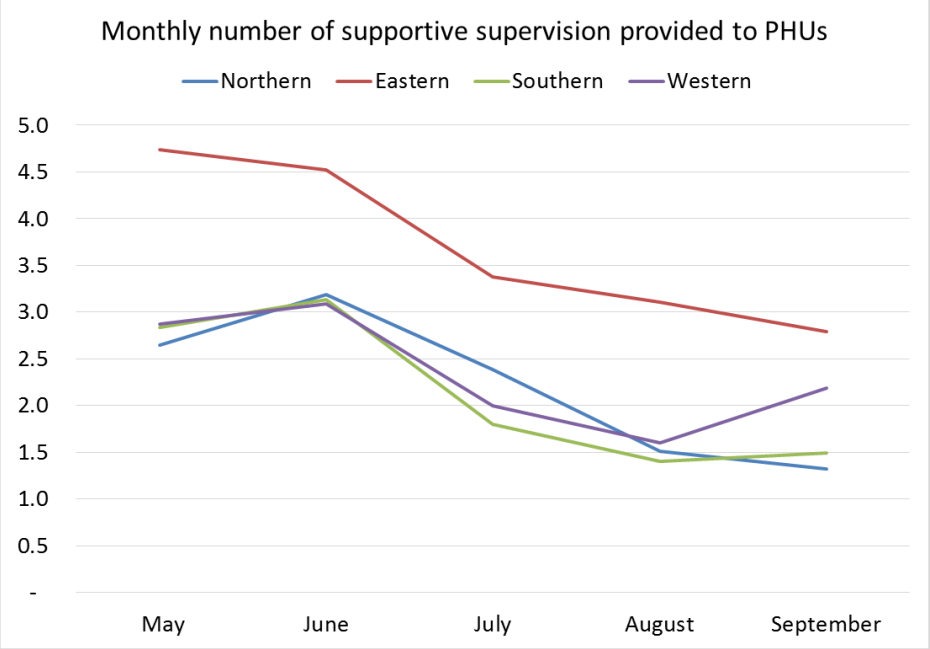
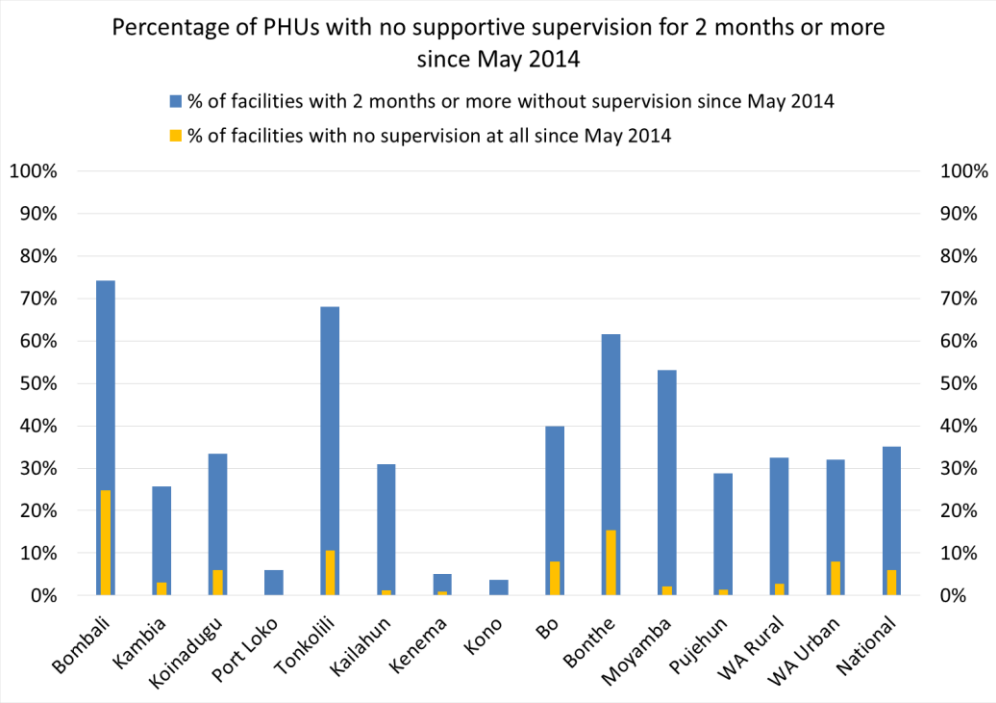


Figure 19: PHUs with no supportive supervision for 2 months or more, May – Sep 2014 (% of PHUs)



6. Essential equipment, medicine, supplies, water available

6.1 Essential equipment for birth deliveries

The findings on the essential equipment required for deliveries in the health facilities are not very encouraging. Only one in three facilities (33%) reported to have a standard delivery bed available, 52% in Kenema and 21% in Bonthe. A large number of facilities (81% of PHUs nationally) reported having

delivery kits and except for Pujehun (48%) and Western Area Rural and Urban (48%), the other districts performed close to the national average.

The availability of running water was also reported to be very low nationally (21%). Nevertheless, water is made available through water buckets in delivery.

Further analysis was done to find out the facilities with both delivery bed and delivery kit available, as both are essential for conducting a delivery. The results are again very poor with only 29% of the facilities reporting to have both available. Again Kenema scored relatively high at 52%, whereas Western Area Urban reported only 17% and Pujehun 19%.

Looking at the data by type of facility, the availability of delivery kits were more or less similar across the three types of facilities surveyed. However, the availability of standard delivery beds in CHCs were almost twice than that of CHPs and MCHPs.

Table 25: Percentage of PHUs with standard delivery bed, delivery kits and running water in delivery room (Oct 2014)

Province	District	Standard delivery bed available	Delivery kit available	Running water in delivery room available	Delivery bed and delivery kit both available
Northern	Bombali	28%	93%	5%	26%
	Kambia	33%	89%	9%	32%
	Koinadugu	35%	80%	20%	35%
	Port Loko	30%	93%	54%	30%
	Tonkolili	22%	81%	8%	21%
	Northern	29%	88%	20%	28%
Eastern	Kailahun	33%	59%	21%	25%
	Kenema	52%	99%	76%	52%
	Kono	39%	84%	22%	34%
	Eastern	43%	83%	45%	39%
Southern	Bo	35%	80%	5%	32%
	Bonthe	21%	98%	6%	21%
	Moyamba	30%	94%	6%	29%
	Pujehun	30%	48%	1%	19%
	Southern	31%	80%	5%	27%
Western	WA Rural	24%	62%	8%	22%
	WA Urban	26%	38%	14%	14%
	Western	25%	48%	11%	17%
National		33%	81%	21%	29%

Figure 20: Availability of delivery bed, delivery kit and running water by district, Oct 2014

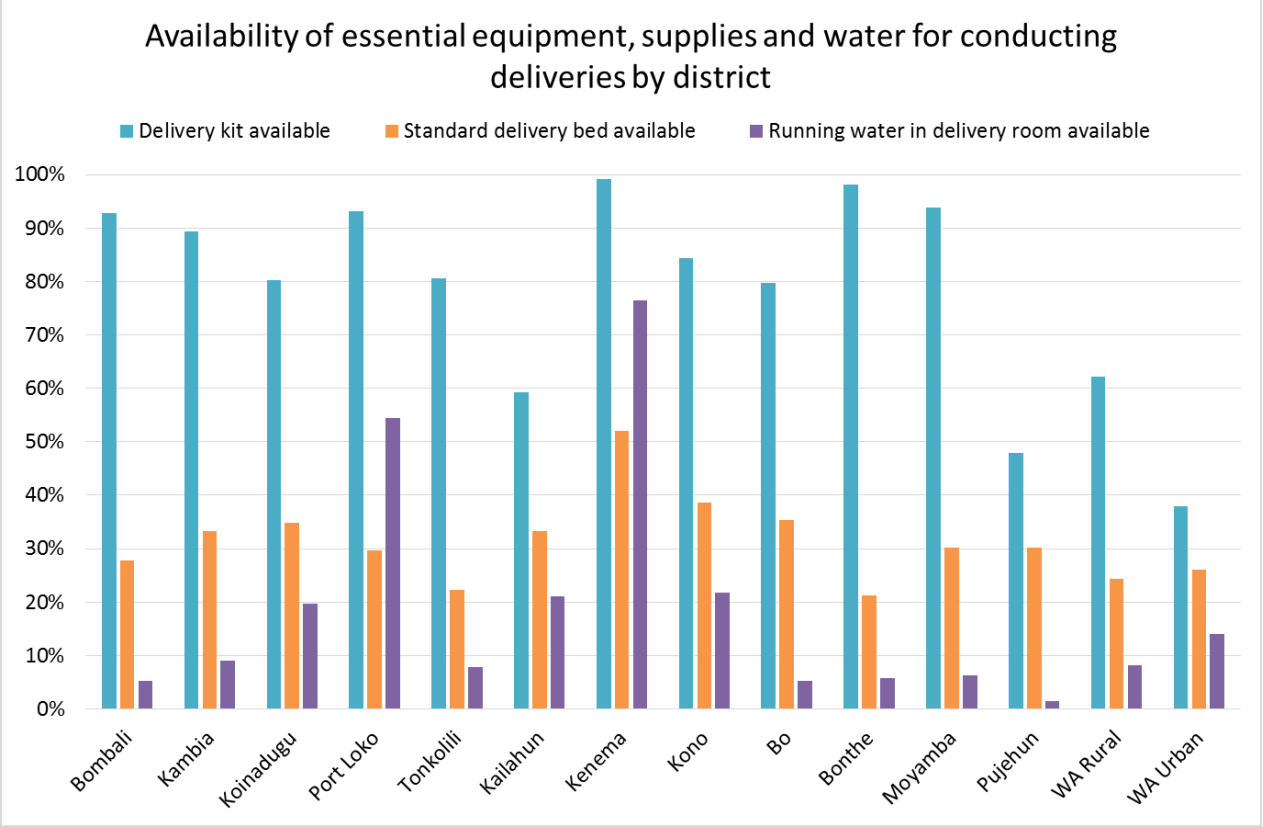
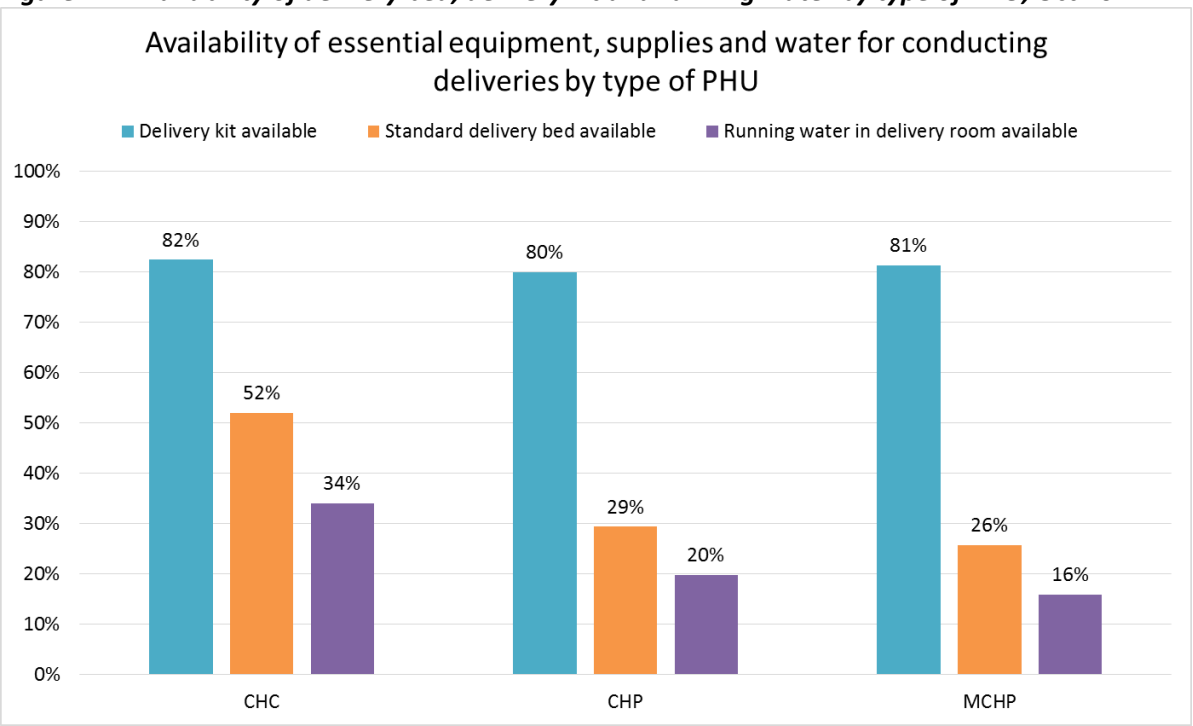


Figure 21: Availability of delivery bed, delivery kit and running water by type of PHU, Oct 2014

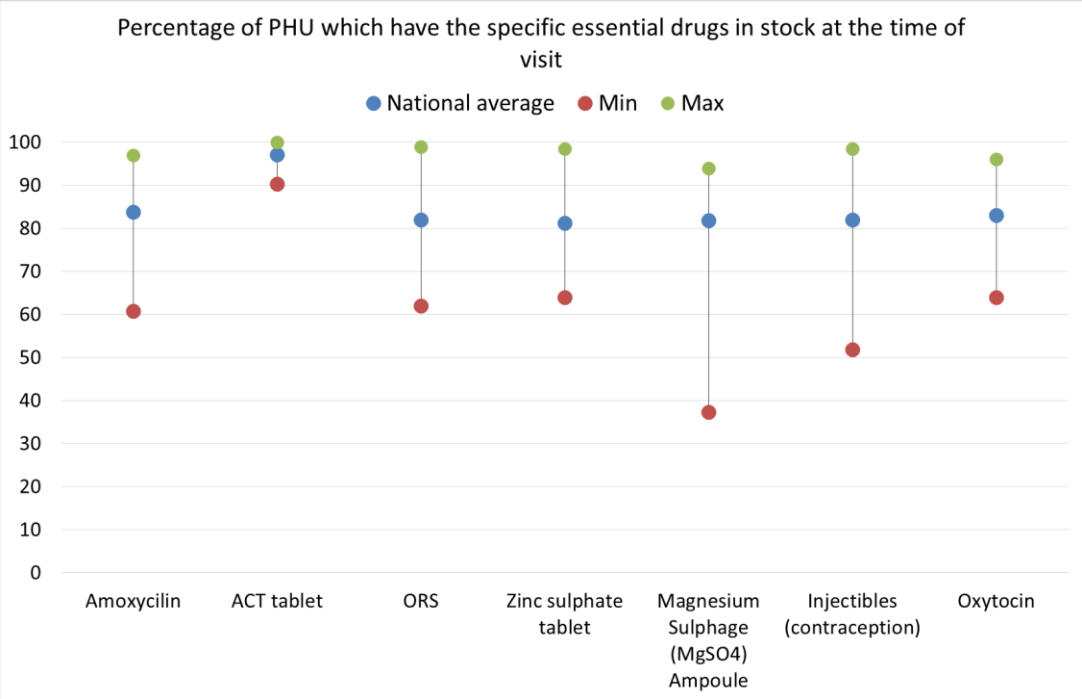


6.2 Essential drugs in stock at the time of visit

During the survey, enumerators physically checked the availability of essential drugs at a given facility. The graph below shows whether selected life-saving commodities were found to be in stock or not. It is important to note that "availability" does not mean that stock levels were adequate. The last round of drug distribution was completed in August 2014.

There are large disparities in the availability of essential drugs across the country. A small number of PHUs have a large quantity of stock whereas a lot of PHUs have limited stocks. As this was not cross-referenced with the catchment area of the PHU and hence the actual requirement of the facility, it needs further probe to ascertain whether there is a mismatch between the need and supply of drugs.

Figure 22: Percentage of PHU with essential drugs in stock at time of visit (Oct 2014)



6.3 Water and soap for hand-washing

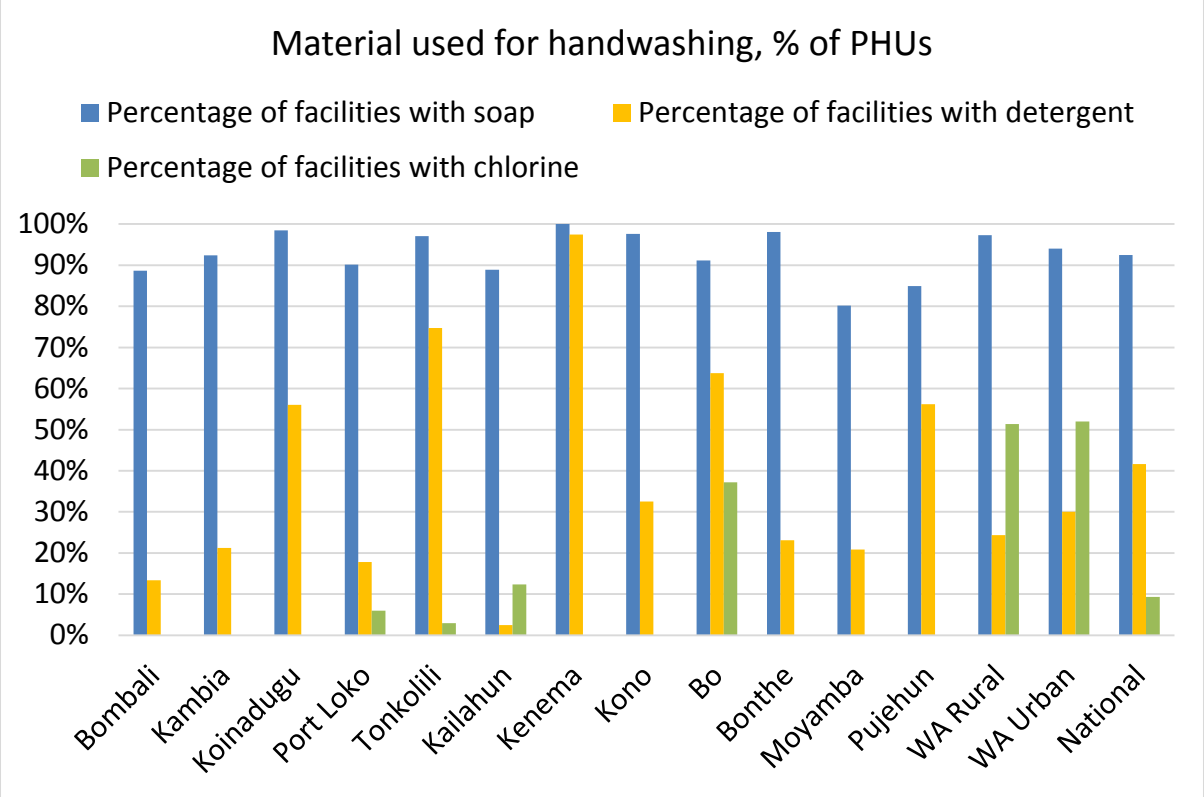
Water for handwashing is almost universally available in health facilities. 28 PHUS (2% of facilities) do not have water for handwashing, including 17 in the Northern Province, 7 in the Southern province, and 4 in the Eastern province. Soap was also widely available for handwashing. Nationally 93% of PHUs reported having soap, 41% having detergent. Only 9% had chlorine at their disposal.

Table 26: PHUs with NO water for handwashing (number and %), Oct 2014

Province	District	Number of facilities with NO water for handwashing	% of facilities with NO water for handwashing
Northern	Bombali	4	4%
	Kambia	2	3%

Province	District	Number of facilities with NO water for handwashing	% of facilities with NO water for handwashing
	Koinadugu	1	2%
	Port Loko	2	2%
	Tonkolili	8	8%
	Northern	17	4%
Eastern	Kailahun	2	2%
	Kenema	1	1%
	Kono	1	1%
	Eastern	4	1%
Southern	Bo	2	2%
	Bonthe	0	0%
	Moyamba	2	2%
	Pujehun	3	4%
	Southern	7	2%
Western	WA Rural	0	0%
	WA Urban	0	0%
	Western	0	0
National	National	28	2%

Figure 23: % of PHUs with soap, detergent and chlorine for handwashing, Oct 2014



6.4 Referral services and Waste Management System

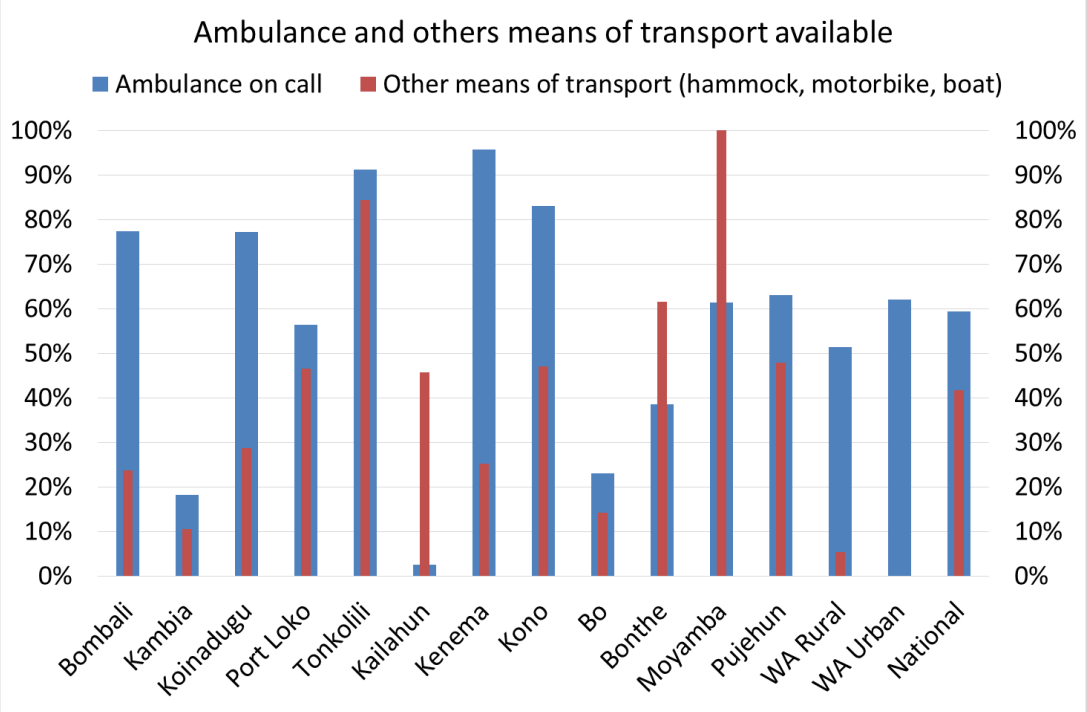
Having a functioning incinerator or an appropriate burning pit was chosen as the indicator for a health facility with an acceptable waste management system. Nationally, 72% of facilities reported having a functioning incinerator or appropriate burning pit (80% of PHUs in the Southern Province compared with 53% in the Western Province). Among districts, Port Loko, Kenema, Moyamba had the largest proportion of PHUs, 90% with a functioning incinerator or appropriate burning pit compared to less than 50% of Kambia, Western Area Urban, Kono.

An efficient transport system is a critical part of the referral service. The assessment documented the different types of transport services available for each PHU. Nationally, 59% of the PHUs had an ambulance available on call (67% in the Northern Province compared with 45% in the Southern Province). Two districts reported a very high coverage of ambulance, Kenema (96%) and Tonkolili (91%).

Table 24: Percentage of PHUs with referral mechanisms, Oct 2014

Province	District	Percentage of facilities with functioning incinerator/ appropriate	Percentage of facilities with functional referral mechanism	Ambulance on call	Other means of transport (hammock, motorbike,	Number of PHU with Incinerator
Northern	Bombali	70%	93%	77%	24%	68
	Kambia	44%	30%	18%	11%	29
	Koinadugu	64%	89%	77%	29%	42
	Port Loko	96%	63%	56%	47%	97
	Tonkolili	70%	99%	91%	84%	72
	Northern	71%	77%	67%	42%	308
Eastern	Kailahun	59%	43%	2%	46%	48
	Kenema	92%	97%	96%	25%	109
	Kono	49%	89%	83%	47%	41
	Eastern	70%	79%	65%	37%	198
Southern	Bo	73%	36%	23%	14%	82
	Bonthe	75%	65%	38%	62%	39
	Moyamba	91%	92%	61%	105%	87
	Pujehun	81%	73%	63%	48%	59
	Southern	80%	65%	45%	55%	267
Western	WA Rural	62%	51%	51%	5%	23
	WA Urban	46%	62%	62%	0%	23
	Western	53%	57%	57%	2%	46
	National	72%	73%	59%	42%	819

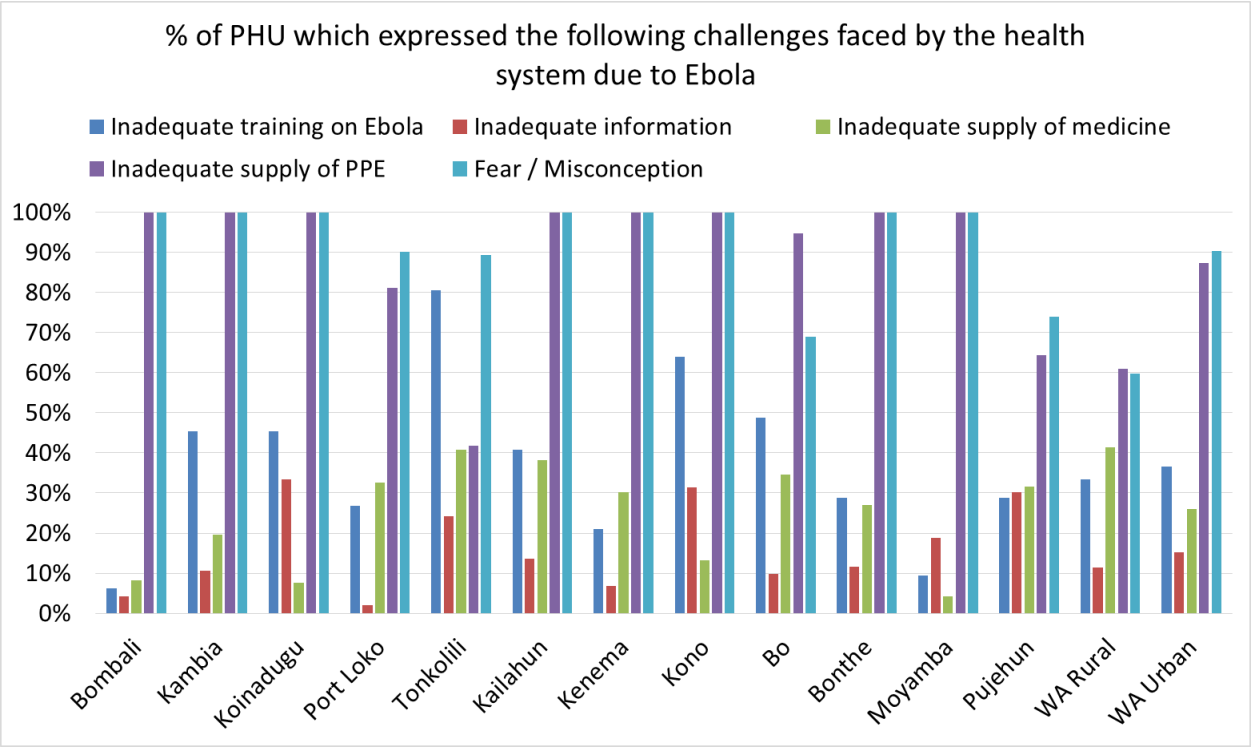
Figure 24: percentage of PHUs with ambulance and other means of transportation, Oct 2014



7. Ebola related questions

The assessment tried to identify the main challenges faced by the health system due to the EVD outbreak in the opinion of the health workers. Nationally, 37% of PHUs felt they have not been provided adequate training on Ebola. In 15% of the PHUs, staff identified lack of information about Ebola as a challenge. An overwhelming 90% of PHUs felt fear/conception is the main challenge confronted by the health system in fighting Ebola. 87% of the PHUs reported the lack of protective gear as a large gap. In 26% of the PHUs, the lack of medicines was cited as a challenge.

Figure25 Challenges faced by PHUs due to Ebola



Annexure A – Questionnaire used for the rapid assessment

HEALTH FACILITY ASSESSMENT CHECK

Annexure B – Dataset

SL_Health Facility Survey_2014 FINAL 1

Annexure C – Tables and Graphs

Health Facility Rapid Assessment_T

Annexure D – List of facilities found to be closed on the day of the assessment

Facility ID	Province	District	Health facility closed	Type of Health Facility	Chiefdom	Population catchment area
22	Southern	Bo	Tananahun	1	Bumpe Ngao	6711
24	Southern	Bo	Yengema	3	Bumpe Ngao	3450
34	Southern	Bo	Njandama	3	Badjia	4521
67	Southern	Bo	Kpamajama	3	Kakua	
76	Southern	Bo	Nengbema	3	Niawa Lengo	4328
78	Southern	Bo	Yakagi	3	Baoma	5994
111	Southern	Bo	Kpamajama	3	Komboya	
132	Northern	Bombali	Manonkoh	2	Bombali Sheborah	
136	Northern	Bombali	Fullah Town 11	3	Bombali Sheborah	4949
175	Northern	Bombali	Makeni lol	2	Paki-Masagbong	3315
179	Northern	Bombali	Kathantha	3	Paki-Masagbong	3330
194	Northern	Bombali	Kathanthan Yimbo	1	Sella Limba	11304
200	Northern	Bombali	Masongbo	1	Makarie Gbanti	7668
201	Northern	Bombali	Kerefay Loko	3	Makarie Gbanti	2313
202	Northern	Bombali	Makarie	3	Makarie Gbanti	6246
205	Northern	Bombali	Magbenteh community Hospital		Makarie Gbanti	
228	Southern	Bonthe	GBAMGBAIA	2	IMPERI	2061
274	Southern	Bonthe	DELKEN	3	SITTIA	3793
275	Southern	Bonthe	YORK ISLAND	2	BMC	
277	Southern	Bonthe	TISSANA	1	DEMA	4959
279	Southern	Bonthe	MAMMY	2	BUM	1985
367	Northern	Kambia	Macoth	3	Mambolo	3526

Annexure D – List of facilities found to be closed on the day of the assessment

Facility ID	Province	District	Health facility closed	Type of Health Facility	Chiefdom	Population catchment area
460	Eastern	Kenema	PERRIE	3	GAURA	1765
465	Eastern	Kenema	PERI**	3	GAURA	
578	Northern	Koinadugu	HAMDALIA	3	FOLOSABA DEMBELIA	3614
597	Northern	Koinadugu	SONKOYA	1	SULIMA	2292
621	Northern	Koinadugu	BANDAPIRIE	3	NEYA	6491
630	Eastern	Kono	SIMBAKOROR	2	GBENSE	
669	Eastern	Kono	MOTEMA	1	NIMIKORO	6506
736	Southern	Moyamba	M.C.H.P Bumpeh River	3	Bumpe	4732
798	Southern	Moyamba	M.C.H.P Mogongbay	3	Upper Banta	1252
805	Southern	Moyamba	C.H.P Golala Bengeh	2	Upper Banta	
806	Northern	Port Loko	NEW MAFORKI -MCHP	3	MAFORKI	6250
838	Northern	Port Loko	FOREDUGU	3	BUYA ROMENDE	6717
839	Northern	Port Loko	WORREH BANA	3	BUYA ROMENDE	3408
868	Northern	Port Loko	ROMENI	3	B.K.M	2330
869	Northern	Port Loko	KAGBANTAMA	2	B.K.M	3870
946	Southern	Pujehun	Bendu	3	Malen	
987	Northern	Tonkolili	MASANGA LEPROSY HOSPITAL	3	KHOLIFA ROWALLA	5782
1049	Northern	Tonkolili	MASAKO	3	KHOLIFA ROWALLA	6211
1058	Northern	Tonkolili	MAKONDU	3	YONI	3550
1104	Western	Western Area Rural	JOHN THORPE	3	WATERLOO	7258

Annexure D – List of facilities found to be closed on the day of the assessment

Facility ID	Province	District	Health facility closed	Type of Health Facility	Chiefdom	Population catchment area
1142	Western	Western Area Rural	MABUREH	3	WATERLOO	5959
1161	Western	Western Area Rural	TOKEH	3	YORK	6989
1167	Western	Western Area Rural	TISSANA	3	YORK	3840
1182	Western	Western Area Urban	TASLEY GLOBAL	1	FREETOWN	2003
1092	Western	Western Area Urban	GEORGE BROOK	1	FREETOWN	25010
1162	Western	Western Area Urban	PMO CLINE TOWN	2	BAI BUREH	66914