FINAL REPORT

EVALUATION OF MANAGEMENT OF ACUTE MALNUTRITION

SIERRA LEONE

12 to 23 March 2010

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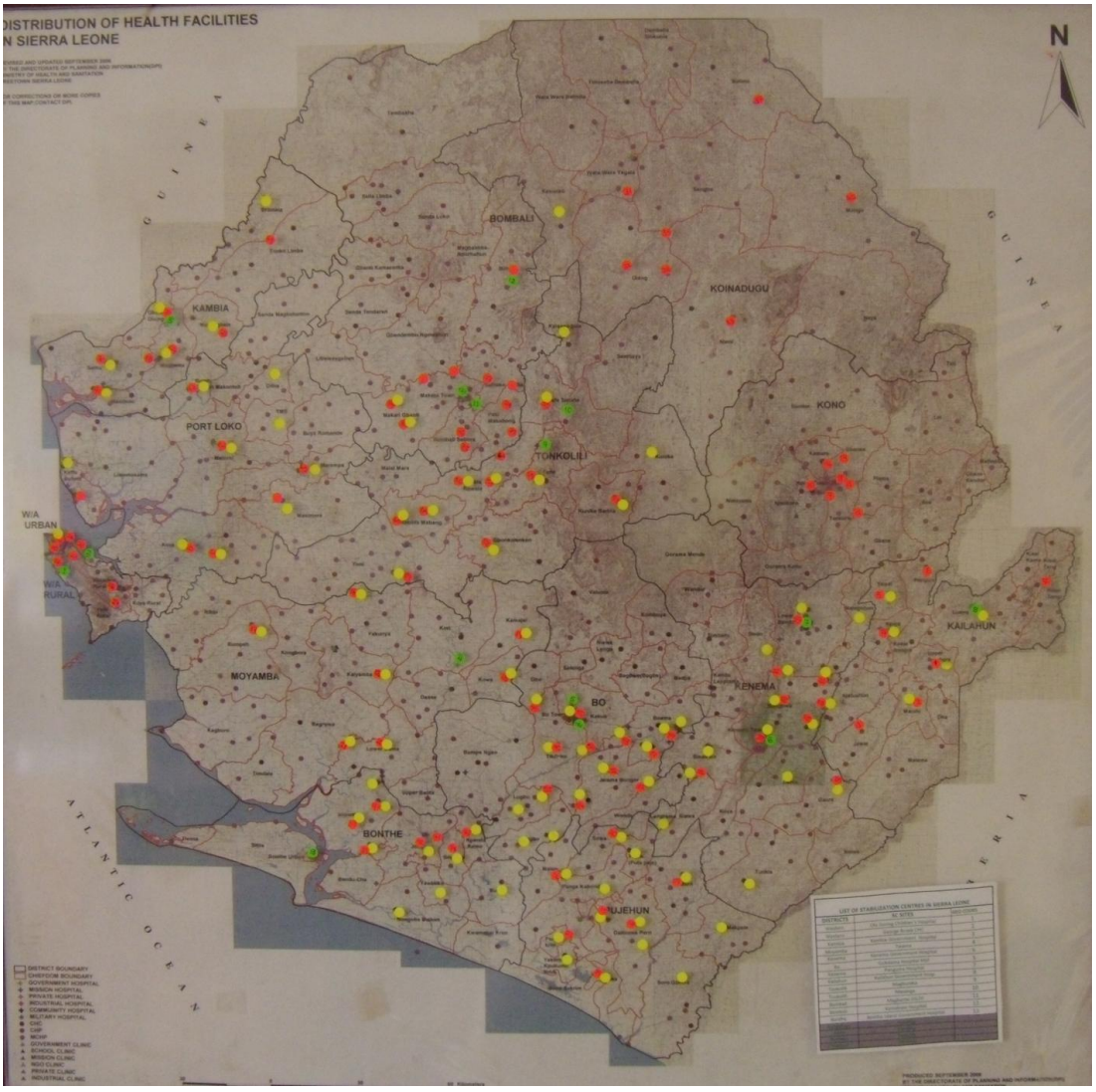

Photo 1: Coverage of the CMAM program in Sierra Leone, 2010

(red spot: OTP – Yellow spot: SFC – Green spot: Stabilization centre)

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ACKNOWLEDGEMENTS

We are grateful for having had the opportunity to visit the CMAM programme in Sierra Leone and we would like to thank first of all, the Government of Sierra Leone and in particular Mrs Ami Shamit from the Nutrition division.

We would like to thank UNICEF Sierra Leone to give us the opportunity to visit the program, in particular Stefano Fedele and his nutrition team as well as our driver who really make this trip very pleasant.

We thank all the partners and staff for their patience, answering our questions.

We appreciate greatly the presence of Robert Johnston, who accompanied us during our mission.

LIST OF ACRONYMS

ART	Antiretroviral Therapy
BCZ	Bureau zone
BMI	Body Mass Index
CHW	Community Health Worker
cm	Centimetres
CMAM	Community Based Management of Acute Malnutrition
CMV	Complement of Minerals and Vitamins
DHMT	District Health Management Team
DMO	District Medical Officer
DN	District Nutritionist
F75	Formula 75
F100	Formula 100
FBF	Fortified Blended Food
HMIS	Health Monitoring and Information System
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
ITP	Inpatient Therapeutic Programme
IM	Intramuscular
IU	International Units
IV	Intravenous
IYCF	Infant and Young Children Feeding
kg	Kilogram
kg/m^2	Kilograms per squared metre
M2M	Mother to Mother
MAM	Moderate acute malnutrition
ml	Millilitre
MUAC	Mid-upper arm circumference
NG	Naso-gastric
OTP	Outpatient Therapeutic Programme
P/L	Pregnant or Lactating (woman)
PLWHA	Persons living with HIV/AIDS
ReSoMal	Rehydration Solution for Malnutrition
RUTF	Ready-to-Use Therapeutic Food
SAM	Severe acute malnutrition
SC	Stabilisation Centre
SD	Standard Deviation
SSLDF	Swiss Sierra Leone Development Foundation
SFP	Supplementary Feeding Programme

TB	Tuberculosis
PHU	Peripheral Health Unit
W/A	Weight for Age Measurement
W/H	Weight for Height Measurement
W/L	Weight for Length Measurement

I- BACKGROUND

During the war, the management of acute malnutrition, mainly done by the NGOs, contributed to the actual protocol, showing the importance of amoxicillin for small bowel overgrowth and the effect of F100 on reversal of stunting in severely wasted and oedematous children. When the war ended, ACF tried to integrate the management of SAM in 2 structures: Children's Hospital in Freetown and Magbente Swiss Hospital in Makeni town in 2002-3, using the mixture of Complement of Mineral and Vitamin (CMV) - oil - sugar - powder milk. This situation last until 2006, when UNICEF regional office decided to revise and update the protocol and run a workshop followed by a consensus meeting. At the end of 2007, the protocol was validated and an agreement to use ready to use product was undertaken by the Ministry of Health, for in and out-patient treatment. In December 2007, 20 OTPs were opened in 4 districts and the next year a further 68 OTPs in 13 districts. In 2009, Sylvetta Scott, the nutrition programme manager of the MoH left for early retirement and was replaced by Ami Shamit. Mrs Shamit, assisted by two nutritionists' assistant programmers and a secretary plus three institutional nutritionists at national level validated the various nutrition guidelines (Vitamin A guideline, Infant and Young Child Feeding (IYCF) guideline, Community based of Acute Malnutrition protocol).

These guidelines were followed in 2009 by:

1) Mass and routine Vitamin A supplementation of children 6-59 months;
2) Deworming of children 12-59 months;
3) Routine supplementation of pregnant women with Iron-Folate and post partum supplementation of mothers with Vitamin A;
4) Monitoring of iodine content of salt at ports of entry into the country and mass sensitization on increased household consumption of iodized salt, conducted during the "Mami en Pikin Well-bodi[1]" Week.

To scale up the CMAM program, a food and nutrition policy followed by an action plan was endorsed and in 2009, the program went from 65 to 105 OTPs and from 5 SC to 16. The CMAM program was developed with the help of Valid International.

Table 1: OTP scale up 2007-2009

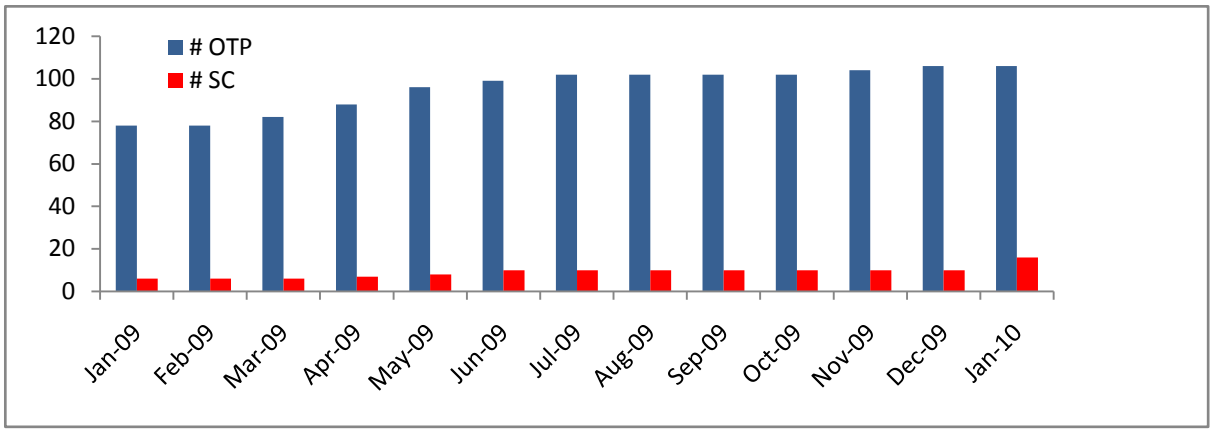
DISTRICTS	Dec 2007	Dec 2008	Dec 2009
Bombali	5	5	11
Tonkolili	5	5	10
Kenema	5	5	9
Kailahun	0	5	7
Koinadugu	0	5	7
Western Area	5	5	7
Bo	0	5	12
Bonthe	0	5	7
Moyamba	0	5	7
Pujehun	0	5	7
Port Loko	0	5	7
Kambia	0	5	7
Kono	0	5	7
Total	**20**	**65**	**105**

[1] Mother and Child healthy-body in SL patois

In order to adopt the new WHO standard, in 2009 it was decided to revise the 2007 protocol; a second draft was made by a consultant with the help of a technical committee and is about to be validated. The draft protocol was divided into 3 sections; in each section, all the tools were in the annexes of the sections. They were as follows: 1) Community mobilisation and screening; 2) Supplementary Feeding Centre (SFC); 3) Outpatient Therapeutic Programmes (OTP); 4) Stabilisation Centres (SC) with the sections on complications separated from the other sections all mixed together; the important medical problems as well as minor problems contained mistakes which could be fatal to patients needing in-patient care. Several points that urgently need to be revised were brought up to the consultant in charge of writing the CMAM protocol and Stefano Fedele. There were some minor points as well like the zinc tablets for diarrhoea when the diets already contain abundant zinc, the treatment of pregnant women in OTP which has not been done before.

Our remarks were written in the draft protocol and given to Robert Johnston (Nutrition Specialist) followed by Felicité Tchibindat (Regional Advisor for Nutrition in the Regional Office).
The validation of this revised protocol was supposed to be followed by an updated training package from 12 April to end of May 2010 followed by an updated training in cascade for the District Health Management Team (DHMT) in all the districts. The aim was to have 1 OTP per chiefdom and 1 SC per district. After the training of trainers of the nutritionists in the DHMT, the nursing aid was then, trained by the nutritionists of the district. Valid International supported the whole process. UNICEF plans to conduct a national coverage survey in September 2010.

Graph 1: Speed of implementation of OTP & SC in year 2009, source UNICEF



II- ORGANISATION OF THE CMAM PROGRAMME

Sierra Leone is divided in 13 districts and each district has a District Health Management Team headed by the DMO (District Medical Officer), a District Nutritionist in 4 districts and a Nutrition Focal Point in 9 districts; 5 nutrition focal points will be replaced by district nutritionists in the coming months.

The Monitoring and Information person in charge at district level supports the National Health Monitoring and Information System (HMIS). The data collection form with the new updated protocol was supposed to change in April to June 2010, but it was decided to first improve the quality of the collected data. The logistician of the MoH within the DHMT is in charge of the management of supplies of therapeutic food and systematic treatment within each district (using the district warehouse).

In 2009, UNICEF, in order to strengthen the community-based activities and to increase the link between the health facility services and the communities, allocated additional resources. A minimum package of community activities supported by NGOs was drawn up in collaboration with the national nutrition programme and WFP; this aimed to promote regular active screening and referral of malnourished children, the community's sensitization of the integrated child survival package and promotion of Infant and Young Child Feeding (IYCF). A Memorandum of Understanding (MoU) was signed with the various NGOs working at community level and who are responsible for active screening, tracing defaulters, transfer to Stabilisation Centres, follow up and supporting the Mother to Mother (M2M) support group. Paid by UNICEF for community mobilisation, IYCF and transfer, this initiative is trying to integrate the mother to mother support group into the DHM Team. Every 3 months a Nutrition Coordination Meeting has been taking place in UNICEF in order to follow the activities of the NGOs. To consolidate breastfeeding, the Baby Friendly Hospital Initiative has been adopted by all 13 District Hospitals and 8 Mission hospitals after a comprehensive training programme which is being cascaded down to all PHUs.

III- ANALYSIS OF THE DATABASE

3.1. Admissions, discharge and performance indicators

All the monthly reports have been collected from 2009 to Jan 2010, entered in a database by a nutritionist from UNICEF nutrition section. Table 2 and 3 shows the total number of admissions and discharge from SNU and OTP for 92% of the reports in OTP and 81% in Stabilisation Centers (SC), with an overall proportion of received/expected reports of 91%.

Table 2: Admissions of severe wasting and oedematous malnutrition, transfer in, 2009, in SNU & OTP, 2009

TYPE	New admissions oedema	New admissions severe wasting	Proportion severe wasting / oedema	New admissions others	Total new admissions	Transfer in	Proportion transfer in / admissions	Total admissions
OTP	5560	21453	26%	266	27279	355	1.3%	27600
SC	1799	3628	50%	77	5504	66	1.2%	5570
Total	7359	25081	29,5%	343	32783	421	1.3%	33170

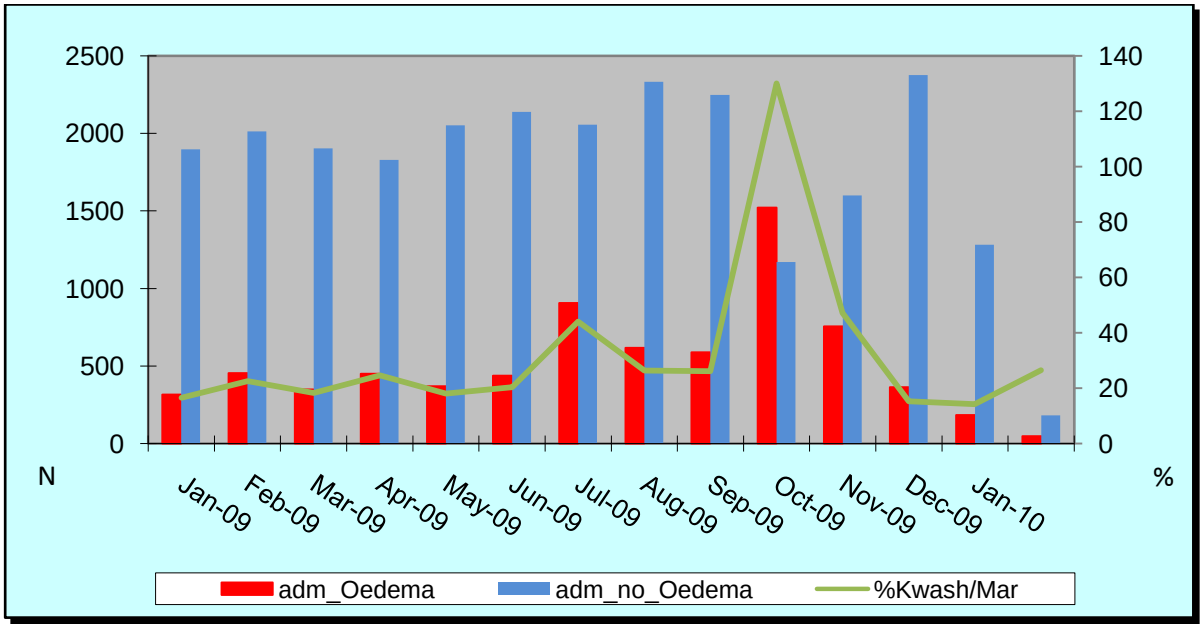
Table 3: Discharge: cured, death, defaulters, transfer out, 2009 in SNU & OTP, 2009

TYPE	Cured	Death	Default	Medical transfer	Non cured	Transfer out	Total Exit
OTP	25297 (96%)	172 (1%)	461 (2%)	1	22	308 (1%)	26252
TFC/SC	4493 (82%)	330 (6%)	283 (5%)	6	30	369 (7%)	5504
Total	29790 (94%)	502 (2%)	744 (2%)	7	52	677 (2%)	31756

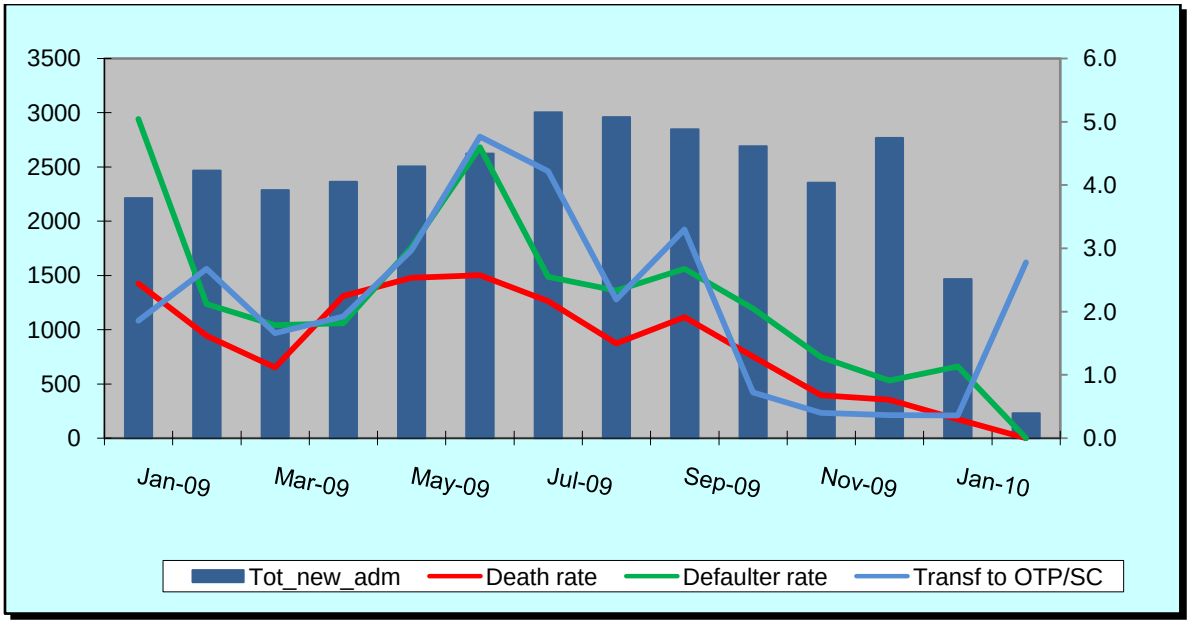
Graph 2 shows the overall distribution of severe wasting and oedematous children by month. New admissions of oedematous malnutrition peak in Oct 2009 at a time when the number of severe wasting is decreases. When we check the database, most of the kwashiorkor cases were managed in Kenema district where there were no marasmic children. There appears to be seasonality with oedematous malnutrition but not severe wasting. What happened? Was it a breakdown of therapeutic supplies? A sudden decreased number of patients due to the rainy

season? It is difficult to answer this question. It was most notable in Bo district and not elsewhere. However, it shows the importance of keeping oedematous malnutrition as a separate criterion in the monthly report.

Graph 2: New Admissions of Marasmus and Kwashiorkor per month, Sierra Leone, 2009; source UNICEF Sierra Leone

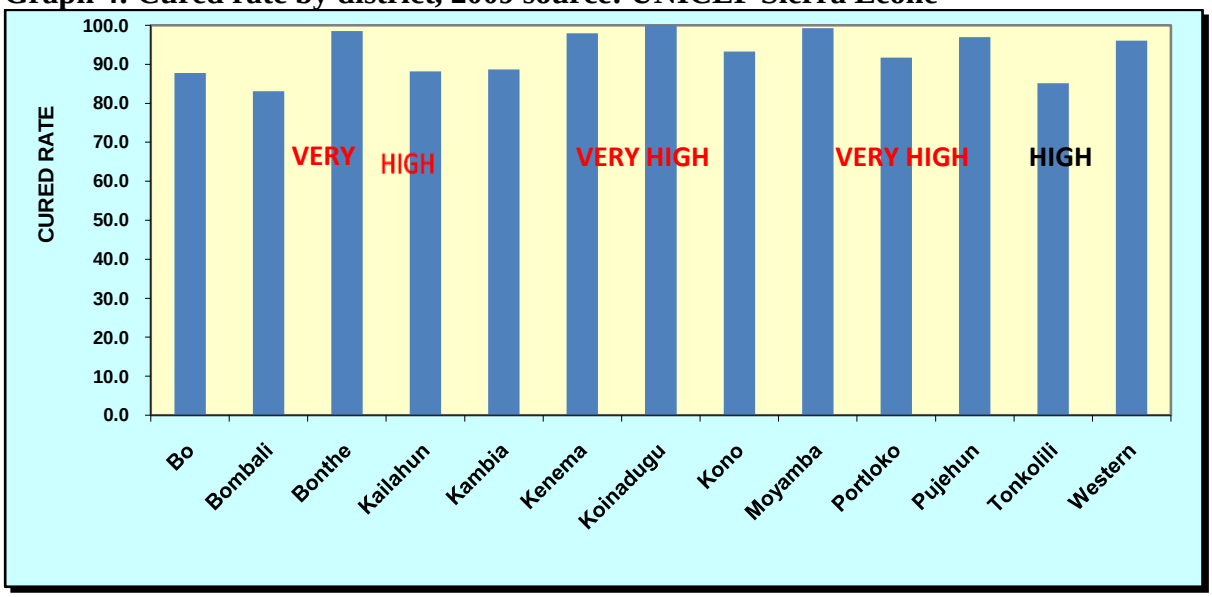


Graph 3: Performance indicators per month, Sierra Leone, 2009, sources: UNICEF Sierra Leone



These two graphs show the performance indicators and the new admissions in OTP and SC from Jan 2009 to Jan 2010 for almost all the centres. The decreasing number of admissions in Dec 2009 and Jan 2010 is due to the lack of reports for these months and not a change in the admission rate.

Graph 4: Cured rate by district, 2009 source: UNICEF Sierra Leone



The cured rate of almost 100 percent for Kenema, Koinadugu, Bonthe, Pujehun and Western area should be taken with great caution because it is possible that no follow up are really made on the SAM patients and actions should really be taken rapidly. There is no register, so that if the cards of defaulting, dead or other non-cured children are mislaid when the monthly reports are compiled then the reports will be in error. Mislaying of records occurs in all centres, without a register it was difficult to verify the accuracy of any of the data reported from any centre.

3.2. Consumption of RUTF

The database contains the consumption of RUTF used in OTP and of F75 and F100 used in SNU. We examined the consumption of RUTF and analysed the data where the consumption of RUTF was more than 0 cartons per month. A box of RUTF contains 150 sachets. The In and Out of RUTF (receipts and dispensing) is part of the monthly reports; this is very important information as well as the In and Out of F100 and F75 for the SC. The average **"RUTF Out"** per month was calculated as well as the average of patients per month using the mean of the total at the beginning of the month and the total in charge at the end of the month. The expected RUTF consumption was assumed to average 2 sachets per child per day: thus 2 multiplied by 30 days and by the average number of patients per day divided by 150 sachets gives the expected number of boxes of RUTF consumed during the month. The difference was calculated by subtracting the expected over the observed consumption of RUTF, and the average amount of RUTF used per beneficiaries was then calculated.

Tableau 4: Consumption of RUTF in OTPs, Sierra Leone, 2009, source: UNICEF Sierra Leone

District	OTP site	# months	RUTF consumed/month	Beneficiaries	Expected RUTF/month	Difference Exp / Obs	RUTF sachets/day/ beneficiary
Bo	Baomahun	5	8,0	11,6	4,6	3,4	3,4
	Koribondo	7	7,0	16,5	6,6	0,4	2,1
	Kpetewoma	7	12,0	19,6	7,9	4,1	3,1
	Sahnneigbema	5	8,4	14,3	5,7	2,7	2,9
	Sembehun 17	7	17,6	33,4	13,3	4,2	2,6
	Sumbuya	7	12,7	36,6	14,7	-1,9	1,7
	Tikonko	7	7,1	34,1	13,6	-6,5	1,0
	Total	45	10,6	24,7	9,9	0,7	2,1
Bombali	Binkolo	2	11,5	16,0	6,4	5,1	3,6
	Makama	3	18,7	43,3	17,3	1,3	2,2
	Makeni lol	1	15,0	22,5	9,0	6,0	3,3
	Makoloh	1	13,0	21,5	8,6	4,4	3,0
	Robat	2	6,0	21,5	8,6	-2,6	1,4
	Total	9	13,2	27,7	11,1	2,2	2,4
Bonthe	Kanga	6	17,2	27,7	11,1	6,1	3,1
	Lawana	7	60,9	102,5	41,0	19,9	3,0
	Mattru	6	59,3	58,1	23,2	36,1	5,1
	Moriba Town	7	39,3	43,1	17,2	22,1	4,6
	Senehun	6	19,0	21,1	8,4	10,6	4,5
	sogbella	7	45,4	48,8	19,5	25,9	4,7
	Victoria	7	63,1	74,6	29,9	33,3	4,2
	Total	46	44,2	54,9	21,9	22,3	4,0
Kailahun	Baima	2	5,0	20,8	8,3	-3,3	1,2
	Bandajuma-Yawei	3	10,3	15,2	6,1	4,3	3,4
	Bunumbu	2	9,0	21,5	8,6	0,4	2,1
	Jojoima	3	6,7	9,0	3,6	3,1	3,7
	Koindu	2	6,0	7,8	3,1	2,9	3,9
	Pendembu	3	15,7	14,2	5,7	**10,0**	**5,5**
	Sandaru	3	10,7	16,0	6,4	4,3	3,3
	Total	18	9,4	14,6	5,8	3,6	3,2
Kenema	Blama	7	15,9	25,2	10,1	**5,8**	3,1
	Giema	8	15,5	33,0	13,2	2,3	2,3
	Hanga	7	16,1	29,2	11,7	4,5	2,8
	Joru	7	18,6	46,1	18,5	0,1	2,0
	Kenema U5	5	21,2	31,0	12,4	**8,8**	3,4
	Largo	7	9,1	12,1	4,9	4,3	3,8
	Milton Magai	7	14,9	28,3	11,3	3,5	2,6
	Panguma U5	7	28,7	53,9	21,6	**7,1**	2,7
	Tongo	6	16,3	30,1	12,0	4,3	2,7
	Total	61	17,2	32,2	12,9	4,4	2,7

Kono	Kangaoikoimah	1	5,0	19,5	7,8	-2,8	1,3
	Kensey Clinic	1	6,0	12,0	4,8	1,2	2,5
	KGH	1	5,0	45,5	18,2	**-13,2**	**0,5**
	Motema	1	7,0	12,0	4,8	2,2	2,9
	Pumpeh Clinic	1	7,0	13,5	5,4	1,6	2,6
	SoiriTownclinic	1	5,0	17,5	7,0	-2,0	1,4
	Yengema	1	5,0	40,5	16,2	**-11,2**	**0,6**
	Total	7	5,7	22,9	9,2	-3,5	1,2
Moyamba	Gbangbantoke	5	9,0	46,6	18,6	**-9,6**	1,0
	Mofombo	7	16,9	35,1	14,1	2,8	2,4
	Mokanji	5	15,8	39,6	15,8	0,0	2,0
	MoyambaJunct.	7	18,0	70,1	28,1	**-10,1**	1,3
	Rotifunk	7	16,1	58,9	23,6	**-7,4**	1,4
	Senehun	7	23,0	58,7	23,5	-0,5	2,0
	Static	7	21,4	67,4	26,9	**-5,5**	1,6
	Total	45	17,6	54,7	21,9	-4,3	1,6
Pujehun	U5static Pujehun	4	16,0	41,6	16,7	-0,6	1,9
	Blama	4	13,3	39,3	15,7	-2,5	1,7
	Bumpeh	4	17,3	37,8	15,1	2,2	2,3
	Massam	4	18,0	38,9	15,6	2,5	2,3
	Potoru	2	5,5	6,0	2,4	3,1	4,6
	Sahn	4	16,8	34,6	13,9	2,9	2,4
	Total	22	15,3	35,5	14,2	1,1	2,2
Tonkolili	Mabai	7	12,7	12,6	5,1	**7,7**	**5,0**
	Mabang	8	7,3	10,2	4,1	3,2	3,6
	Magbruka	5	10,4	14,3	5,7	4,7	3,6
	Makoni Line	6	6,2	10,9	4,4	1,8	2,8
	Malone	7	11,9	17,6	7,0	4,8	3,4
	Masanga U5	7	10,4	11,1	4,5	6,0	**4,7**
	Matotoka	8	9,6	18,3	7,3	2,3	2,6
	Mile 91 Clinic	6	23,3	51,2	20,5	2,9	2,3
	Mobonto	7	7,3	11,0	4,4	2,9	3,3
	Yele CHC	6	11,0	16,9	6,8	4,2	3,3
	Total	67	10,8	17,0	6,8	4,0	3,2
Western	Calaba Town	5	35,6	91,4	36,6	-1,0	1,9
	Kissy	5	41,0	60,9	24,4	**16,6**	3,4
	Kroobay	5	26,2	62,3	24,9	1,3	2,1
	Ross Road	5	20,0	33,5	13,4	**6,6**	3,0
	Tombo	4	37,8	58,1	23,3	**14,5**	3,2
	Waterloo	4	18,8	32,5	13,0	**5,8**	2,9
	Wellington	5	54,4	90,9	36,4	**18,0**	3,0
	Total	33	33,7	62,3	24,9	**8,8**	2,7
Average			**17,4**	**33,5**	**13,4**	**4,0**	**2,8 sachets**

The average of the consumption per person per day is 2.8 sachets, and the average of boxes per OTP is 17.4 for 34 beneficiaries per month. There is considerable variation between districts and centres. Those with a low consumption may be due to pipeline breaks or a high

proportion of small children being treated (who take less RUTF per day); those centers with a high consumption may be treating much older children or there may be excessive "waste".

IV- FIELDS VISIT OF THE CMAM PROGRAM

4.1. Methods

We had the opportunity to visit five districts but we only met four DHMT. The visit on a Saturday did not give us the opportunity in Western area to see any people from the DHMT.

Table 5: Information about the districts visited

District	Population	DHMT/Nutritionist visited	Health centre	OTP visited/OTP	SC visited/SC
Bo	547 000	DN motivated	110	1/11 (Sumbuya)	1/2 (MSF TFC)
Bombali		DN motivated	93	1/11(Makeni Lol)	1 /1 (Makeni hosp)
Kenema	591 260	DN needs more training	120	1/9 (Joru)	1/1 (Kenema Gvt Hosp)
Tonkolili				1/10 (Magburaka)	1/2 (Masanga Hosp)
Western Area		No		0/7	1 /1 (Children's Hosp)

*DN: District Nutritionist

The method used standard questionnaires as follows: 1) Programme questionnaire for the DHM Team, 2) OTP questionnaire for the out patients' management, 3) SC questionnaire for in-patient care. We were not able to question members of the community because of the magnitude of the program and the short time in each location; however, during our visit in the OTP if we met with the NGOs in charge of community mobilisation we interrogated them about their approach. UNICEF nutrition section chose the designated and visited OTP according to the working day of the OTP. If no OTP were working in the district, we then chose the furthest one and checked the charts, the knowledge of the nurse aid and the stock of the nutrition products and materials.

CONSTRAINTS

Our main constraint was the lack of time. We were unable to visit two OTPs per district in all the five districts; Joseph Juana did not want us to visit a second if it was possible to visit one. We did not understand the rational of this. The other constraint was the impossibility to see the TFC in Bo, because this structure was yet undesignated as a "Stabilisation Centre" despite the fact that these are synonyms for facilities to treat severely malnourished children (Valid changed the name of the centres for their own internal reasons). Again, we had great difficulties to understand the reason for this refusal. We were asked why we, as non-implementers, were doing an evaluation mission as Valid should be the one evaluating their work. We considered this attitude disturbing. As it was Valid that did the training and then supported the implementation of the program, they should not be allowed to evaluate their own program as this would create a blatant conflict of interests. It would seem that such a consideration was not part of the standard practice, and that independent evaluation of a program was not thought necessary by Joseph. We could not see any SFC because there was another sudden shortage of CSB in Sierra Leone.

4.2. Findings

In each district, there was the nutritionist in charge of supervision of the opened OTPs. She was charged with collecting the monthly reports, supervision and on-the-job training, looking after the store for all nutrition products and drugs for the district. Of the four district nutritionists, one was particularly good; she had regular help from MSF, who were regularly facilitating her supervision visits and providing all the transport. Gondama (MSF) TFC was still used as the referral for complicated cases of SAM. The programme began at the end of 2007. Once a month, the focal point nutritionist with the DHMT organise a coordination meeting where the reports are collected and forwarded to the participating partners. The nurse-aid and the chief nurse use this meeting to distribute all the therapeutic products needed for the next month. Except for one district visited, all the reports are collected during the first 15 days of the next month. They also use this visit to tell the focal point nutritionist their requirement for products and drugs from the warehouse of the district. UNICEF was contributing to all the steps of the implementation financially and logistically, bringing the RUTF to the districts and facilitating the storage of the drugs and supplies at district level. Transfers were arranged according to the need and were given priority so as to facilitate the transport in and out of the patients from the SNU. A SAM "Unique number" was used to identify cases and to avoid double counting (except in one district). All the districts had an initial training and regular supervision but communication and travel was their main constraint because of fuel vehicle availability and distance. There was no specific checklist to standardise the supervision and ensure that all the important actions were being carried out correctly. National NGOs, including World Hope, Fowed, Acts and Hedo, are involved in the community mobilisation and with the Mother to Mother support group; they are paid by UNICEF. Staff turnover is still a major problem, which can be ameliorated if strong supportive supervision is present. However, transport vehicles for transfer, logistics supervision, and staff turnover remain challenges.

4.3. Outpatient Therapeutic Programme (OTP)

We had the opportunity to visit 4 OTPs. Of the four OTPs visited out of 48, one was well organised and one was not good at all, due mainly to staff turnover. We were able to collect data from three centres: Makeni Lol, Sumbayu and Joru. Table 6 shows the results.

Table 6: Variables collected during our field visits, 2010

Variable		Result	#
Admission Weight	<5kg	26.7%	87
Admission Height/Length	<65cm	23.6%	87
Admission Oedema	+ & ++	18.5%	87
Admission using WH%	<70%	23%	87
Admission using MUAC	Red	70%	87
Absentees	Indicated on the chart	87.4%	87
Vitamin A	Given	66.7%	87
Amoxicillin	Given	6.7%	87
Outcomes	Cured	65.4%	52
	Dead	4%	52
	Defaulter	4%	52
	Discharge (no height taken, using only the time in the OTP)	27%	52
Length of stay	Cured severely wasted patients	52 days	24
	Cured oedematous patients ++	41.6 days	10
	All cured	48.9	34
Average gain of weight	Cured severely wasted patients	4g/kg/day	23
	Cured oedematous patients ++	4g/kg/day	**2***

**Note: 8 children with bilateral oedema had no gain of weight: in fact they were discharged with a negative gain of weight, with a minimum weight less than their weight of admission and with a WH> or = 85% NCHS.*

Copy of the national protocol was totally absent in the field but the nurse aid and their staff used simplified laminated tools for the management of SAM children.
The anthropometric material was present but the Salter scale with pants was used everywhere; there was no basin. In one OTP, the admission criteria were based on MUAC for children of 6 month of age using the Valid MUAC, or on WH NCHS, but not on both. This means that children of 6 months of age but with a length of less than 65cm with a red MUAC were admitted, whatever their WH. In fact, height or length was not taken routinely. In all the OTP and SC, no table was used for the appetite test, this is a major omission. For those admitted on MUAC criteria, a length of stay of 2 months was the discharge criterion (whatever the Weight for Height) – so a child could have recovered after one month or not have recovered at all after two months. Table 6 shows the problem of using MUAC on children less than 6 months and less than 65cm.
In fact, out of 3 centres, only 1 respected the criteria for discharge. There was no register but only charts. There were no appropriate archiving facilities to ensure that charts of discharged patients were not mislaid. Archive facilities should be provided in order to keep monthly records and charts; this should be part of the supervision to try to minimise loss of charts. Systematic treatment was given, except if there was breakdown of drugs. The transfer documents were not standardized. Non-response to treatment was not assessed and failing

children not identified or treated appropriately. Absentees were looked for in 87% of the cases, which was very good.
Chloramphenicol was being used as the first line drug and ferrous sulphate and folic acid were given to patients on a regular basis. Amoxicillin has to be the routine treatment and chloramphenicol never given to the young infants. Zinc tablets were routinely given to severely malnourished children with diarrhoea; they should not be given to severely malnourished patients as there is already zinc in the RUTF, F100, F75 and ReSoMal (excess zinc - ≥6mg/kg/d – in the malnourished increases mortality).

4.4. Stabilisation Centre (SC)

In two hospitals in Makeni and Massanga, the director wrote his own derivative version of the Sierra Leone validated national protocol; there were some critical changes to the management of the complications which could increase mortality. In the other centres there was no protocol available. The protocol was only applied in one centre of the 4. Initial training was undertaken at the end of 2007 and in 2009 another training session was given.
The ReSoMal was used excessively in Children's hospital in Freetown, the SSDLF hospital and in Massanga hospital. Metronidazole, quinine IV, ampicilline IV and anti-emetic drugs were currently used by doctors and are contraindicated in most situations in the malnourished, a fact that the medical staff appeared to be unaware of.
The treatment of the less than six month of age was mainly done by MSF Belgium, in Gondama and generic infant formula was provided for these children.
The treatment of CMAM is free of charge except for one hospital where a registration fee had to be paid.
Supplies of RUTF are provided by UNICEF. We were told several times, that the name "TFC" was not used anymore, because of its Phase 2 connotation: all the children who were supposed to be in Phase 2 had to leave the hospital in less than 7 days and be treated as outpatients – such time constraints are not part, and should not be part, of the protocol.
The tools were not standardised and the A3 charts were only in the SC in Magbenteh hospital and in the children's hospital in Freetown (these are both old ACF TFC centres). The follow up A3 chart has 21 days and with the new not validated protocol, this tool was not anymore correct and accurate for distribution. The four SC had various registers (2 had still ACF logo); two of the four had no transfer form. The routine treatment was only applied in 2 centres. The length board needed to be replaced and in one centre where they were using the salter scale with a basin.
All the SC had an OTP attached to them to avoid more than 10 days stay in the paediatric/Stabilisation Centre (such time constraints should not be imposed for very ill children). Nevertheless, in the "SC" visited, there were patients in Phase 2 in Massanga hospital and in Kenema hospital.

4.5. Supplementary Feeding Centre (SFC)

Only one SFC had not run out of Corn Soya Blend (CSB) during our visit. We were therefore only able to see one functioning SFC. The CSB was of a new composition made in South Africa. The materials used such as the register, and monthly report form needed to be greatly simplified. For example, the register needed a whole table to be opened. The criteria of admission of adults, Pregnant Women (PW) and Lactating Mothers (LM) need to be reviewed and simplified. The use of Body Mass Index (BMI) instead of Mid Upper Arm Circumference (MUAC) needs accurate adults scale and adult length board, which are not easy to use and to have – MUAC should be used for adults, instead.

V- CONCLUSION AND RECOMMENDATIONS

Scaling up of CMAM is a real strength in Sierra Leone, partly due to willingness of the government and partly to UNICEF nutrition section, with Stefano Fedele, able to mobilise the resources to scale up such programme in a two years time. The good rapport between the Nutrition service and UNICEF helps both the MoH and UNICEF to take a common approach putting in place the entire infrastructure needed to apply a good organisation within the health system. Coverage is impressive compare to other countries.

- Scaling up was mainly achieved by the strong financial support of UNICEF; but a long-term view has to be taken to allow continuity of supplies and of technical support for a five year period.
- A protocol has to be distributed, in particular in the SC for the management of the complications and the less than 6 months babies.
- Supervision should not be undermined as well as on the job training, because of the turnover of staff and pre-service training has to be taken seriously when such scale up is underway.
- Training in the stabilisation centres on the management of the complications as well as less than 6 months babies, by expert medical staff, doctors and/or nurses, with a sufficiently high-level doctor who has a good understanding of the pathophysiology of - severe malnutrition has to be undertaken rapidly.
- Monthly reports collected through all the districts for all the OTP and SC with a database to follow the nutrition programme is a real strength but it is not sufficient to improve quality control and double-checking has to be made continuously in terms of consumption and data compilation. The introduction of a registration book would allow the monthly report to be completed more rapidly and accurately and give confidence to the data collected. To change the monthly reports will have a direct effect on the knowledge of the situation. Adequate and standardised tools for SC have to be provided if adequate data have to be collected. Adequate facilities to archive of the OTP charts to prevent loss has to be a priority to allow quality control, and a register should be re-introduced
- The admission criteria using only 6 months of age without the length being taken encourages small babies to benefit from RUTF very early in life with a low weight. In the other part of the programme, breastfeeding is encouraged and there is a tentative to encourage breastfeeding by the national NGOs. It is very good but resources should be provided in a long-term view.
- Scale up should be seen as a “no way back” to return to no support. It would not be seen as ethical.
- Surveys conducted recently by MSF in Gondama and surroundings show worrying results in comparison with the extension of the CMAM program, only supposed to reduce mortality but not the prevalence of malnutrition. WFP just went in shortage of CSB few weeks before our visit in the fields – such pipeline breaks have a devastating effect upon the confidence if the community in the programs and must be avoided at all costs.
- F100 should not be totally suppressed: it is still a useful product for the less than 6 month babies with problem of breastfeeding and children in transition phase who do not take RUTF.
- RUTF is not the only RUTF products and BP100 can be used to give a variety of the treatment options to the staff and patients.
- RUTF, 170kcal per kilo per day works as well as at 200kcal per kilo per day in OTP. RUTF in Transition phase should be given at 130kcal/kg/day and not more. This is important to avoid re-feeding syndrome or heart failure as well as avoiding wasting RUTF.
- Leakage of RUTF has to be addressed.

ANNEXES

Annex 1: Agenda

SIERRA LEONE	Ven 12/03	16H10-18H30	Vol Accra - Freetown	KA	YG, HS
	Sam 13/03	8H – 16H	Finalisation de la mission Côte d'Ivoire	Hôtel Bitumani Freetown	YG,HS,RJ
		19H	Diner with Stefano, head of the nutrition section	Freetown	YG,HS,RJ
	Dim 14/03		Saisie des questionnaires et résumé de notre mission en Côte d'Ivoire	Hôtel Sierra Light-house Freetown	YG, HS
	Lun 15/03	10H-14H	Rencontre avec la section nutrition de UNICEF	UNICEF	YG,HS,RJ
		14H-15h	Rencontre avec la "Manager du Programme Nutrition	National Nutrition Programme	SF, HS, RJ, YG
		15H-18H	Entretien avec Rachid Abdoulaye sur la base de données nutrition	UNICEF Nutrition section	SF, HS, RJ, YG, RA
		17H-18H	Entretien avec la consultante qui finalise le protocole nutritionnel	UNICEF Nutrition section	YG,
	Mar 16/03	8H30	Meeting avec le représentant, le député, le Dr de la section survie	UNICEF	YG, RJ, HS, SF
		9H30	Départ pour Makeni	Voiture UNICEF	YG, RJ, HS, Joseph Juana (JJ)
		13H	Arrivée à Makeni	Hôtel Makeni	YG, RJ, HS,
		13H	Entretien avec le DHMT		YG, RJ, HS, JJ
		14H	Visite de OTP de Makeni Lol	Makeni Lol	YG, RJ, HS, JJ
		17H	Entretien avec la nutritionniste du DHMT	Makeni	YG, RJ, HS, JJ
	Mer 17/03	8H	Visite du SC de SSLDF de Makeni entretien avec le superviseur du centre et la Dr en charge de l'hôpital	Makeni	YG, RJ, HS, JJ
		10H	Visite rapide du DMO de Magburaka	Magburaka	YG, RJ, HS, JJ
		10H15	Visite de l'OTP de Magburaka	Magburaka	YG, RJ, HS, JJ
		13H	Visite du SC et OTP de Masemba	Magburaka district	YG, RJ, HS, JJ
		15H	Départ pour Kénéma	Voiture UNICEF	YG, RJ, HS, JJ
		20H	Arrivée à Kénéma	Hôtel de Kénéma	YG, RJ, HS, JJ
	Jeu 18/03	8H	Visite du DMO de Kénéma et de la nutritionniste du district	PHU/MOHS	YG, RJ, HS, JJ
		10H	Visite de l'OTP de Joru	Joru	YG, RJ, HS, JJ, Point focal nutrition
		13H	Visite de l'Hôpital et du stock de Kénéma	Kénéma	YG, RJ, HS, JJ, Point focal nutrition

		16H	Visite du DMO	Kénéma	YG, RJ, HS, JJ, Point focal nutrition de Kénéma
	Ven 19/03	9H	Visite de l'OTP de Sumbaya	District de Bô	YG, HS, JJ, Point focal nutrition de Bo
		13H	Visite du TFC de MSF-B	Gondama	YG, HS, JJ, Point focal nutrition
		16H	Retour sur Bo	Bô	YG, HS, JJ, Point focal nutrition
	Sam 20/03	8H	Départ vers Freetown	Voiture UNICEF	YG, HS, JJ
		12H	Visite du SC de Children's hospital	Freetown	YG, HS, JJ
		15H	Entretien avec Robert Johnston	UNICEF	YG, HS
		16H	Retour à l'hôtel et préparation du débriefing	Hôtel Sierra Light-house, Freetown	YG, HS
	Dim 21/03	8H	Saisie des questionnaires et révision de la base de données des rapports mensuels, entretien avec Robert Johnston	Hôtel Sierra Light-house, Freetown	YG, HS
		19H	Dinner avec le chef de mission de ACF-F, Sébastien	Restaurant Indochine	YG, HS, RJ
	Lun 22/03	9H	Débriefing avec la député représentante, la santé, Stéfano Fedele, Robert Johnston, HS, YG et toute l'équipe nutrition.	UNICEF office	YG, HS, RJ, JJ, Stefano Fedele, ,Rashid, Mrs Vidhya Ganesh, Dr Liane Kuppens, Dr Abu Pratt
		11H	Rendez vous manqué avec le Dean de l'école d'infirmière : changement d'agenda	Ecole d'Infirmières	YG, HS, JJ
		13H	Déjeuner avec Stefano Fedele	UNICEF	YG, HS
		14H	Réunion avec les ONG collaborant à la mobilisation communautaire : M2M – dépistage actif – transfert des enfants de l'OTP au SC	UNICEF	YG, HS, et voir liste des participants dans les contacts
		16H0	Révision du protocole avec Michèle Consultante UNICEF nutrition	UNICEF	YG, Michèle
	Mar 23/03	8H-14H	Saisie des questionnaires pays et analyse de la consommation de RUTF avec la base de données	Hôtel Sierra Lighthouse Freetown	YG, HS
		14H	Départ pour l'Héliport en direction de l'aéroport	Hélicoptère	YG, HS
		17h30-19h50	Vol Freetown – Accra	KQ	

Annex 2: Contact list

No	First name & last name	Qualification	Organisation	Position	Contact (email/tel)
1	Mohamed CARTEH	Diploma Public Health	PHC MOHS **Makeni**	Social works coordinator	mohamedcartch@yahoo.com
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4	Jeneba KAMARA	MSC Nutrition and dietetics	PHSMOHS Makeni	Nutritionist	076 72 07 16
5	Adama SESAY	Diploma Finance	MOHS Makeni	Finance officer	076 68 66 19
6	Mohamed SWARAY	SECHN	SSDLF Makeni	Supervisor	077 52 20 66
7	Saskia VAN ZADELHOFF	MD	SSDLF Makeni	Doctor in charge of the hospital	
8	Alhassam Alpha BANGURA	Store mananger diploma	SSDLF Makeni	Store keeper	076 98 28 32/077 52 53 46
8	Emilia KAMARA	SECHN			
9	ZAMABKAGBO	MCH Aid	MOH/S Makeni Lol	Supervisor	
10	Dr FODAY Se	M.B.CH.B	DHMT Magburaka	District Manager Officer	
11	Mariata COUTEH	N.M.A	OTP **Magburaka** Tonkolili	Volunteer	
12	Isha FORNAH	N.M.A	OTP Magburaka Tonkolili	Volunteer	
13	Mary COUTEH	Nurse aid	OTP Magburaka Tonkolili	Assistant	
14	Manscray HANUWATER	V.M.A	OTP Magburaka Tonkolili District	Volunteer	
15	Adama S. SESAY	MCH Aid	OTP Magburaka Tonkolili District	Head of OTP	
16	Wgratu JALLAH	V.M.A.	OTP Magburaka Tonkolili District	Volunteer	
17	Hannah KOROM	V.M.A	OTP Magburaka Tonkolili District	Volunteer	

18	John BANGWA	Nurse aid	OTP Magburaka Tonkolili District	Vaccination Help in OTP	
19	Frank VAN RAAG	Medical officer in charge	**Masanga** Leprosy Hospital Tonkolili	MO	076 53 93 42 fvraaï@gmail.com
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23	Abdullai KALLOU		HEDO (Human Economic and Development organisation)	Community Mobilisation in Joru OTP, Kenema district	
24	Momoh BOCKARIE K.	Vaccinator	Joru OTP Kenema	Vaccinator	
25	Landana LOMBELI A	MCH Aid	Joru OTP Kenema	MCH Aid	
26	Memunatu KALLON	MCH Aid	Joru OTP Kenema	MCH Aid	
27	Fofaneh KAKATU Y	MSC Nutrition	DHMT PHC/MOHS District of Kenema	Head of Nutrition	076 71 32 48
28	J D SANDI	Doctor	DHMT PHC/MOHS District of Kenema	District Manager Officer	076 60 36 29
29	Isatu BANGURA	SRN	Gvt Hospital of Kenema	In charge of Paediatric ward	
30	Mariama GEORGE	Nutritionist	PHU/MOHS District of Bo	In charge of CMAM	Mariamageorge62@yahoo.com 076 65 05 59
29	Mohamed SHAW	CHO	MOHS Sumbaya District of Bo	In charge of the centre	076 79 84 50
30	Margaret LAGGAH	MCH aid	MOHS OTP of Sumbaya District of Bo	In charge of the CMAM program	076 89 40 11
31	George MBALUTO		MSF-B Gondama District of Bo	Nutrition Supervisor	078 44 85 19
32	Joseph JUANA	Nurse	UNICEF Freetown	In charge of nutrition	076 73 42 04
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