UNITY STATE REFUGEE CAMPS

SOUTH SUDAN

Survey conducted: February 2013

UNHCR

IN COLLABORATION WITH

WFP, SP,CARE,MSF-F & NP

NUTRITION SURVEY FINAL REPORT

ACKNOWLEDGMENTS

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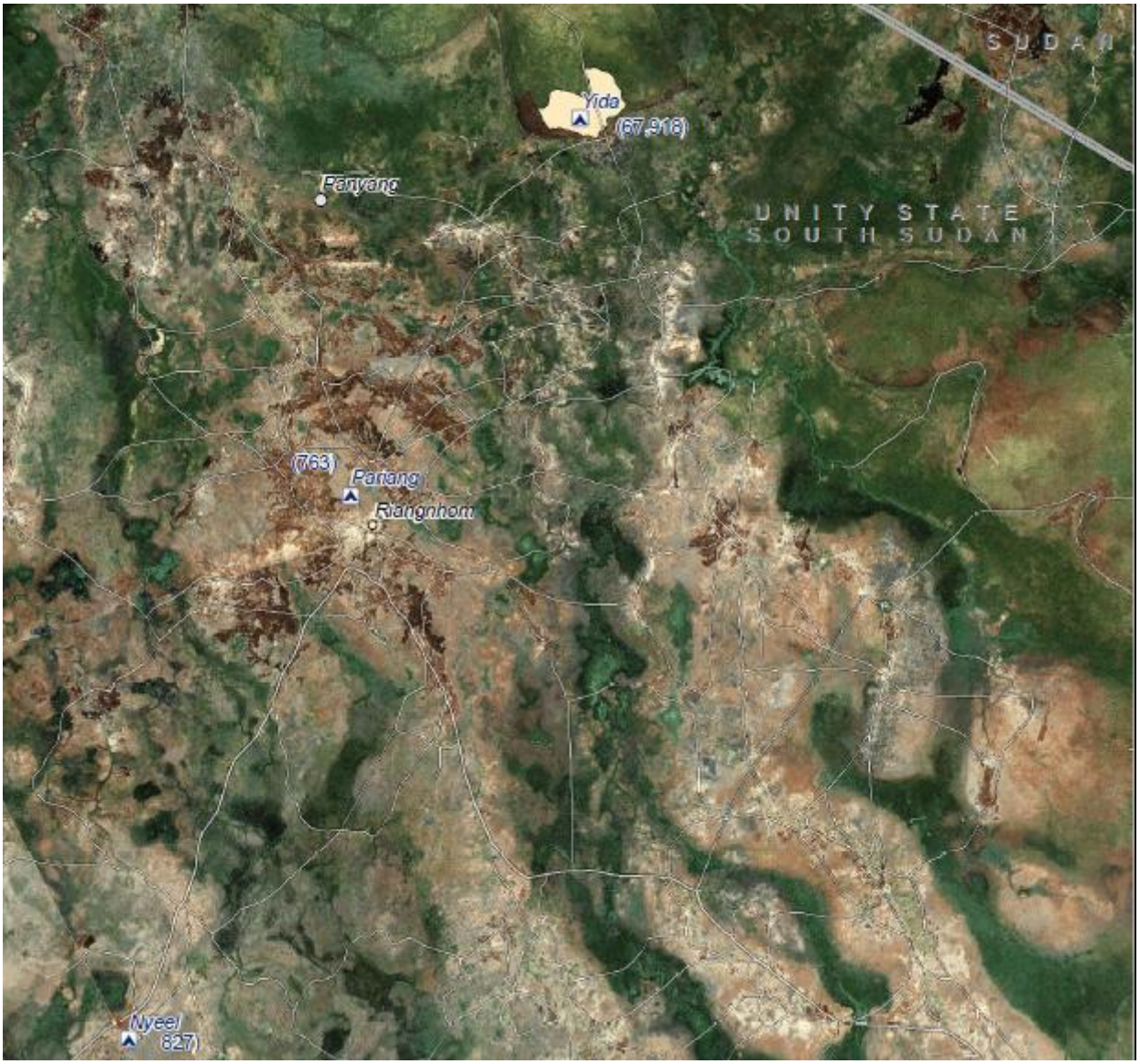
Map of Unity Camps



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ACRONYMS AND ABBREVIATIONS

ANC	AnteNatal Care
AWD	Acute Water y Diarrhoea
BSFP	Blanket Supplementary Feeding Programme
CI	Confidence Interval
CMR	Crude Mortality Rate
CHWs	Community Health Workers
CSB	Corn-Soya Blend
DEFF	Design effect
DPT 3	Diphteria, Pertussis,Tetanus combined vaccine
ENA	Emergency Nutrition Assessment
EPI	Expanded Programme on Immunization
Epi Info	CDC software for epidemiological investigations
GAM	Global Acute Malnutrition
GFD	General Food Distribution
HAZ	Height-for-Age z-score
Hb	Haemoglobin
HH	Household
HIS	Health Information System
IMC	International Medical Corps
IYCF	Infant and Young Child Feeding
KAP	Knowledge Attitude and Practices
LRTI	Low Respiratory Tract Infection
MAM	Moderate Acute Malnutrition
MSF-F	Médecins sans Frontières-Belgium
MUAC	Middle Upper Arm circumference
NCHS	National Centre for Health Statistics
NP	NonViolent PeaceForce
OPD	Outpatient Department
OTP	Out-patient Therapeutic Programme
PDM	Post Distribution Monitoring
PLW	Pregnant and Lactating Women
PNC	Post Natal Care
ProGres	UNHCR registration database for refugees
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SD	Standard Deviation
SENS	Standardized Expanded Nutrition Survey (Guidelines)
SFP	Supplementary Feeding Programme
SMART	Standardised Monitoring & Assessment of Relief & Transitions
SP	Samaritan's Purse
TFP	Therapeutic Feeding Programme
TSFP	Therapeutic Supplementary Feeding Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Funds
URTI	Upper Respiratory Tract Infection
WASH	Water Sanitation and Hygiene
WAZ	Weight-for-Age z-score
WHZ	Weight-for-Height z-score
WFP	World Food Programme
WHO	World Health Organization

EXECUTIVE SUMMARY

UNHCR, in collaboration with WFP and partners including Samaritan's Purse, Care, MSF-F and Non Violent Peace Force carried out a nutrition survey in Unity State's Yida and Nyeel refugee camps.

The surveys were conducted between 20th February and 26th February 2013, targeting the refugee population. The nutrition survey was carried out using the Standardized Monitoring and Assessment of Relief and Transitions (SMART) methodology (Version 1, April 2006) and UNHCR's Standardized Expanded Nutrition Survey (SENS) Guidelines for Refugee Populations (Version 2 December 2012)[1].In Yida, a total of 540 households were sampled to participate in the survey. Two stage sampling was employed to select the households; at the first stage cluster sampling using the Probability Proportion to Size (PPS) method was used to select the clusters. Second stage sampling in Yida was through systematic random sampling after labelling all the households in the sampled clusters. At the end, 778 children from the 540 households participated in the survey. Given the small population size of Nyeel, an exhaustive sampling approach was employed and 146 children participated in the survey.

A total of thirty enumerators were trained and twenty five of these enumerators were grouped in five teams of five members for data collection, while the other trained personnel worked in the survey data entry and logistics support. To ensure the quality of data, a standardized training lasting for five days was provided including one day for pre testing. Survey teams were headed by a team leader and supervised by survey the coordinator throughout the duration of the data collection. Data were entered using excel and later imported to ENA software (October 2012 version) and Epi Info version 3.5.4 for analysis.

The main indicators under investigation in all the camps were; rate of global acute malnutrition (GAM), rate of severe acute malnutrition (SAM), stunting prevalence, infant and young child feeding (IYCF) indicators, mortality rate and anaemia prevalence in children 6 to 59 months and in women 15 to 49 years excluding pregnant women.

Table 1 below is a summary of the survey results.

Table 1: Summary of Results

	Unity Camps			Classification of public health significance or target (where applicable)
Survey Area	**Yida**	**Nyeel**	**Combined (All camps)**	
Date of Survey	**February 2013**	**February 2013**	February 2013	
CHILDREN (6-59 months) % (95% CI)				
Acute Malnutrition (WHO 2006 Growth Standards)				
Global Acute Malnutrition (GAM)	**7.3** (5.3 -10.2)	**6.2** (3.3 -11.3)	-	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM)	**6.2** (4.6- 8.2)	**6.2** (3.3-11.3)	-	
Severe Acute Malnutrition (SAM)	**1.2** (0.6- 2.5)	**0.0** (0.0 -2.6)	-	
Oedema	**0.0**	**0.0**	-	
Stunting (WHO 2006 Growth Standards)				
Total stunting	**23.3** (20.0-26.9)	**21.4** (15.4-28.9)	-	Critical if ≥ 40%
Severe stunting	**5.8** (4.1- 8.2 95)	**5.7** (2.9-10.9)	-	
Mid Upper Arm Circumference (MUAC)				
Global Acute Malnutrition (GAM)	**5.4** (3.8-7.7)	**3.4** (1.5-7.8)	-	
Moderate Acute Malnutrition (MAM)	**4.6** (3.1-6.9 9)	**3.4** (1.5-7.8 9)	-	
Severe Acute Malnutrition (SAM)	**0.8** (0.2-2.5)	**0.0** (0.0-2.6 9)	-	
Mortality				
Crude Death Rate (CDR)	**0.13** (0.04-0.4)	**0.0** (0.0-0.0)	-	
Under 5 Death Rate	**0.27** (0.03-2.1)	**0.0** (0.0-0.0)	-	
Anaemia (6-59 months)				
Total Anaemia (Hb < 11.0 g/dl)	**34.0** (29.4-38.6)	**48.6** (40.3-57.0)	-	High if ≥ 40%
Mild (Hb 10.0 – 10.9)	**22.3** (19.4-25.1)	**29.5** (22.2-37.6)	-	
Moderate (Hb 7.0 – 9.9)	**11.4** (8.3-14.5)	**19.2** (13.1-26.5)	-	
Severe (Hb < 7.0)	**0.4** (0-0.9)	**0.0** (0-0)	-	
Anaemia (6-23 months)				
Total Anaemia (Hb < 11.0 g/dl)	**50.2** (44.6-55.7)	**76.7** (61.4-88.2)	-	High if ≥ 40%
Mild (Hb 10.0 – 10.9)	**30.4** (25.5-35.2)	**37.2** (23.0-53.3)	-	
Moderate (Hb 7.0 – 9.9)	**19.5** (15.0-24.0)	**39.5** (25.0-55.6)	-	
Severe (Hb < 7.0)	**0.3** (0.0-1.0)	**0.0** (0.0-0.0)	-	
Programme Coverage				
TFP (Based on WFH and MUAC)	**31** (21.3-42.0)	N/A*	-	Target of >= 90%
SFP (Based on WFH and MUAC)	**37.8** (30.4-45.7)	N/A*	-	Target of >= 90%
Measles vaccination with card (9-59 months)	**61.5** (52.3-70.8)	**77.9** (70.3-84.4)	-	
Measles vaccination card and recall (9 – 59 months)	**73.6** (63.8-83.5)	**93.1** (87.7-96.6 9)	-	Target of >= 95%
DPT 3 Vaccination with card	**24.4** (18.0-30.8)	**36.6** (28.7-44.9)	-	
DPT 3 Vaccination recall	**45.1** (32.1-58.2)	**69.7** (61.5-77.0)	-	
Vitamin A supplementation coverage with card for the past 6 Months (6-59 months)	**54.1** (45.8-62.4)	**76.0** (68.3-82.7 9)	-	
Vitamin A supplementation coverage card and recall for the past 6 Months (6-59 months)	**69.8** (60.9-78.7)	**90.4** (84.4- 94.7)	-	Target of >= 90%
Morbidity				
Diarrhoea the past two weeks (6-59 months)	**16.3** (10.4-22.3)	**17.9** (12.1- 25.2)	-	

Mosquito net coverage	**23.6** (15.5-31.6)	**57** (48.5-65.3)	-	
Infant and Young Child Feeding Practices (6- 23 months)				
Early initiation of breastfeeding	**63.5** (52.5-74.4)	**61.1** (46.9-74.1)	-	
Exclusive breastfeeding	**40.4** (25.3-55.6)	**40.0** (5.3-85.3)	-	
Introduction of solid or semi - solid foods	**64.5** (48.9-80.1)	**0.0** (0.0-0.0)	-	
Children bottle fed	**11.9** (6.0-17.7)	**13.5** (5.6-25.8)	-	
Children given infant formula	**11.6** (7.9-16.3)	**28.3** (16.0-43.5)	-	
WOMEN (15 - 49 years)				
Women Anaemia (15 – 59 years, Non pregnant women)				
Total Anaemia (Hb < 12.0 g/dl)	**17.0** (10.5-23.5)	**7.0**(2.3-15.7)	-	High if ≥ 40%
Mild (Hb 11.0 – 11.9)	**11.0** (4.8-17.1)	**4.2** (0.9-11.9)	-	
Moderate (Hb 8.0 – 10.9)	**5.7** (2.5-8.8)	**2.8** (0.3-9.8)	-	
Severe (Hb < 8.0)	**0.3** (0-1.0)	**0.0** (0-0)	-	
ANC Coverage (Pregnant women)				
ANC enrolment	**65.6** (53.7-77.5)	**100.0** (100.0-100.0)	-	
Iron/Folate supplementation	**62.3** (50.1-74.5)	**100.0** (100.0-100.0)	-	

**There is no TFP and TSFP programme in Nyeel*

Interpretation of Results

GAM rate for both Yida and Nyeel is below the WHO emergency threshold level, 7.3% (5.3-10.2 95% CI) and 6.2% (3.3-11.3 95% CI) respectively. There is no SAM in Nyeel, while the prevalence of SAM in Yida is serious 1.2% (0.6- 2.5 ,95% CI).The low GAM prevalence in Yida can be attributed to BSFP and TSFP on top of OTP and SC programmes being implemented in the camp, while in Nyeel the low GAM can be attributed to the nature of the camp where they have pieces of land for own food production.

Stunting prevalence is a serious but not critical public health problem in both camps 23.3% (20.0-26.9 95% CI) in Yida and 21.4% (15.4-28.9 95% CI) in Nyeel. There is need to strengthen nutrition programmes that maximise on the window of opportunity in stunting prevention.

Anaemia in children 6-59 months in Nyeel is 48.6% (40.3-57.0, 95% CI) and above the WHO critical threshold of 40% and in Yida the anaemia prevalence is serious 34.0% (95% CI 29.4-38.6). The anaemia prevalence in Yida may have been reduced by the implementation of BSFP where children 6 to 59 months have been receiving CSB++ and of late CSB+. Although the GAM prevalence is below 10%, there is need for improvement of nutrition services in light of prevailing aggravating factors which include presence of hepatitis E in Yida and inadequate latrines, which are issues being currently addressed.

Anaemia in non-pregnant women 15 to 49 years is 17.3% (95% CI 10.5-24.1) in Yida and 7.0% (95% CI 2.3-15.7) in Nyeel. The anaemia situation in Yida is serious, considering it is 17.3% in the presence of BSFP for pregnant and lactating women (lactating women were part of the survey participants)

Death rate in both camps is lower than the SPHERE standards for both mortality indicators, CDR of 1/10000/day and U5DR of 2/10000/day. The low death rate is attributed to improved health, nutrition and WASH services in the camp, which help mitigate disease burden and ultimately

mortality. In Nyeel both CDR and U5DR is 0.00. The result is attributed to the small population of the camp. CDR in Yida is 0.13 (0.04-0.4, 95% CI) and U5DR is 0.27 (0.03-2.1, 95% CI).

TSFP and TFP programme coverage in Yida is much lower than the expected 90%, coverage is 37.8% and 31% respectively. Vitamin A and vaccination (measles and DPT 3) coverage is lower than the SPHERE standard recommendation of at least 90%, with the exception of measles coverage in Nyeel which is above 90%.

IYCF indicators, early initiation and exclusive breastfeeding are low in both camps. Early initiation is 63.5 (52.5-74.4, 95% CI) in Yida and 61.1 (46.9-74.1, 95% CI) and exclusive breastfeeding is less than 50% in both Yida and Nyeel.

Recommendations

- UNHCR and WFP to establish mechanisms to address the cost of milling and transportation of food to the distribution point needs for refugees.

- WFP and UNHCR to strengthen on-site food basket monitoring in order to monitor efficiency and equity of food distribution system

- Existing nutrition programmes should be continued and be strengthened in Yida and in Nyeel introduce TSFP. The programmes should be decentralized in Yida to increase coverage while strengthening linkages between the programmes and ensuring good quality of care. TSFP and TFP programmes to be commenced in Nyeel.

- In Yida and Nyeel, UNHCR,WFP and partners to implement a targeted intervention providing micronutrient rich food to tackle the anaemia and other micronutrients deficiency

- Given the low Exclusive Breastfeeding (EBF) rate, relatively high stunting rate there is need to strengthen IYCF programming in the camps, focussing on high impact nutrition interventions such as Essential Nutrition Actions (ENA) and Scaling Up Nutrition (SUN).

- UNHCR and nutrition partners to strengthen nutrition surveillance mechanism to in order to be on top of the nutrition situation in the camps. Timely data sharing and HIS upgrading are core to meet that need

- UNHCR and partners to implement quarterly mass MUAC screening as a way of increasing coverage and monitor the nutritional situation.

- UNHCR and partners to review the community health programme and scale up as well as enhancing the linkages between primary health care, nutrition and WASH activities,

- Strengthen capacity building of health staff in order to improve quality of health and nutrition services

1. INTRODUCTION

Yida and Nyeel refugee camps in Unity State of South Sudan are in semi-arid areas surrounded by swamps which flood during the rainy season making the camps inaccessible by road. The nutrition survey was conducted in February during the hot and dry season when disease prevalence is generally low and aggravating factors that affect nutrition status are at a minimum.

Yida refugee camp is home to over 70, 000 refugees while Nyeel refugee camp is home to just less than 1,000 individuals. The refugees in Unity State come from Sudan's South Kordofan State. The main reason of seeking refugee status is fleeing from fighting and aerial bombardment between Sudan Armed Forces (SAF) and Sudan People's Liberation Army North (SPLM/N). The main religions are Christianity and Islam. The majority of the people survive on cattle keeping and agriculture but most could not bring their cattle to Yida as they flew the war and in Yida they do not have access to agricultural land, as a result they are not practising any agricultural activity. There are few individuals who are venturing in trading selling mostly household consumables and accessories; But overall, the Yida population is highly reliant on General Food Distribution (GFD).

The road network in Unity State is generally poor and once the rains start the camps are not accessible by road and humanitarian supplies will be brought through air operations. In 2012 food was air dropped in Yida for the refugees. Most supplies in the refugee market come from across the Sudan border, while humanitarian agencies bring their commodities and supplies by either road or air from Juba.

1.1. Health and Nutrition Services

Humanitarian assistance in the refugee camps is being led and coordinated by the United Nations High Commission for Refugees (UNHCR) in collaboration with the United Nations World Food Programme (WFP), United Nations Children's Fund (UNICEF) and Non-Governmental Organisations (NGO). UNHCR and partners coordinate and implement protection interventions, health services, WASH services, while WFP provides general food ration and moderate acute malnutrition treatment supplies. UNICEF on the other hand supports with severe acute malnutrition treatment supplies and also protection and water sanitation and hygiene (WASH) supplies, with UNHCR providing technical support.

The whole population of refugees in Unity State is highly reliant on general food distribution of 500g cereals, 100g pulses, 20g oil and 5g salt per person per day providing 2100Kcal. There is one Primary Health Care (PHC) centre in Nyeel and no properly organised TSFP and TFP programmes; however the primary health care centre offers nutrition support to malnourished children identified through the Out-Patient Department (OPD) when they are seeking medical assistance. In Yida there is one facility offering secondary health care, one reproductive health centre, two primary health care centres and four OTP sites. The secondary health care centre houses the stabilisation centre for the management of severe acute malnutrition with medical complications who require inpatient care. There is also a running blanket supplementary feeding programme in Yida for children 6 to 59months and for pregnant and lactating women (PLW).

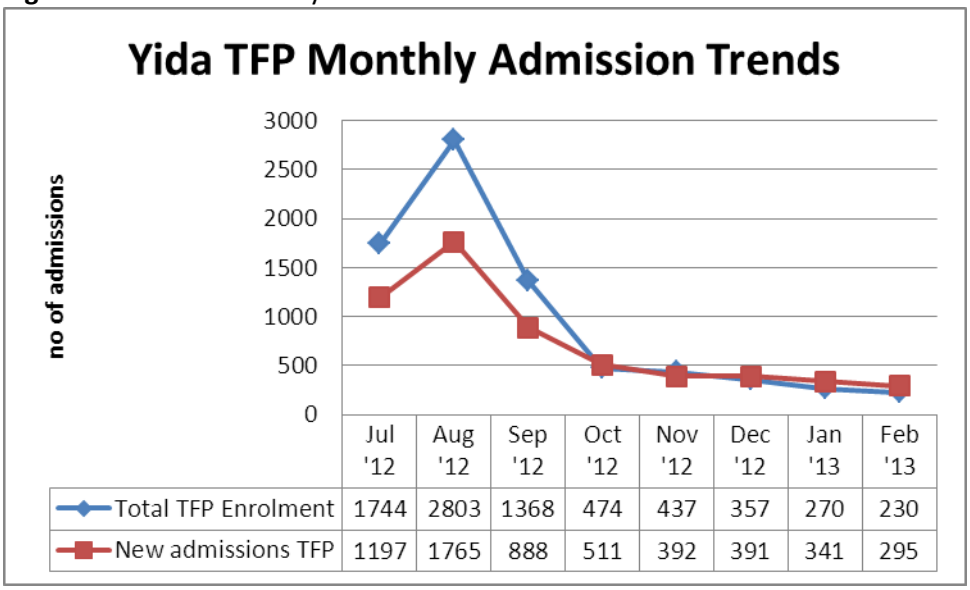
1.2. Nutrition Situation

The nutrition situation in Yida has significantly improved compared to the period between July and August 2012 when there was a huge influx of refugees in the camp. At the peak of the influx, 1000 individuals would arrive in Yida every day. This stretched the little available health and nutrition services that aid agencies could provide at the time. A nutrition survey that was conducted by ACF[2] in July 2012 showed GAM of 21.9% and SAM of 6.1% in Yida (there is no data for Nyeel available).

At the peak of the nutrition emergency in Yida in July 2012, a total of 2803 children were admitted in the SAM programme (both in the stabilisation centre and in the out-patient therapeutic programme). The admission figures have however declined to a low of 230 in February 2013. The reduction in admissions is attributed much to the effort of the humanitarian agencies involved in nutrition, WASH and health. It is important to note that the Yida emergency peak was during the rainy season when disease incidence is quite high, while the survey was conducted during the dry season. The common morbidities in Yida during the rainy season are acute watery diarrhoea, lower respiratory tract infection, upper respiratory tract infection, malaria and septicaemia among neonates.

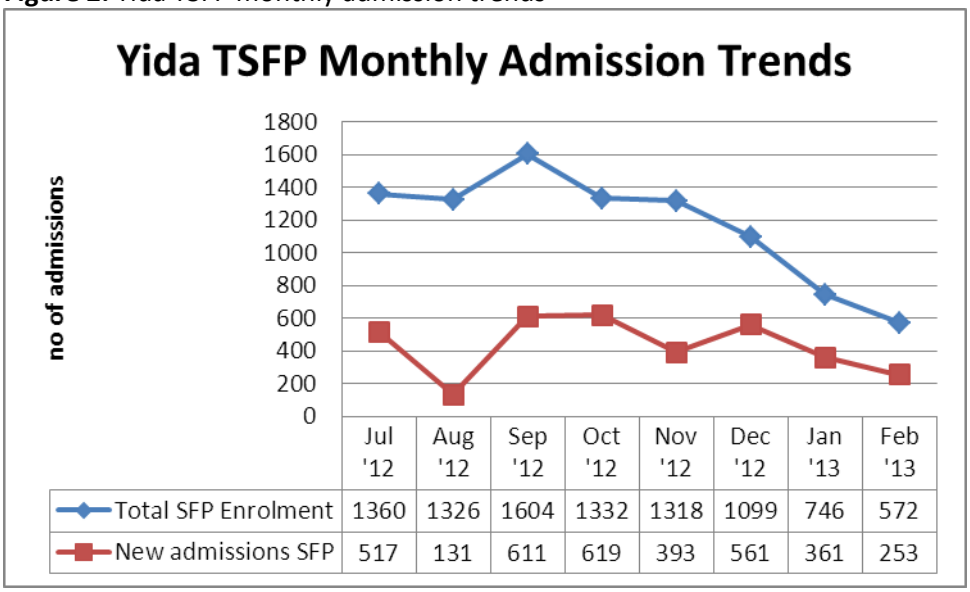
Figure 1 and 2 below illustrate the admission trends between July 2012 and February 2013 in both the TSFP and the TFP programmes respectively.

Figure 1: Yida TFP monthly admission trends



	Jul '12	Aug '12	Sep '12	Oct '12	Nov '12	Dec '12	Jan '13	Feb '13
Total TFP Enrolment	1744	2803	1368	474	437	357	270	230
New admissions TFP	1197	1765	888	511	392	391	341	295

Figure 2: Yida TSFP monthly admission trends



	Jul '12	Aug '12	Sep '12	Oct '12	Nov '12	Dec '12	Jan '13	Feb '13
Total SFP Enrolment	1360	1326	1604	1332	1318	1099	746	572
New admissions SFP	517	131	611	619	393	561	361	253

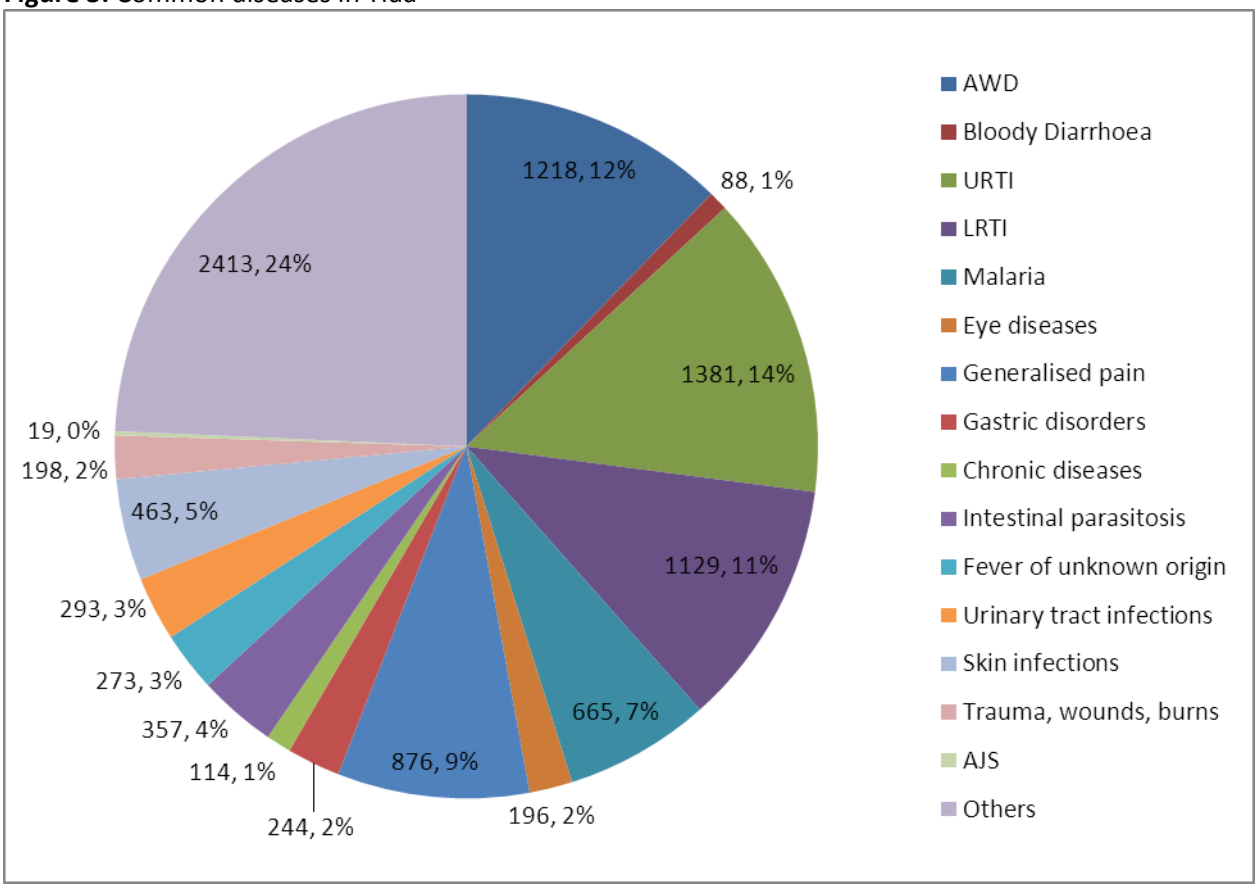
1.3. Health Situation

According to the July 2012 survey conducted by Action Contre la Faim (ACF) in Yida[2], CDR was 0.76/10000/day and U5DR was 2.15/10000/day, there is a significant improvement in the health situation when compared to this this survey's findings of 0.13/10000/day (0.04-0.4 95% CI) CDR and 0.27/10000/day (0.03-2.10 95% CI) U5DR. The survey found the death rates in Nyeel to be zero. Such a result is attributed to the small population of Nyeel camp.

Health situation monitoring in Yida shows that the most common diseases in Yida are acute watery diarrhoea, malaria, Lower Respiratory Tract Infection (LRTI), Upper Respiratory Tract Infection (URTI), acute watery diarrhoea and septicaemia among neonates. The common morbidities have a direct impact on nutritional status. Of the total consultations in the four weeks prior to the survey, 34.7% were children 5 years and below.

Figure 3 below is a summary of the common disease recorded in Yida Out-Patient Department (OPD) facilities four weeks prior to the survey.

Figure 3: Common diseases in Yida



1.4 Objectives

1. To determine the prevalence of acute malnutrition among children 6-59 months.

2. To determine the prevalence of chronic malnutrition (stunting) among children 6-59 months.

3. To assess crude and under-five mortality rates in the last 3 months.

4. To assess Infant and Young Child Feeding (IYCF) practices among children 6-23 months.

5. To assess the prevalence of anaemia among children 6-59 months and non-pregnant women of reproductive age (15-49 years).

6. To determine the coverage of measles vaccination among children 9-59 months.

7. To determine vitamin A supplementation in the last six months among children 6-59 months.

8. To assess the coverage of selective feeding programmes for children 6-59 months.

9. To determine long lasting treated mosquito net coverage.

10. To establish recommendations on actions to be taken to address the situation.

2. METHODOLOGY

2.1. Sample size

Yida refugee camp is not properly organised because people arrived and started settling in a haphazard way, however the people settled by their respective tribes/chiefs, locally referred to as Bomas and population by Boma is available from the UNHCR ProGress database[3]. This led to the selection of two stage cluster sampling for selecting survey participants.

The anthropometry and mortality sample sizes were calculated using the ENA software, with the parameters employed shown in table 2 below;

Table 2: Sample calculation Parameters

Anthropometric sample size calculation	**Yida**	**Mortality sample size calculation**	**Yida**
Estimated prevalence (%)	14	Estimated death rate (%)	2
± Desired precision (%)	4.5	± Desired precision (%)	1
Design effect	2	Design effect	2
Average household size	5	Average household size	5
<5 population (%)	25		
Non response households (%)	15	Non response households (%)	15
Children to be included	497	Population to be included	1859
Households to be included	520	Households to be included	437

Using the above parameters, ENA calculated a sample size of 520 households and 497 children. Since this was the first nutrition survey to be conducted by UNHCR in Unity State, a 15% non-response rate allowance was factored in, as the team had no prior experience on how the community will be receptive to the survey. The other reason for factoring in a high non-response rate was the anticipation of having a lot of absentees as most people usually go back to their original homes in Sudan.

The mortality and anthropometry sample sizes were reconciled by using the higher household sample size for both mortality and anthropometry and in this case the anthropometric sample was used.

The number of clusters was calculated after considering the number of enumerators and the time available for data collection. Enumerators were requested from partners who could not release them for more than a week for data collection; this left the survey with 6 days for data collection. Five teams for six days translated to 30 clusters (one cluster per team per day). It was estimated that each team could cover 17.7 households per day, which was rounded up to 18 (calculated from pre testing the questionnaire).

2.2. Sampling procedure: selecting clusters

Refugee population figures were obtained from the UNHCR ProGress database, where the population is registered by their tribes and chiefs of origin locally known as the Bomas. The population that was used for the survey that started in February was as of end of January 2013.

Once population figures by Boma were obtained; they were entered in ENA where the clusters were assigned by probability Proportion to Population size (PPS). The selected clusters were all visited with the exception of two clusters where one Boma chief refused to let the team to conduct data collection insisting they wanted a bilateral meeting with the survey coordinators not the general sensitisation meetings which were conducted for all the Boma chiefs. In the other Boma, the population refused when one woman didn't allow her child to be pricked for anaemia. Since the visited clusters were more than 80% of the sampled clusters (28 out of 30 which is 93%), no cluster replacement was done using the reserve clusters.

2.3. Sampling procedure: selecting households and children

Once the clusters were identified, a team was sent to the clusters including the reserve clusters where they numbered all the households in the identified clusters. On the data collection day, the teams used systematic random sampling to identify the 18 households to be included in the survey. To determine the sampling interval, the total number of households in the cluster was divided by 18 (the number of households to be sampled in a cluster). Once the sampling interval was identified, a team member was asked to randomly choose a number between 1 and 18 from a hat and that was the starting household, the next household was then identified by adding the sampling interval to the first household number.

The survey respondents in the household were women, with preference given to the mothers of children in the household. All the children in the household were weighed, taken MUAC and height measurements and tested for anaemia while all the women 15 to 49 years except pregnant women were tested for anaemia.

In Nyeel refugee camp, an exhaustive sampling approach was used where all the households were visited and if there were children between 6 and 59 months, the household was included in the survey.

2.4. Case definitions and inclusion criteria

A household was defined as all people living together and eating in the same pot. The respondent was the mother of the child or in her absence the primary caretaker. In households with no eligible children, the female head was the respondent. The age range for children for anthropometry was 6-59 months. If age was unknown, an Expanded Programme of Immunization (EPI) card or a calendar of events was used to estimate. Any child less than 87 cm was measured length while lying down, while any child greater than 87 cm was measured height while standing. The main anthropometric results were reported using WHO Z scores 2006, as indicated in table below. The recall period for mortality was the last 3 months. Households with no eligible children for anthropometry were also included for mortality.

- **Measurement methods**

Household-level indicators

Mortality: The individual-level mortality form recommended by SMART was used to collect mortality occurring within the camp and analysis was done with the household-level summary data derived from the form.

Individual-level indicators

Sex of children: gender was recorded as male or female.

Birth date or age in months for children 0-59 months: the exact date of birth (day, month, year) was recorded from either an EPI card or child health card if available. If no reliable proof of age was available, age was estimated in months using a local event calendar or by comparing the selected child with a sibling whose ages were known, and was recorded in months on the questionnaire. If the child's age could absolutely not be determined by using a local events calendar or by probing, the child's length/height was used for inclusion; the child had to measure between 65 cm and 110 cm.

Weight of children 6-59 months: measurements were taken to the closest 100 grams using an electronic scale with a wooden board to stabilise it on the ground. Most children were weighed with clothes. Previous experience has shown that it is very difficult to convince caregivers to remove clothes from children during weighing in nutrition surveys. Hence, samples of typical clothes from children aged 6 months to 5 years were weighed and the mean weight of 115 grams was taken into consideration during data analysis.

Height/Length of children 6-59 months: children's height or length was taken to the closest millimetre using a wooden height board. Height was used to decide on whether a child should be measured lying down (length) or standing up (height). Children less than 87cm were measured lying down, while those greater than or equal to 87cm were measured standing up.

Oedema in children 6 -59 months: bilateral oedema was assessed by applying gentle thumb pressure on to the tops of both feet of the child for a period of three seconds and thereafter observing for the presence or absence of an indent. All oedema cases reported by the survey teams were verified by the survey coordinators and were referred immediately.

MUAC of children 6 -59 months: MUAC was measured at the mid-point of the left upper arm between the elbow and the shoulder and taken to the closest millimetre using a standard tape.

MUAC was recorded in centimetres for children and millimetres for women.

Child enrolment in selective feeding programme for children 6-59 months: selective feeding programme coverage was assessed for the outpatient therapeutic programme and for the supplementary feeding programme using the direct method.

Measles vaccination in children 6-59 months: measles vaccination was assessed by checking for the measles vaccine on the EPI card if available or by asking the caregiver to recall if no EPI card was available.

Vitamin A supplementation in last 6 months in children 6-59 months: whether the child received a vitamin A capsule over the past six months was recorded from the EPI card or health card if available or by asking the caregiver to recall if no card is available. A vitamin A capsule was shown to the caregiver when asked to recall.

Deworming in last 6 months in children 6-59 months: whether the child received a deworming pill over the past six months was recorded from the EPI card if available or by asking the caregiver to recall if no card is available.

Haemoglobin concentration in children 6-59 months and women 15-49 years: Hb concentration was taken from a capillary blood sample from the fingertip and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser. If severe anaemia was detected, the child or the woman was referred immediately.

Diarrhoea in last 2 weeks in children 0-59 months: an episode of diarrhoea was defined as three loose stools or more in 24 hours. Caregivers were asked if their child had suffered episodes of diarrhoea in the past two weeks.

ANC enrolment and iron and folic acid pills coverage: if the surveyed woman was pregnant, it was assessed by card or recall whether she was enrolled in the ANC programme and was receiving iron-folic acid pills.

Infant and young child feeding practices in children 0-23 months: Infant and young child feeding practices were assessed based on standard WHO recommendations (WHO 2007)[4].

Referrals: Children aged 6-59 months were referred to health post for treatment when MUAC was < 12.5 cm, when oedema was present or when haemoglobin was < 7.0 g/dL. Women of reproductive age were referred to the hospital for treatment when MUAC was below 16.0 cm or haemoglobin was < 6.0 g/dL.

- **Case definitions and calculations**

Mortality: The crude death rate (CDR) and the U5 death rate (U5DR) were expressed in number of deaths per 10,000 people per day. The formula below was applied:

Crude Death Rate (CDR) = 10,000/a*f/ (b+f/2-e/2+d/2-c/2)
Where:
a = Number of recall days
b = Number of current household residents
c = Number of people who joined household during recall period
d = Number of people who left household during recall period

e = Number of births during recall period
f = Number of deaths during recall period

Malnutrition in children 6-59 months: Acute malnutrition prevalence was estimated from the weight-for height-index values combined with the presence of oedema and classified as show in the table below. Main results are reported according to the WHO Growth Standards 2006. Results using the National Centre for Health Statistics (NCHS) Growth Reference 1977 are reported in **Appendix 5**.

Table 3: Definitions of acute malnutrition using weight-for-height and/or oedema in children 6–59 months

Categories of acute malnutrition	Percentage of median (NCHS Growth Reference 1977 only)	Z-scores (NCHS Growth Reference 1977 and WHO Growth Standards 2006)	Bilateral oedema
Global acute malnutrition	<80%	< -2 z-scores	Yes/No
Moderate acute malnutrition	<80% to ≥70%	< -2 z-scores and ≥ -3 z-scores	No
Severe acute malnutrition	>70%	> -3 z-scores	Yes
	<70%	< -3 z-scores	Yes/No

Stunting, also known as chronic malnutrition was estimated from the height-for-age index values and was classified as severe or moderate based on the cut-offs shown below. Main results are reported according to the WHO Growth Standards 2006.

Table 4 : Definitions of stunting using height-for-age in children 6–59 months

Categories of stunting	Z-scores (WHO Growth Standards 2006 and NCHS Growth Reference 1977)
Stunting	<-2 z-scores
Moderate stunting	<-2 z-score and >=-3 z-score
Severe stunting	<-3 z-scores

Underweight was estimated from the weight-for-age index values and was classified as severe or moderate based on the following cut-offs. Main results are reported according to the WHO Growth Standards 2006.

Table 5 : Definitions of underweight using weight-for-age in children 6–59 months

Categories of underweight	Z-scores (WHO Growth Standards 2006 and NCHS Growth Reference 1977)
Underweight	<-2 z-scores
Moderate underweight	<-2 z-scores and >=-3 z-scores
Severe underweight	<-3 z-scores

Mid Upper Arm circumference (MUAC) was classified according to the following cut-offs in children 6-59 months:

Table 6 Classification of acute malnutrition based on MUAC in children 6-59 months (WHO)

Categories of Malnutrition	**MUAC Reading**
At risk of malnutrition	≥ 12.5 cm and <13.5 cm
Moderate malnutrition	≥ 11.5 cm and <12.5 cm
Severe malnutrition	< 11.5 cm

Child enrolment in selective feeding programme for children 6-59 months: selective feeding programme coverage was assessed using the direct method as follows:

Coverage of SFP programme (%) =
100 x No. of surveyed children with MAM according to SFP admission criteria who reported being registered in SFP
No. of surveyed children with MAM according to SFP admission criteria

Coverage of OTP programme (%) =
100 x No. of surveyed children with SAM according to OTP admission criteria who reported being registered in OTP
No. of surveyed children with SAM according to OTP admission criteria

Infant and young child feeding practices in children 0-23 months: Infant and young child feeding practices were assessed as follows based on standard WHO recommendations (WHO 2007).

WHO core indicator 1. Early initiation of breastfeeding:
Proportion of children born in the last 24 months who were put to the breast within one hour of birth.
Children born in the last 24 months who were put to the breast within one hour of birth
Children born in the last 24 months

WHO core indicator 2. Exclusive breastfeeding under 6 months:
Proportion of infants 0–5 months of age who are fed exclusively with breast milk: (including milk expressed or from a wet nurse, ORS, drops or syrups (vitamins, breastfeeding minerals, medicines)
Infants 0–5 months of age who received only breast milk during the previous day
Infants 0–5 months of age

WHO core indicator 3. Continued breastfeeding at 1 year:
Proportion of children 12–15 months of age who are fed breast milk.
Children 12–15 months of age who received breast milk during the previous day
Children 12–15 months of age

WHO core indicator 4. Introduction of solid, semi-solid or soft foods:
Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods.
Infants 6–8 months of age who received solid, semi-solid or soft foods during the previous day
Infants 6–8 months of age

WHO optional indicator 9. Children ever breastfed:

Proportion of children born in the last 24 months who were ever breastfed.

$$\frac{\text{Children born in the last 24 months who were ever breastfed}}{\text{Children born in the last 24 months}}$$

WHO optional indicator 10. Continued breastfeeding at 2 years:

Proportion of children 20–23 months of age who are fed breast milk.

$$\frac{\text{Children 20–23 months of age who received breast milk during the previous day}}{\text{Children 20–23 months of age}}$$

WHO optional indicator 14. Bottle feeding:

Proportion of children 0-23 months of age who are fed with a bottle

$$\frac{\text{Children 0–23 months of age who were fed with a bottle during the previous day}}{\text{Children 0–23 months of age}}$$

Anaemia in children 6-59 months and women of reproductive age: Anaemia was classified according to the following cut-offs in children 6-59 months and non-pregnant women of reproductive age. Anaemia cut-offs for pregnant women should be adjusted depending on the stage of pregnancy (gestational age). Pregnant women are not included in routine UNHCR nutrition surveys for the assessment of anaemia due sample size issues (usually a small number of pregnant women is found) as well as the difficulties in assessing gestational age in pregnant women.

Table 7 : Definition of anaemia (WHO 2000)

Age/Sex groups	**Categories of Anaemia (Hb g/dL)**			
	Total	**Mild**	**Moderate**	**Severe**
Children 6 - 59 months	<11.0	10.9 - 10.0	9.9 - 7.0	< 7.0
Non-pregnant adult females 15-49 years	<12.0	11.9 - 11.0	10.9 - 8.0	< 8.0

Classification of public health problems and targets

Mortality: The following thresholds are used for mortality.

Table 8 : Mortality benchmarks for defining crisis situations

Assumed baseline	**Emergency threshold**
Fixed at: CDR: 0.5 /10,000 / day U5MR: 1/ 10,000 /day	CDR > 1/10,000 / day: 'very serious' CDR > 2 /10,000 /day: 'out of control' CDR > 5 /10,000 /day: 'major catastrophe' (double for U5MR thresholds)

Anthropometric data: UNHCR Strategic Plan for Nutrition and Food Security (2008-2012)[5] states that the target for the prevalence of Global Acute Malnutrition (GAM) for children 6-59 months of age by camp, country and region should be < 5% and the target for the prevalence of Severe Acute Malnutrition (SAM) should be <1%. The table below shows the classification of public health significance of the anthropometric results for children under-5 years of age.

Table 9 : Classification of public health significance for children under 5 years of age (WHO 1995, 2000)

Prevalence %	Critical	Serious	Poor	Acceptable
Low weight-for-height	≥15	10-14	5-9	<5
Low height-for-age	≥40	30-39	20-29	<20
Low weight-for-age	≥30	20-29	10-19	<10

Selective feeding programmes: UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 states the following:

- % of supplementary feeding programmes that meet SPHERE standards for performance: recovery >75%, case fatality <3%, defaulter rate <15%, and coverage >50% for rural areas, >70% for urban areas and >90% for camps – by camp and country.
- % of programmes for management of SAM that meet SPHERE standards for performance and adhere to standard treatment protocols: recovery >75%, case fatality <10%, defaulter rate <15%, and coverage >50% for rural areas, >70% for urban areas and >90% for camps regardless of whether facility based or community based – by camp or facility (if non camp-based).

Measles vaccination coverage: UNHCR recommends target coverage of 95% (same as Sphere Standards).

Vitamin A supplementation coverage: UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the target for vitamin A supplementation coverage for children aged 6-59 months by camp, country and region should be >90%.

Anaemia data*:* UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the targets for the prevalence of anaemia in children 6-59 months of age and in women 15-49 years of age should be low i.e. <20%. The severity of the public health situation should be classified according to WHO criteria as shown in Table 14 below.

Table 10 : Classification of public health significance (WHO 2000)

Prevalence %	High	Medium	Low
Anaemia	≥40	20-39	5-19

WASH: Diarrhoea caused by poor water, sanitation and hygiene accounts for the annual deaths of over two million children under five years old. Diarrhoea also contributes to high infant and child morbidity and mortality by directly affecting children's nutritional status. Refugee populations are often more vulnerable to public health risks and reduced funding can mean that long term refugee camps often struggle to ensure the provision of essential services, such as water, sanitation and hygiene. Hygienic conditions and adequate access to safe water and sanitation services is a matter of ensuring human dignity and is recognised as a fundamental human right. The following standards (amongst others) apply to UNHCR WASH programmes:

Table 11 : UNHCR WASH Programme Standards

UNHCR Standard	Indicator
Average quantity of water available per person/day	> or = 20 litres
Communal latrine coverage	20 people/latrine
Provision of soap	> 250 g per person per month

Local terms for measles and DPT3 immunisation were used to explain to the mothers who were survey respondents. To determine coverage of vitamin A, TSFP, TFP and iron folate, teams were given samples which they could show to the mothers for them to recall if the mother or the child would have received any such product. Teams were given brand names of long lasting treated mosquito nets, and team members would physically check if the mosquito net was being used and also if the mosquito net was long lasting treated. All the questions were directed to and responded by the mother or caregiver of the child if the mother was not available.

2.5. Questionnaire, training and supervision

2.5.1. Questionnaires

The questionnaires are included in **Appendix 6.**

The questionnaires were prepared in English language, translated to Arabic and administered in Arabic. The questionnaires were pre-tested before the survey.

Four module questionnaires were designed to provide information on the relevant indicators of the different target groups as indicated in the survey objectives.

The survey covered the following modules:
Module 1*: Mortality*- This included questions related to mortality in the last 90 days among the whole population. CDR and U5DR were calculated.

Module 2*: Children 6-59 months*- This included questions and measures on children aged 6-59 months. Information was collected on anthropometric status, oedema, and enrolment in selective feeding programmes, immunisation (measles and DPT3), vitamin A supplementation and deworming in last six months, morbidity from diarrhoea in past two weeks, haemoglobin assessment for all children.

Module 3*: Infant and Young child Feeding (IYCF)* practices for children aged 0-24 months only. Information on feeding practises for this age group was collected.

Module 4: *Women 15-49 years*- This included questions and measures on women aged 15-49 years. Information was collected on women's pregnancy status, coverage of iron-folic acid pills, ANC attendance, and haemoglobin assessment for non-pregnant women.

2.5.2. Survey teams and supervision

A total of thirty enumerators were trained from four different organisations, however at data collection one had dropped off. Two of the remaining 29 were used in data entry, one assisted with logistic support while one had to assist in team supervision. Of the 25 who remained to do data collection, 15 of them had experience in taking anthropometric measurements. The 25 enumerators were put in 5 teams of 5 members per team. One of the members was responsible for anaemia measurements, 2 were taking anthropometric measurements, the fourth team member was conducting interviews with the help of the fifth team member who was the team member and responsible for the team's data and overall work.

There was one supervisor (UNHCR Nutrition Officer) for the entire survey who also happened to be the survey coordinator. Since there were not enough supervisors, it was not possible to supervise all the teams at all times.

2.5.3 Training

The training was conducted by the UNHCR Nutrition Officer in collaboration with the WFP Nutritionist. The training lasted four days followed by a one day pre-test. The training was from 11 to 15 February 2013.

The training focused on: the purpose and objectives of the survey; roles and responsibilities of each team member, systematic familiarization with the questionnaires by reviewing the purpose for each module and question; interviewing skills and recording of data; interpretation of calendar of events and age determination; how to take anthropometric measurements and haemoglobin measurements. The practical session on anthropometric measurements involved volunteer children for practice as well as a standardisation test. During the standardisation test each team measured seven children twice and the data was entered and analysed by ENA SMART.

A pre-test was also done whereby each team interviewed two households and administered the questionnaire and took anthropometric measurements.

2.6. Data analysis

Data entry was done by two of the trained 30 enumerators at the UNHCR Yida compound. The data was entered as the survey was on going. To check for quality, three questionnaires per team were randomly picked by the survey coordinator at the end of the day and checked for completeness and wayward figures. Double data entry was then employed as a further measure to ensure accuracy in data entry. Data was entered using Microsoft Excel 2010 and later imported to ENA for SMART (October 2012 version) for analysing anthropometric indices and mortality. To analyse the other survey components, data was imported to Epi Info version 3.5.4 for analysis.

Anthropometry measurement outliers were excluded from analysis using the SMART flags +/-3SD from the observed mean.

3. RESULTS

YIDA CAMP

3.1. Anthropometric results (based on WHO standards 2006):

Table 12: Distribution of age and sex of sample-Yida camp (Feb 2013)

	Boys		Girls		Total		Ratio
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**boy: girl**
6-17	101	50.5	99	49.5	200	100	1.02
18-29	109	51.9	101	48.1	210	100	1.08
30-41	88	48.4	94	51.6	182	100	0.94
42-53	74	59.7	50	40.3	124	100	1.48
54-59	29	47.5	32	52.5	61	100	0.91
Total	401	51.6	376	48.4	777	100	1.07

Table 13: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex - Yida camp (Feb 2013)

	All n = 762	**Boys** n = 394	**Girls** n = 368
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(56) 7.3% (5.3 -10.2 95% C.I.)	(31) 7.9% (4.6- 13.1 95% C.I.)	(25) 6.8% (4.9-9.4 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(47) 6.2 % (4.6-8.2 95% C.I.)	(24) 6.1 % (3.6- 10.1 95% C.I.)	(23) 6.3 % (4.3- 8.9 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(9) 1.2 % (0.6 -2.5 95% C.I.)	(7) 1.8 % (0.8-4.0 95% C.I.)	(2) 0.5 % (0.1-2.2 95% C.I.)

The prevalence of oedema is 0%

Table 14: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema - Yida camp (Feb 2013)

		Severe wasting (<-3 z-score)		**Moderate wasting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	194	4	2.1	24	12.4	166	85.6	0	0.0
18-29	205	8	3.9	22	10.7	175	85.4	0	0.0
30-41	181	1	0.6	6	3.3	174	96.1	0	0.0
42-53	121	1	0.8	5	4.1	115	95.0	0	0.0
54-59	61	0	0.0	4	6.6	57	93.4	0	0.0
Total	762	14	1.8	61	7.8	687	90.2	0	0.0

Figure 4: Distribution of weight-for-height z-scores (based on WHO Growth Standards; the reference population is shown in green) of survey population compared to reference population - Yida camp, (Feb 2013)

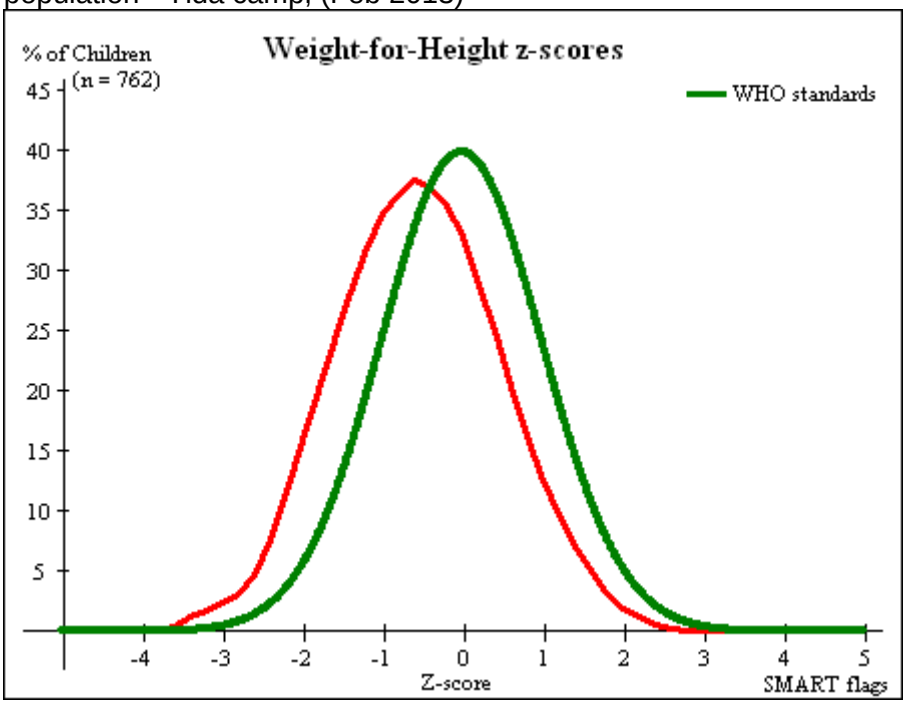


Table 15: Distribution of acute malnutrition and oedema based on weight-for-height z-scores- Yida camp (Feb 2013)

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor 0 (0.0 %)	Kwashiorkor 0 (0.0 %)
Oedema absent	Marasmic 9/762 (1.2 %)	Not severely malnourished 753/762 (98.8 %)

Table 16: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex- Yida camp (Feb 2013)

	All n = 778	**Boys** n = 402	**Girls** n = 376
Prevalence of global malnutrition (< 125 mm and/or oedema)	(42) 5.4% (3.8-7.7 95% C.I.)	(16) 4.0% (2.3-7.0 95% C.I.)	(26) 6.9% (4.6-10.3 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(36) 4.6% (3.1-6.9 95% C.I.)	(15) 3.7% (2.1-6.7 95% C.I.)	(21) 5.6% (3.5-8.9 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(6) 0.8% (0.2-2.5 95% C.I.)	(1) 0.2% (0.0-1.8 95% C.I.)	(5) 1.3% (0.4-4.2 95% C.I.)

Table 17: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema- Yida camp (Feb 2013)

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	200	4	2.0	22	11.0	174	87.0	0	0
18-29	210	1	0.5	11	5.2	198	94.3	0	0
30-41	183	0	0.0	1	0.5	182	99.5	0	0
42-53	124	0	0.0	2	1.6	122	98.4	0	0
54-59	61	1	1.6	0	0.0	60	98.4	0	0
Total	**778**	6	0.8	36	4.6	736	94.6	0	0

Table 18: Prevalence of underweight based on weight-for-age z-scores by sex- Yida camp (Feb 2013)

	All n = 773	**Boys** n = 400	**Girls** n = 373
Prevalence of underweight (<-2 z-score)	(114) 14.7% (11.9-18.2 95% C.I.)	(67) 16.8% (12.5-22.2 95% C.I.)	(47) 12.6% (9.4-16.7 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	94) 12.2% (9.7-15.1 95% C.I.)	(56) 14.0% (10.3-18.8 95% C.I.)	(38) 10.2% (7.2-14.3 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(20) 2.6% (1.6-4.1 95% C.I.)	(11) 2.8% (1.5-5.1 95% C.I.)	(9) 2.4% (1.4-4.1 95% C.I.)

Table 19: Prevalence of underweight by age, based on weight-for-age z-scores- Yida camp (Feb 2013)

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	196	8	4.1	43	21.9	145	74.0	0	0.0
18-29	208	8	3.8	54	26.0	146	70.2	0	0.0
30-41	183	2	1.1	20	10.9	161	88.0	0	0.0
42-53	124	4	3.2	15	12.1	105	84.7	0	0.0
54-59	62	0	0.0	7	11.3	55	88.7	0	0.0
Total	**773**	22	2.8	139	17.9	612	79.3	0	0.0

Table 20: Prevalence of stunting based on height-for-age z-scores and by sex- Yida camp (Feb 2013)

	All n = 738	**Boys** n = 383	**Girls** n = 355
Prevalence of stunting (<-2 z-score)	(172) 23.3% (20.0-26.9 95% C.I.)	(99) 25.9% (22.7-29.4 95% C.I.)	(73) 20.6% (16.2-25.8 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(129) 17.5% (14.8-20.5 95% C.I.)	(72) 18.8% (15.8-22.3 95% C.I.)	(57) 16.1% (12.2-20.8 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(43) 5.8% (4.1-8.2 95% C.I.)	(27) 7.1% (4.7-10.4 95% C.I.)	(16) 4.5% (2.5-8.9 95% C.I.)

Table 21: Prevalence of stunting by age based on height-for-age z-scores- Yida camp (Feb 2013)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	190	5	2.6	24	12.6	161	84.7
18-29	197	9	4.6	33	16.8	155	78.7
30-41	175	6	3.4	22	12.6	147	84.0
42-53	117	3	2.6	21	17.9	93	79.5
54-59	59	0	0.0	8	13.6	51	86.4
Total	**738**	23	3.1	108	14.5	607	82.4

Table 22: Mean z-scores, Design Effects and excluded subjects - Yida camp (Feb 2013)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	762	-0.56±1.01	1.58	0	16
Weight-for-Age	773	-0.94±1.00	1.47	0	5
Height-for-Age	738	-1.02±1.27	1.18	0	40

* contains for WHZ and WAZ the children with oedema.

3.2. Mortality results (retrospective over 90 days prior to interview) - Yida camp (Feb 2013)

Table 23: Mortality rates- Yida camp (Feb 2013)

CDR (total deaths/10,000 people / day): 0.13(0.04-0.4 95% CI)
U5DR (deaths in children under five/10,000 children under five / day): 0.27(0.03-2.10 95% CI)

The main causes of deaths in general are respiratory tract infections and septicaemia among children under 5 years.

3.3. Vaccination and vitamin A coverage

Table 24: Measles vaccination coverage for children aged 9-59 months (n=720) - Yida camp (Feb 2013)

	Measles (with card) n=443	**Measles (with card or confirmation from mother) n=530**
YES	61.5% (52.3-70.8 95% CI)	73.6 % (63.8-83.5 95% CI)

Table 25: Vitamin a supplementation for children aged 6-59 months in past 6 months (n=778) - Yida camp (Feb 2013)

YES	54.1% (45.8-62.4 95% CI)	69.8 % (60.9-78.7 95% CI)

Table 26: DPT3 vaccination coverage for children aged 6-59 months (n=778) - Yida camp (Feb 2013)

	DPT3 (with card) n=190	**DPT3 (with card or confirmation from mother) n=351**
YES	24.4% (18.0-30.8 95% CI)	45.1 % (32.1-58.2 95% CI)

Period prevalence of diarrhoea 14 days prior to survey date

Table 27: Period prevalence of diarrhoea 14 days prior to survey date - Yida camp (Feb 2013)

	Number/total	**% (95% CI)**
Diarrhoea in the last two weeks	124/759	16.3 (10.4-22.3)

Long lasting treated mosquito net coverage

Table 28: Mosquito net coverage (n=772) - Yida camp (Feb 2013)

	Mosquito net coverage (n=182)
YES	23.6% (15.5-31.6 95%CI)

3.4. Programme Coverage

Table 29: Programme Coverage SFP and TFP- Yida camp (Feb 2013)

Programme type	
Supplementary feeding programme coverage	37.8% (30.4-45.7 95% CI)
Therapeutic feeding programme coverage	31.0% (21.3-42.0 95% CI)

3.5. Anaemia Prevalence in Yida camp (Feb 2013)

Table 30: Prevalence of anaemia and haemoglobin concentration in children 6-59 months of age (n=773)

Anaemia – Children 6-59 months	**All** n = 773
Total Anaemia (Hb<11.0 g/dL)	(263) 34.0% (95% CI 29.4-38.6)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(172) 22.3% (95% CI 19.4-25.1)
Moderate Anaemia (7.0-9.9 g/dL)	(88) 11.4% (95% CI 8.3-14.5)
Severe Anaemia (<7.0 g/dL)	(3) 0.4% (95% CI 0.0-1.0)
Mean Hb, g/Dl **(confidence interval)** **[range]**	11.4 g/dL (11.2-11.5) [6.4-15.2]

Prevalence of anaemia by age

Table 31: Total anaemia and categories analysis by age- Yida camp (Feb 2013)

		Severe Anaemia (<7.0 g/dL)		**Moderate Anaemia (7.0-9.9 g/dL)**		**Mild Anaemia (Hb 10.0-10.9 g/dL)**		**Total Anaemia (Hb<11g.0 g/dL)**		**Normal (Hb≥11.0 g/dL)**	
Age (mths)	**Total no.**	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)
6-23	303	1	0.3 (0.0-1.0)	59	19.5 (15.0-24.0)	92	30.4 (25.5-35.2)	152	50.2 (44.6-55.7)	151	49.8 (44.3-55.4)
24-35	188	1	0. (0.0-1.6)	15	8.0 (3.5-12.5)	45	23.9 (17.7-30.1)	61	32.4 (24.4-40.5)	127	67.6 (59.5-75.6)
36-59	282	1	0.4 (0.0-1.1)	14	5.0 (0.7-9.2)	35	12.4 (8.6-16.2)	50	17.7 (11.6-24.0)	232	82.3 (76.1-88.4)
Total	773	3	0.4 (0-1.0)	88	11.4 (8.3-14.5)	172	22.3 (19.4-25.1)	263	34.0 (29.4-38.6)	510	66.0 (61.4-70.6)

3.6. Prevalence of infant and young child feeding practices indicators Yida

Table 32: IYCF indicators - Yida camp (Feb 2013)

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	191/301	63.5	52.5-74.4
Exclusive breastfeeding under 6 months	0-5 months	19/47	40.4	25.3-55.6
Continued breastfeeding at 1 year	12-15 months	50/62	80.6	68.4-92.9
Continued breastfeeding at 2 years	20-23 months	30/44	68.2	55.0-81.4
Introduction of solid, semi-solid or soft foods	6-8 months	20/31	64.5	48.9-80.1
Consumption of iron-rich or iron-fortified foods	6-23 months	132/176	75.0	67.9-81.2
Bottle feeding	0-23 months	35/295	11.9	6.0-17.7

3.7. Prevalence of intake analysis

Infant formula

Table 33: Infant Formula Intake in Children Aged 0-23 Months - Yida camp (Feb 2013)

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non fortified)	29/249	11.6(7.9-16.3)

FBF intake

Table 34: CSB+ (supercereal) intake in children aged 6-23 months - Yida camp (Feb 2013)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	90/238	37.8(31.6-44.3)

FBF++ intake

Table 35: CSB++ (supercereal plus) intake in children aged 6-23 months - Yida camp (Feb 2013)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	83/205	40.5(33.7-47.5)

3.8. Anaemia in women 15-49 years

Table 36: Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Yida camp (Feb 2013)

Anaemia - Women of reproductive age 15-49 years	**All** n = 300
Total Anaemia (<12.0 g/dL)	(51) 17% (95% CI 10.5-23.5)
Mild Anaemia (11.0-11.9 g/dL)	(33) 11.0% (95% CI 4.8-17.1)
Moderate Anaemia (8.0-10.9 g/dL)	(17) 5.7% (95% CI 2.5-8.8)
Severe Anaemia (<8.0 g/dL)	(1) 0.3 (95% CI 0-1.0)
Mean Hb, g/dL **(95% CI)** **[range]**	12.9 g/dL 12.8-13.1 [6.5-16.6]

3.9. ANC and Folic acid pills coverage

Table 37: ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) - Yida camp (Feb 2013)

	Number /total	**% (95% CI)**
Currently enrolled in ANC programme	40/61	65.6 (53.7-77.5 95%CI)
Currently receiving iron-folic acid pills	38/61	62.3 (50.1-74.5 95% CI)

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3.10. Anthropometric results (based on WHO standards 2006):

Table 38: Distribution of age and sex of sample-Nyel camp (Feb 2013)

	Boys		**Girls**		**Total**		**Ratio**
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:girl**
6-17	9	40.9	13	59.1	22	100	0.69
18-29	21	63.6	12	36.4	33	100	1.75
30-41	17	37.0	29	73.0	46	100	0.59
42-53	19	65.5	10	34.5	29	100	1.90
54-59	9	56.3	7	43.7	16	100	1.29
Total	75	51.4	71	48.6	146	100	1.06

Table 39: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex- Nyel camp (Feb 2013)

	All n = 146	**Boys** n = 75	**Girls** n = 71
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(9) 6.2% (3.3 -11.3 95% C.I.)	(5) 6.7% (2.9- 14.7 95% C.I.)	(4) 5.6% (2.2-13.6 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(9) 6.2% (3.3 -11.3 95% C.I.)	(5) 6.7% (2.9- 14.7 95% C.I.)	(4) 5.6% (2.2-13.6 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(0) 0.0 % (0.0 -2.6 95% C.I.)	(0) 0.0 % (0.0-4.9 95% C.I.)	(0) 0.0 % (0.0-5.1 95% C.I.)

The prevalence of oedema is 0%

Table 40: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema -Nyel camp (Feb 2013)

		Severe wasting (<-3 z-score)		**Moderate wasting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	22	0	0.0	4	18.2	18	81.8	0	0.0
18-29	33	0	0.0	2	6.1	31	93.9	0	0.0
30-41	46	0	0.0	1	2.2	45	97.8	0	0.0
42-53	29	0	0.0	2	6.9	27	93.1	0	0.0
54-59	16	0	0.0	0	0.0	16	100.0	0	0.0
Total	**146**	0	0.0	9	6.2	137	93.8	0	0.0

Figure 5: Distribution of weight-for-height z-scores (based on WHO Growth Standards; the reference population is shown in green) of survey population compared to reference population - Nyeel camp, (Feb 2013)

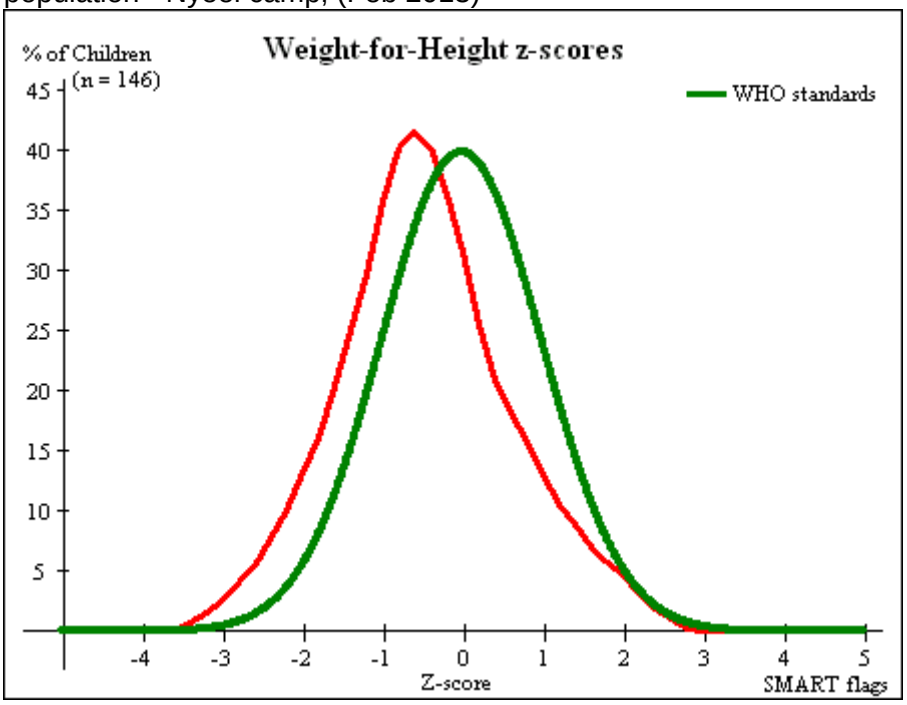

Table 41: Distribution of acute malnutrition and oedema based on weight-for-height z-scores Nyeel camp (Feb 2013)

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor 0 (0.0%) (0.0-0.0 95%CI)	Kwashiorkor 0(0.0%) (0.0-0.0 95%CI)
Oedema absent	Marasmic 0 (0.0%) (0.0-0.0 95%CI)	Not severely malnourished 9(6.2%) (3.3-11.3 95 %CI)

Table 42: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex Nyel camp (Feb 2013)

	All n = 146	**Boys** n = 75	**Girls** n = 71
Prevalence of global malnutrition (< 125 mm and/or oedema)	(5) 3.4% (1.5-7.8 95% C.I.)	(1) 1.3% (0.2-7.2 95% C.I.)	(4) 5.6% (2.2-13.2 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(5) 3.4% (1.5-7.8 95% C.I.)	(1) 1.3% (0.2-7.2 95% C.I.)	(4) 5.6% (2.2-13.2 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(0) 0.0% (0.0-2.6 95% C.I.)	(0) 0.0% (0.0-4.9 95% C.I.)	(0) 0.0% (0.0-5.1 95% C.I.)

Table 43: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema Nyel camp (Feb 2013)

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	22	0	0.0	4	18.2	18	81.8	0	0
18-29	33	0	0.0	0	0.0	33	100.0	0	0
30-41	46	0	0.0	1	2.2	45	97.8	0	0
42-53	29	0	0.0	0	0.0	29	100.0	0	0
54-59	16	0	0.0	0	0.0	16	100.0	0	0
Total	**146**	0	0.0	5	3.4	141	96.6	0	0

Table 44: Prevalence of underweight based on weight-for-age z-scores by sex Nyeel camp (Feb 2013)

	All n = 146	**Boys** n = 75	**Girls** n = 71
Prevalence of underweight (<-2 z-score)	(19) 13.0% (8.5-19.4 95% C.I.)	(10) 13.3% (7.4-22.8 95% C.I.)	(9) 12.7% (6.8-22.4 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(18) 12.3% (7.9-18.6 95% C.I.)	(9) 12.0% (6.4-21.3 95% C.I.)	(9) 12.7% (6.8-22.4 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(1) 0.7% (0.1-3.8 95% C.I.)	(1) 1.3% (0.2-7.2 95% C.I.)	(0) 0.0% (0.0-5.1 95% C.I.)

Table 45: Prevalence of underweight by age, based on weight-for-age z-scores Nyel camp (Feb 2013)

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	22	0	0.0	4	18.2	18	81.8	0	0.0
18-29	33	0	0.0	7	21.2	26	78.8	0	0.0
30-41	46	1	2.2	2	4.3	43	93.5	0	0.0
42-53	29	0	0.0	3	10.3	26	89.7	0	0.0
54-59	16	0	0.0	2	12.5	14	87.5	0	0.0
Total	**146**	1	0.7	18	12.3	127	87.0	0	0.0

Table 46: Prevalence of stunting based on height-for-age z-scores and by sex- Nyel camp (Feb 2013)

	All n = 140	**Boys** n = 72	**Girls** n = 68
Prevalence of stunting (<-2 z-score)	(30) 21.4% (15.4-28.9 95% C.I.)	(14) 19.4% (12.0-30.0 95% C.I.)	(16) 23.5% (15.0-34.9 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(22) 15.7% (10.6-22.6 95% C.I.)	(10) 13.9% (7.7-23.7 95% C.I.)	(12) 17.6% (10.4-28.4 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(8) 5.7% (2.9-10.9 95% C.I.)	(4) 5.6% (2.2-13.4 95% C.I.)	(4) 5.9% (2.3-14.2 95% C.I.)

Table 47: Prevalence of stunting by age based on height-for-age z-scores- Nyeel camp (Feb 2013)

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	20	1	5.0	0	0.0	19	95.0
18-29	33	2	6.1	11	33.3	20	60.6
30-41	43	4	9.3	7	16.3	32	74.4
42-53	28	1	3.6	3	10.7	24	85.7
54-59	16	0	0.0	1	6.3	15	93.8
Total	**140**	8	5.7	22	15.7	110	78.6

Table 48: Mean z-scores, Design Effects and excluded subjects - Nyeel camp (Feb 2013)

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	146	-0.47±1.04	1.00	0	0
Weight-for-Age	146	-0.78±1.06	1.00	0	0
Height-for-Age	140	-0.87±1.34	1.00	0	6

* contains for WHZ and WAZ the children with edema.

3.11. Mortality results (retrospective over 90 days prior to interview)

Table 49: Mortality rates- Nyeel camp (Feb 2013)

CMR (total deaths/10,000 people / day): 0.0(0.0-0.0 95% CI)
U5MR (deaths in children under five/10,000 children under five / day): 0.0(0.0-0.0 95% CI)

3.12. Vaccination and vitamin A coverage

Table 50: Measles vaccination coverage for children aged 9-59 months (n=145) - Nyel camp (Feb 2013)

	Measles (with card) n=113	**Measles (with card or confirmation from mother) n=135**
YES	77.9% (70.3-84.4 95% CI)	93.1 % (87.7-96.6 95% CI)

Table 51: Vitamin a supplementation for children aged 6-59 months in past 6 months (n=146) - Nyel camp (Feb 2013)

	Vitamin A capsule (with card) n=111	**Vitamin A capsule (with card or confirmation from mother) n=132**
YES	76.0% (68.3-82.7 95% CI)	90.4 % (84.4-94.7 95% CI)

Table 52: DPT3 vaccination coverage for children aged 6-59 months (n=146) - Nyel camp (Feb 2013)

	DPT3 (with card) n=53	**DPT3 (with card or confirmation from mother) n=101**
YES	36.6% (28.7-44.9 95% CI)	69.7% (61.5-77.095% CI)

3.13. Diarrhoea and mosquito net coverage

Table 53: Diarrhoea Prevalence 14 days prior to survey- Nyeel camp (Feb 2013)

	Number/total	**% (95% CI)**
Diarrhoea in the last two weeks	26/145	17.9 (12.1-25.2)

Long lasting treated mosquito net coverage

Table 54: Long lasting treated mosquito net coverage (n=142) - Nyel camp (Feb 2013)

	Mosquito net coverage (n=81)
YES	57.0% (48.5-65.3 95%CI)

3.14. Total anaemia, anaemia categories and mean Hb analysis

Table 55: Prevalence of anaemia and haemoglobin concentration in children 6-59 months of age - Nyel camp (Feb 2013)

Anaemia – Children 6-59 months	**All** n = 146
Total Anaemia (Hb<11.0 g/dL)	(75) 48.6% (95% CI 40.3-57.0)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(43) 29.5% (95% CI 22.2-37.6)
Moderate Anaemia (7.0-9.9 g/dL)	(28) 19.2% (95% CI 13.1-26.5)
Severe Anaemia (<7.0 g/dL)	(0) 0.0% (95% CI 0-0)
Mean Hb, g/Dl **(confidence interval) / std dev** **[range]**	10.9 g/dL (1.86) [7.1-13.5]

Total anaemia and categories analysis by age

Table 56: Prevalence of anaemia by age - Nyel camp (Feb 2013)

		Severe Anaemia (<7.0 g/dL)		**Moderate Anaemia (7.0-9.9 g/dL)**		**Mild Anaemia (Hb 10.0-10.9 g/dL)**		**Total Anaemia (Hb<11g.0 g/dL)**		**Normal (Hb≥11.0 g/dL)**	
Age (mths)	**Total no.**	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)	**No.**	**%** (95% CI)
6-23	43	0	0 (0-0)	17	39.5 (25.0-55.6)	16	37.2 (23.0-53.3)	33	76.7 (61.4-88.2)	10	23.3 (11.8-38.6)
24-35	35	0	0 (0-0)	7	20.0 (8.4-36.9)	10	28.6 (14.6-46.3)	17	48.6 (31.4-66.0)	18	51.4 (34.0-68.6)
36-59	68	0	0 (0-0)	4	5.9 (1.6-14.4)	17	25.0 (15.3-37.0)	21	30.9 (20.2-43.3)	47	69.1 (56.7-79.8)
Total	146	0	0 (0-0)	28	19.2 (13.1-26.5)	43	29.5 (22.2-37.6)	71	48.6 (40.3-57.0)	75	51.4 (43.0-59.7)

3.15. Prevalence of infant and young child feeding practices indicators -Nyel camp (Feb 2013)

Table 57: IYCF Indicators

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	33/54	61.1	46.9-74.1
Exclusive breastfeeding under 6 months	0-5 months	2/5	40.0	5.3-85.3
Continued breastfeeding at 1 year	12-15 months	13/13	100	100-100
Continued breastfeeding at 2 years	20-23 months	10/11	90.9	58.7-99.8
Introduction of solid, semi-solid or soft foods	6-8 months	0/2	0.0	0.0-0.0
Consumption of iron-rich or iron-fortified foods	6-23 months	26/38	68.4	51.3-82.5
Bottle feeding	0-23 months	7/52	13.5	5.6-25.8

3.16. Prevalence of intake analysis

Infant formula

Table 58: Infant formula intake in children aged 0-23 months -Nyel camp (Feb 2013)

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non fortified)	4/53	7.5(2.1-18.2)

FBF intake

Table 59: CSB (supercereal) intake in children aged 6-23 months -Nyel camp (Feb 2013)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	13/46	28.3(16.0-43.5)

FBF++ intake

Table 60: CSB++ (Supercereal) intake in children aged 6-23 months -Nyel camp (Feb 2013)

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	21/46	45.7(30.9-61.0)

3.17. Women Anaemia

Table 61: Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Nyel camp (Feb 2013)

Anaemia - Women of reproductive age 15-49 years	**All** n = 71
Total Anaemia (<12.0 g/dL)	(5) 7.0% (95% CI 2.3-15.7)
Mild Anaemia (11.0-11.9 g/dL)	(3) 4.2% (95% CI 0.9-11.9)
Moderate Anaemia (8.0-10.9 g/dL)	(2) 2.8% (95% CI 0.3-9.8)
Severe Anaemia (<8.0 g/dL)	(0) 0 (95% CI 0-0)
Mean Hb, g/dL **(SD)** **[range]**	13.4 g/dL 1.1 [10.3-15.6]

3.18. ANC enrolment and iron-folic acid pills coverage analysis

Table 62: ANC enrolment and iron-folic acid pills coverage among pregnant women (15-49 years) - Nyeel camp (Feb 2013)

	Number /total	**% (95% CI)**
Currently enrolled in ANC programme	3/3	100.0 (100.0-100.0)
Currently receiving iron-folic acid pills	3/3	100.0 (100.0-100.0)

4. DISCUSSION

4.1. Nutritional status

In Yida there is equal representation between boys and girls as seen by the overall sex ratio which gives a p value of 0.370. However there is significant difference in other age sex distributions which include;
Overall age distribution: p-value = 0.000 (significant difference)
Overall age distribution for boys: p-value = 0.031 (significant difference)
Overall age distribution for girls: p-value = 0.001 (significant difference)
Overall sex/age distribution: p-value = 0.000 (significant difference)

The main reason for such p values is that in 95% of the sampled children, age was estimated by using the events calendar, which does not give accurate age, therefore significantly introducing bias.

Acute and Chronic Malnutrition

Global acute malnutrition (GAM) and severe acute malnutrition (SAM) in both camps are lower than the WHO 15% threshold for GAM and 2% for SAM. GAM of 7.3% in Yida and SAM of 1.2% compares well with admission figures at the time of the survey that are computed on a weekly

basis. ACF carried out a survey in Yida although at different times of the year (the current survey was carried out at the peak of the dry season while the ACF survey with GAM 21.85 and SAM 6.1% was carried out at the peak of the rain reason in July 2012).

Although the two surveys were done in different seasons, comparison shows there is a significant decrease in malnutrition rate ($p < 0.05$) as compared to July 2012 and the nutrition situation in Yida has improved remarkably. As of week 6 (2013) admission figures gave a GAM estimate of 7% while in week 50 in 2012, which was soon after the beginning of the dry season admission GAM estimate in Yida was 12.3%.

Acute malnutrition, underweight and stunting are high among children 6 to 29 months in both Yida and Nyeel. This is probably because most children in this age group have stopped breastfeeding completely and are now eating from the family common pot which does not meet their energy needs. It is therefore important to have a strong IYCF programme that teaches mothers and caregivers on proper complementary feeding for the age group. Stunting and underweight should however be interpreted with caution since 95% of the children did not have birth certificates and their age was estimated using the events calendar. However food diversification with more insight on animal proteins (linear growth) and micronutrient would be relevant

Anaemia

Anaemia is high in Nyeel with a prevalence of 48.6 % (40.3-57.0, 95%CI) and serious in Yida with a prevalence of 34.0% (29.4-38.6, 95% CI). Even though the GAM rate is below the emergency treshold, there continues to be a serious nutrition situation in the form of micronutrient deficiency in the under 5 group, particularly in the age group of 6-23 months. Given the deficit/poor bioavailability of some key micronutrient and iron in particular in The General Food Ration, there is a need to fill this nutrient GAP by providing a targeted micronutrient rich food to this vulnerable groups. Anaemia prevention and treatment strategy should be put in place with main focus on integrated prevention activities such as IYCF and food diversification. Food diversification is a concern in both camps (34.0%0 in Yida with BSFP using CSB++ and in Nyeel without BSFP for children 6 to 59months.

Women anaemia is within acceptable ranges. However, mother nutrition needs to be strengthen as a portion of overall anaemia and nutrition strategy because of it close link with chid anaemia and nutrition.

4.2 Mortality

Camp mortality rates during the survey period when compared to the some available data shows that the situation in the camp is not as alarming. The survey was conducted in February at the peak of the dry season, whilst comparison data from host community is from a survey conducted in May the previous year when the rainy season was about to begin and July when the rainy season had started. The survey results showed crude mortality rate (CMR) of 0.13/10000/day and under 5 mortality rate (U5MR) of 0.27/10000/day. Crude mortality rate (CMR) and under 5 mortality rate (U5MR) is also referred to as crude death rate (CDR) and under 5 death rate (U5DR). This is a significant improvement if it is to be compared to the findings of the survey that was undertaken by ACF in July 2012 in the same camp where CMR was 0.76/10000/day and U5MR was 2.15/10000/day. In the nearby county of Rubkona, a survey conducted by Care in May 2012 showed that the refugee situation could be much better than the situation of the host community, GAM 30.2%, SAM 7.3%, CMR 1.15/10000/day and U5MR 2.15/10000/day (South Sudan Nutrition Cluster)[5].

4.3 Causes of malnutrition

The entire refugee population in Unity State relies entirely on the WFP general food distribution ration for their food needs. The relatively low GAM and SAM rates in Unity State refugee camps is attributed not only to the availability of food in the community through GFD, but also to current preventive (BSFP) and curative (TSFP, OTP, SC) nutrition interventions. Also, the community outreach activities contributed to bring malnutrition rates to acceptable levels. Since the entire population relies on the WFP food ration entire for their energy needs. The WFP GFD ration provides the required 2100kcal per person per day.

Food and Nutrition

The GFD basket however consists of only cereals, pulses, oil and salt and no micronutrient rich food. This is evidenced by high anaemia level in Nyeel (48.6%) and medium anaemia levels in Yida (34.0%) among children 6 to 59 months. Anaemia is used as a proxy indicator for the overall micronutrient deficiency in the camp since carrying out a proper micronutrient survey is cumbersome in the refugee setting context. It is worth mentioning that although anaemia in Yida is 34% it comes on the background of a blanket supplementary feeding programme (BSFP) for children 6 to 35 months which was later revised to cater for all children 6 to 59 months starting November 2012. The BSFP commodity was CSB++ until January 2013 when CSB+, sugar and oil was introduced. The lack of a micronutrient fortified based food presents serious challenges in tackling the micronutrient deficiency in the camps.

In general results from both Yida and Nyeel, show that more boys are malnourished as compared to girls using WHZ (acute, underweight and chronic) with the exception of stunting in Nyeel where more girls are stunted as compared to boys. The reason for this could be the fact that girls have more access to food than boys. Evidence gathered from community people suggests that as a traditional practise, girls are better fed than boys so that they grow up healthy, get married and in turn bring in cattle through dowry. Cattle are a form of wealth among the Nubans.

Anthropometric age group analysis shows that acute malnutrition is high among children 6-17 months. The fact that the 6-17 months age category is more malnourished point to poor complementary feeding practises by mothers when they start introducing semi-solid and solid foods. This is evidenced by the low exclusive breastfeeding (WHO IYCF core indicator 2) rates in Yida and Nyeel 40.4% (25.3-55.6 , 95% CI)and 40.0 (5.3-85.3, 95% CI) respectively and introduction of solid and semi-solid foods (WHO IYCF core indicator 4) which is 64.5 (48.9-80.195% CI)in Yida and 0.0 (0.0-0.0 95% CI) in Nyeel. Timely initiation of breastfeeding (WHO IYCF core indicator 1) is 63.5% in Yida and 61.1% in Nyeel; this is a low rate considering the importance of timely initiation to the infant. The relatively low IYCF indicators have a significant contribution to the stunting levels. Although the stunting levels below the 40% threshold, there is need to find ways of mitigating and lower the stunting rates further. IYCF indicators however need to be interpreted with caution considering the small sample size.

Seasonal Changes

The survey was conducted in February at the peak of the dry season, when general morbidity is low especially of disease that are to do with the environment and WASH such as malaria, respiratory tract infections and diarrhoea. The rain season is expected to start at the end of May and is likely to cause an increase in malaria cases, acute watery diarrhoea and respiratory tract infections.

From the survey 57.0% of households in Nyeel and 23.6% of households in Yida had a long lasting treated mosquito net. It is imperative to note that in the majority of households with the

mosquito nets there is only one mosquito net available and children are not likely to be sleeping under the mosquito net as it will be used by the parents. The shortage of mosquito nets coupled with the coming of the rain season and therefore increased malaria incidence is a near future nutritional challenge.

WASH

At the moment the official latrine ratio in Yida is 25 persons per latrine as compared to the SPHERE standard of 20 persons per latrine. Open defecation is quite high in the camp which again will pose a health and eventually nutrition issue in the camp. Approximately 50% of latrines are not functional mostly because they were built with plastic sheeting which has been destroyed by heat and there is no rehabilitation going on. The rate of building new latrines is lower than the rate the latrines are getting improper for use. Estimates by WASH experts in the camp are that the present actual latrine ratio is 39 persons per latrine (UNHCR Internal Report, 2013)[7]. The other problem with latrines in Yida is that the latrines are mainly communal and there is problem with cleaning the latrines as the community members don't feel obliged to clean the latrines as they do not own them and at the same time the WASH partners do not have adequate budget for cleaning all the latrines and are promoting community management of latrines. The WASH problem is evidenced by the hepatitis E situation where to date 269 individuals have acute jaundice syndrome, 59% of samples that were send to the lab tested positive and a case fatality rate of 4.8% (UNHCR Internal Report, 2013).

Literacy Levels

Literacy rate in the refugee community is quite low, making it difficult for the community to comprehend nutrition concepts imparted to them by aid agencies. According to a survey that was conducted by IOM in their place of origin showed that 81% of villages do not have health facilities (IOM, 2009)[8], a situation that leads to poor health seeking behaviour among the refugee population. Although this study was conducted in 2009, which is quite some time ago, it however gives insight on the situation in South Kordofan, which is not expected to have changed much (if at all the situation might have deteriorated)due to the on-going war.

Community leaders and partners recommend the need to strengthen, support and improve IYCF practises, making mosquito nets available enough for the whole camp population and for the whole family and an improvement in the WASH situation.

4.4 Programme coverage

Programme coverage, although it has to be interpreted with caution due to the small sample size is much lower than the 90% recommended in the SPHERE standards. Supplementary feeding programme coverage is 37.8% in Yida. Therapeutic feeding programme is 31.0% in Yida. The coverage rates are unacceptably low in comparison to the SPHERE standards. From the survey results, only a third of malnourished children are in the nutrition programmes. Decentralisation of programmes should therefore be a priority.

ANC and Folic acid coverage is 100% in Nyeel (only 3 women, not a big enough sample to make statistical inference). In Yida the coverage of ANC is 31.3% and folic acid is 37.8%. These coverage rates are lower than the expected 90%. As a way of increasing ANC, folic acid coverage and other reproductive health services, the BSFP for PLW programme has been integrated into the ANC programme where mothers collect their food rations after being confirmed their pregnancy by the reproductive health partner. The reproductive health partner also takes that opportunity to encourage women to take up ANC/PNC services.

Vaccination coverage (measles and DPT 3) is also much lower than the 90% expectation as well as vitamin A supplementation is lower than the 95% expectation. Measles vaccination using both

card and recall is 73.6%. Measles coverage in Nyeel is 93.1%, which is above the 90%target. The high coverage in Nyeel is attributed to the small population of the camp, making it possible to reach virtually all the children in the camp.

Vitamin A coverage in Yida is 69.8% and 69.7% in Nyeel. At the present moment there is no measles/vitamin A campaign that has been conducted in the camp. Children are vaccinated at registration when they arrive as refugees and they also get vitamin A from the registration desk. Vitamin A is also given to children when they visit either the OTP sites or the primary health facilities in the camps.

5. CONCLUSION

In general the nutrition situation for both acute and chronic malnutrition in Yida and Nyeel is at acceptable levels but needs to continue being monitored and the current nutrition programmes strengthened. Acute malnutrition has to be kept within the current levels or reduced further, through strengthening the current curative and preventive nutrition programmes. To address chronic malnutrition, UNHCR and partners have to formulate programmes that have been proven to have high impact such as focussing on the window of opportunity the first 1000 days of life from conception to 24 months post-delivery (Lancet Series, 2008)[9].

The micronutrient situation is worrying and needs to be addressed through an intervention aiming to fill the gap by providing a micronutrient rich food especially to the under 5.

Decentralising the current OTP/SFP programmes is a priority in order to increase programme coverage and hence curb malnutrition. A comprehensive IYCF programme is of paramount importance and should be prioritised as it will help in the fight against stunting and acute malnutrition.

6. RECOMMENDATION AND PRIORITIES

A comprehensive nutrition programme needs to be put in place that is both curative and preventive. The programme should encompass the following components:

Immediate Term

- Provision of fortified complementary foods for children 6-23 months
- Strengthening the current community management of acute malnutrition (CMAM) for children 6-59 months in Yida through decentralization and stronger community outreach .
- In Nyeel, insure the availability and functionality of a SAM inpatient paediatric ward able to treat SAM patients
- Continue existing nutrition programmes in Yida
- In both camps, UNHCR, WFP and partners to support/implement an intervention with a micronutrient rich food for specific age group (6-59 months/6-23 months) associated with promotion of best IYCF practices .
- In both camps, UNHCR and partners strengthen the linkages between nutrition services

and other health and WASH activities

- WFP and UNHCR to maintain with General Food Distribution (GFD) for the total population.

- UNHCR to establish mechanisms to address milling and transportation needs for refugees. WFP and UNHCR to strengthen on-site food basket monitoring in order to monitor efficiency and equity of food distribution system

- UNHCR and partners to come up with a nutrition programme aimed at addressing the anaemia situation in both camps.

- Health, nutrition and WASH partners to collaborate so as to address the latrine situation in the camps.

- Provide long lasting treated mosquito nets to all the people in the camp and enough mosquito nets for the entire family.

- Nutrition partners to conduct quarterly mass MUAC screening as a way of increasing coverage and monitor the nutritional situation.

Medium Term

- Nutrition partners and UNHCR to come up with a nutrition surveillance mechanism to enhance up to date nutrition situation in the camps.
- UNHCR and partners to review the community health programme and scale up as well as enhancing the linkages between primary health care, nutrition and WASH activities,

- Health and Nutrition partners to organise a vitamin A and measles campaign to cover the entire camps as well as deworming.

- Health and Nutrition partners to provide Iron-folic acid supplementation (women)

- Iron fortification of staples if cereals are to be provided as flour.

Long term Programme Recommendations

- Partners to strengthen and closely monitor Behaviour change aspects in nutrition programmes that promote breastfeeding (with emphasis on promoting and supporting exclusive breastfeeding), complementary feeding and hygiene promotion.

- Partners to strengthen capacity building of health and nutrition staff in order to improve quality of health and nutrition services

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8. PARTICIPANTS

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9. APPENDICES

Appendix 1: Plausibility Report Yida

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Missing/Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-10	>10	
(% of in-range subjects)			0	5	10	20	**0** (2.1 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.370)
Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**10** (p=0.000)
Dig pref score - weight	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**2** (8)
Dig pref score - height	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**2** (7)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>1.20	
			0	2	6	20	**0** (1.01)
Skewness WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.03)
Kurtosis WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (-0.19)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<0.000	
			0	1	3	5	**1** (p=0.025)
Timing	Excl	Not determined yet					
			0	1	3	5	
OVERALL SCORE WHZ =			0-5	5-10	10-15	>15	**15** %

At the moment the overall score of this survey is 15 %, this is acceptable.

There were no duplicate entries detected.

Percentage of children with no exact birthday: 95 %

Appendix 2: Plausibility Report Nyeel

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Missing/Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-10	>10	
(% of in-range subjects)			0	5	10	20	**0** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**0** (p=0.741)
Overall Age distrib	Incl	p	>0.1	>0.05	>0.001	<0.000	
(Significant chi square)			0	2	4	10	**4** (p=0.033)
Dig pref score - weight	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**2** (7)
Dig pref score - height	Incl	#	0-5	5-10	10-20	> 20	
			0	2	4	10	**4** (19)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>1.20	
			0	2	6	20	**0** (1.04)
Skewness WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.22)
Kurtosis WHZ	Excl	#	<±1.0	<±2.0	<±3.0	>±3.0	
			0	1	3	5	**0** (0.03)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<0.000	

```
                                        0     1         3         5        0 (p=)
Timing                    Excl   Not determined yet
                                        0     1         3         5
OVERALL SCORE WHZ =                    0-5   5-10     10-15    >15        10 %
```

At the moment the overall score of this survey is 10 %, this is good.

There were no duplicate entries detected.

Percentage of children with no exact birthday: 100 %

Appendix 3: **Assignment of Clusters**

Geographical unit	Population size	Assigned Cluster
Abu Hashim	690	1
Alliri	348	
Angolo	8399	2,3,4,5,6
Atoro	869	
Bilenya	281	
Boram	1321	7
Chururu	127	
Dabakia Shatt	511	8
Damam	2084	RC
Damba	149	
Dar	3099	9,RC
Darfur	346	
Dilling	305	
Doloka	901	10
Fama	3039	11
Faruk	286	
Gulu	59	
Hajer Anaba	354	RC
Jabal Adair	71	
Jabal Tagali	45	
Kafina	319	
Katcha	1701	12
Kawalib	421	
Kawonyaro	96	
Keiga	117	
Kululu	1499	13
Kurungo Abdallah	540	
Kutang	613	14
Lagawa / Gharbia	435	
Lera	546	
Mashisha	566	15
Mazarig	2330	16
Miri	369	

Appendix 4: Evaluation of Enumerators

Weight:

	Precision: Sum of Square [W2-W1]	Accuracy: Sum of Square [Superv.(W1+W2)-Enum.(W1+W2]	No. +/- Precision	No. +/- Accuracy
Supervisor	0.00		0/0	
Enumerator 1	0.00 OK	0.00 OK	0/0	0/0
Enumerator 2	0.00 OK	0.00 OK	0/0	0/0
Enumerator 3	0.00 OK	0.00 OK	0/0	0/0
Enumerator 4	0.00 OK	0.00 OK	0/0	0/0
Enumerator 5	0.00 OK	0.00 OK	0/0	0/0

Height:

	Precision: Sum of Square [H2-H1]	Accuracy: Sum of Square [Superv.(H1+H2)-Enum.(H1+H2]	No. +/- Precision	No. +/- Accuracy
Supervisor	0.01		1/0	
Enumerator 1	0.05 POOR	0.04 POOR	2/3	1/3
Enumerator 2	0.01 OK	0.02 OK	1/0	1/1
Enumerator 3	0.01 OK	0.00 OK	1/0	0/0
Enumerator 4	0.04 POOR	0.05 POOR	4/0	2/3
Enumerator 5	0.02 OK	0.03 OK	2/0	1/2

MUAC:

	Precision: Sum of Square [MUAC2-MUAC1]	Accuracy: Sum of Square [Superv.(MUAC1+MUAC2)-Enum.(MUAC1+MUAC2]	No. +/- Precision	No. +/- Accuracy
Supervisor	0.02		1/1	
Enumerator 1	0.04 POOR	20.56 POOR	1/3	1/4
Enumerator 2	0.03 OK	0.07 POOR	1/2	3/1
Enumerator 3	0.02 OK	0.04 OK	1/1	1/0
Enumerator 4	0.04 POOR	0.10 POOR	2/2	3/1
Enumerator 5	0.02 OK	0.06 POOR	0/2	2/1

Appendix 5:

Result Tables for NCHS growth reference 1977, Yida Camp

Table 63: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 773	**Boys** n = 398	**Girls** n = 374
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(75) 9.7% (7.0-13.4 95% C.I.)	(42) 10.6% (6.7-16.3 95% C.I.)	(33) 8.8% (6.2-12.4 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(61) 7.9% (5.7-10.8 95% C.I.)	(33) 8.3% (5.1-13.1 95% C.I.)	(28) 7.5% (5.1-10.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(14) 1.8% (1.0-3.3 95% C.I.)	(9) 2.3% (1.2-4.3 95% C.I.)	(5) 1.3% (0.6-3.1 95% C.I.)

The prevalence of oedema is 0.0%

Table 64: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

		Severe wasting (<-3 z-score)		**Moderate wasting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	198	4	2.0	24	12.1	170	85.9	0	0.0
18-29	208	8	3.8	22	10.6	178	85.6	0	0.0
30-41	183	1	0.5	6	3.3	176	96.2	0	0.0
42-53	123	1	0.8	5	4.1	117	95.1	0	0.0
54-59	61	0	0.0	4	6.6	57	93.4	0	0.0
Total	**773**	14	1.8	61	7.9	698	90.3	0	0.0

Table 65: Distribution of acute malnutrition and oedema based on weight-for-height z-scores

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 17	Not severely malnourished No. 761

	(2.2 %)	(97.8 %)

Table 66: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 778	**Boys** n = 401	**Girls** n = 376
Prevalence of global malnutrition (< 125 mm and/or oedema)	(42) 5.4% (3.8-7.7 95% C.I.)	(16) 4.0% (2.3-7.0 95% C.I.)	(26) 6.9% (4.6-10.3 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(36) 4.6% (3.1-6.9 95% C.I.)	(15) 3.7% (2.1-6.7 95% C.I.)	(21) 5.6% (3.5-8.9 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(6) 0.8% (0.2-2.5 95% C.I.)	(1) 0.2% (0.0-1.8 95% C.I.)	(5) 1.3% (0.4-4.2 95% C.I.)

Table 67: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	200	4	2.0	22	11.0	174	87.0	0	0.0
18-29	210	1	0.5	11	5.2	198	94.3	0	0.0
30-41	183	0	0.0	1	0.5	182	99.5	0	0.0
42-53	124	0	0.0	2	1.6	122	98.4	0	0.0
54-59	61	1	1.6	0	0.0	60	98.4	0	0.0
Total	**778**	6	0.8	36	4.6	736	94.6	0	0.0

Table 68: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 773
Prevalence of global acute malnutrition (<80% and/or oedema)	(33) 4.3 % (2.9 - 6.2 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(29) 3.8 % (2.5 - 5.6 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(4) 0.5 % (0.2 - 1.4 95% C.I.)

Table 69: Prevalence of malnutrition by age, based on weight-for-height percentage of the median and oedema

		Severe wasting (<70% median)		Moderate wasting (>=70% and <80% median)		Normal (> =80% median)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	198	1	0.5	9	4.5	188	94.9	0	0.0
18-29	208	2	1.0	12	5.8	194	93.3	0	0.0
30-41	183	1	0.5	1	0.5	181	98.9	0	0.0
42-53	123	0	0.0	5	4.1	118	95.9	0	0.0
54-59	61	0	0.0	2	3.3	59	96.7	0	0.0
Total	**773**	4	0.5	29	3.8	740	95.7	0	0.0

Table 70: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 773	**Boys** n = 399	**Girls** n = 373
Prevalence of underweight (<-2 z-score)	(161) 20.8% (17.9-24.1 95% C.I.)	(86) 21.6% (17.1-26.8 95% C.I.)	(75) 20.1% (16.6-24.1 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(139) 18.0% (15.4-20.9 95% C.I.)	(73) 18.3% (14.5-22.9 95% C.I.)	(66) 17.7% (14.3-21.7 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(22) 2.8% (1.9-4.3 95% C.I.)	(13) 3.3% (1.9-5.5 95% C.I.)	(9) 2.4% (1.4-4.2 95% C.I.)

Table 71: Prevalence of underweight by age, based on weight-for-age z-scores

		Severe underweight (<-3 z-score)		**Moderate underweight (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	197	8	4.1	43	21.8	146	74.1	0	0.0
18-29	209	8	3.8	54	25.8	147	70.3	0	0.0
30-41	182	2	1.1	20	11.0	160	87.9	0	0.0
42-53	124	4	3.2	15	12.1	105	84.7	0	0.0
54-59	61	0	0.0	7	11.5	54	88.5	0	0.0
Total	**773**	22	2.8	139	18.0	612	79.2	0	0.0

Table 72: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 741	**Boys** n = 388	**Girls** n = 352
Prevalence of stunting (<-2 z-score)	(131) 17.7% (14.3-21.6 95% C.I.)	(75) 19.3% (15.7-23.5 95% C.I.)	(56) 15.9% (11.9-21.0 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(108) 14.6% (11.9-17.7 95% C.I.)	(64) 16.5% (13.2-20.5 95% C.I.)	(44) 12.5% (9.3-16.7 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(23) 3.1% (2.1-4.6 95% C.I.)	(11) 2.8% (1.7-4.7 95% C.I.)	(12) 3.4% (1.8-6.5 95% C.I.)

Table 73: Prevalence of stunting by age based on height-for-age z-scores

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	192	5	2.6	24	12.5	163	84.9
18-29	198	9	4.5	33	16.7	156	78.8
30-41	175	6	3.4	22	12.6	147	84.0
42-53	118	3	2.5	21	17.8	94	79.7
54-59	58	0	0.0	8	13.8	50	86.2
Total	741	23	3.1	108	14.6	610	82.3

Table 74: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	773	-0.81±0.95	2.11	0	5
Weight-for-Age	773	-1.17±1.00	1.06	0	5
Height-for-Age	741	-0.83±1.23	1.60	0	37

* contains for WHZ and WAZ the children with oedema.

Result Tables for NCHS growth reference 1977, Nyeel Camp

Table 75: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 146	**Boys** n = 75	**Girls** n = 71
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(11) 7.5 % (4.3 - 13.0 95% C.I.)	(6) 8.0 % (3.7 - 16.4 95% C.I.)	(5) 7.0 % (3.0 - 15.4 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(11) 7.5 % (4.3 - 13.0 95% C.I.)	(6) 8.0 % (3.7 - 16.4 95% C.I.)	(5) 7.0 % (3.0 - 15.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(0) 0.0 % (0.0 - 2.6 95% C.I.)	(0) 0.0 % (0.0 - 4.9 95% C.I.)	(0) 0.0 % (0.0 - 5.1 95% C.I.)

The prevalence of oedema is 0.0%

Table 76: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	22	0	0.0	5	22.7	17	77.3	0	0.0
18-29	33	0	0.0	3	9.1	30	90.9	0	0.0
30-41	46	0	0.0	1	2.2	45	97.8	0	0.0
42-53	29	0	0.0	2	6.9	27	93.1	0	0.0
54-59	16	0	0.0	0	0.0	16	100.0	0	0.0
Total	**146**	0	0.0	11	7.5	135	92.5	0	0.0

Table 77: Distribution of acute malnutrition and oedema based on weight-for-height z-scores

	<-3 z-score	**>=-3 z-score**
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 0 (0.0 %)	Not severely malnourished No. 146 (100.0 %)

Table 78: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex

	All n = 146	**Boys** n = 75	**Girls** n = 71
Prevalence of global malnutrition (< 125 mm and/or oedema)	(5) 3.4 % (1.5 - 7.8 95% C.I.)	(1) 1.3 % (0.2 - 7.2 95% C.I.)	(4) 5.6 % (2.2 - 13.6 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(5) 3.4 % (1.5 - 7.8 95% C.I.)	(1) 1.3 % (0.2 - 7.2 95% C.I.)	(4) 5.6 % (2.2 - 13.6 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(0) 0.0 % (0.0 - 2.6 95% C.I.)	(0) 0.0 % (0.0 - 4.9 95% C.I.)	(0) 0.0 % (0.0 - 5.1 95% C.I.)

Table 79: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	22	0	0.0	4	18.2	18	81.8	0	0.0
18-29	33	0	0.0	0	0.0	33	100.0	0	0.0
30-41	46	0	0.0	1	2.2	45	97.8	0	0.0
42-53	29	0	0.0	0	0.0	29	100.0	0	0.0
54-59	16	0	0.0	0	0.0	16	100.0	0	0.0
Total	**146**	0	0.0	5	3.4	141	96.6	0	0.0

Table 80: Prevalence of acute malnutrition based on the percentage of the median and/or oedema

	n = 146
Prevalence of global acute malnutrition (<80% and/or oedema)	(5) 3.4 % (1.5 - 7.8 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(5) 3.4 % (1.5 - 7.8 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(0) 0.0 % (0.0 - 2.6 95% C.I.)

Table 81: Prevalence of malnutrition by age, based on weight-for-height percentage of the median and oedema

		Severe wasting (<70% median)		Moderate wasting (>=70% and <80% median)		Normal (> =80% median)		Oedema	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	22	0	0.0	2	9.1	20	90.9	0	0.0
18-29	33	0	0.0	1	3.0	32	97.0	0	0.0
30-41	46	0	0.0	1	2.2	45	97.8	0	0.0
42-53	29	0	0.0	1	3.4	28	96.6	0	0.0
54-59	16	0	0.0	0	0.0	16	100.0	0	0.0
Total	**146**	0	0.0	5	3.4	141	96.6	0	0.0

Table 82: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 144	**Boys** n = 73	**Girls** n = 71
Prevalence of underweight (<-2 z-score)	(29) 20.1 % (14.4 - 27.4 95% C.I.)	(16) 21.9 % (14.0 - 32.7 95% C.I.)	(13) 18.3 % (11.0 - 28.8 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(27) 18.8 % (13.2 - 25.9 95% C.I.)	(14) 19.2 % (11.8 - 29.7 95% C.I.)	(13) 18.3 % (11.0 - 28.8 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(2) 1.4 % (0.4 - 4.9 95% C.I.)	(2) 2.7 % (0.8 - 9.5 95% C.I.)	(0) 0.0 % (0.0 - 5.1 95% C.I.)

Table 83: Prevalence of underweight by age, based on weight-for-age z-scores

		Severe underweight (<-3 z-score)		**Moderate underweight (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	22	0	0.0	7	31.8	15	68.2	0	0.0
18-29	33	1	3.0	10	30.3	22	66.7	0	0.0
30-41	44	1	2.3	3	6.8	40	90.9	0	0.0
42-53	29	0	0.0	5	17.2	24	82.8	0	0.0
54-59	16	0	0.0	2	12.5	14	87.5	0	0.0
Total	**144**	2	1.4	27	18.8	115	79.9	0	0.0

Table 84: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 141	**Boys** n = 73	**Girls** n = 68
Prevalence of stunting (<-2 z-score)	(24) 17.0 % (11.7 - 24.1 95% C.I.)	(12) 16.4 % (9.7 - 26.6 95% C.I.)	(12) 17.6 % (10.4 - 28.4 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(20) 14.2 % (9.4 - 20.9 95% C.I.)	(11) 15.1 % (8.6 - 25.0 95% C.I.)	(9) 13.2 % (7.1 - 23.3 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(4) 2.8 % (1.1 - 7.1 95% C.I.)	(1) 1.4 % (0.2 - 7.4 95% C.I.)	(3) 4.4 % (1.5 - 12.2 95% C.I.)

Table 85: Prevalence of stunting by age based on height-for-age z-scores

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	21	0	0.0	1	4.8	20	95.2
18-29	33	1	3.0	10	30.3	22	66.7
30-41	43	2	4.7	5	11.6	36	83.7
42-53	28	1	3.6	3	10.7	24	85.7
54-59	16	0	0.0	1	6.3	15	93.8
Total	**141**	4	2.8	20	14.2	117	83.0

Table 86: Mean z-scores, Design Effects and excluded subjects

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	146	-0.70±0.93	1.00	0	0
Weight-for-Age	144	-1.05±1.04	1.00	0	2
Height-for-Age	141	-0.67±1.33	1.00	0	5

* contains for WHZ and WAZ the children with edema.

Appendix 6: **Questionnaire -SENS- MORTALITY QUESTIONNAIRE (One questionnaire per HH)**

Date (dd/mm/yyyy) / يوم مقابلة:	**Camp**المعسكرة	**Cheikh/Boma…….**	**Block/Code Number/**رغم مربع
|___|___|/|___|___|/|___|___||___|___|	Doro=1, Yusuf Batil =2 , Gendrassa=3 , Jammam=4 , Yida=5 |___|	|___||___|___|	|___||___|___|
Cluster Number(*in cluster survey only*)……	**HH Number**رغم ربة البيت	**House/Tent Number** رغم خيمة/بيت	**Team Number**رغم فريق
|___|___|	|___|___||___|___|	|___|___||___|___|	|___|

#	COL11 مربع	COL2	COL3	COL4	COL5	COL6
	NAME اسم	SEX نوع /زكر/انثى M/F	AGE IF **≥5 YRS** 5سنة **UNIT:** وحدة **YRS**	AGE IF **< 5 YRS** سنة ازا <5سنة **SPECIFY UNIT:** حدد الوحدة **DAYS / MONTHS / YRS** يوم /شهر/سنة	BORN BETWEEN **LAST 3 MONTHS** AND TODAY تم ميالد فى بين واليوم (ازكر اليوم) **(Y/N)**	JOINED HOUSEHOLD BETWEEN **END (3 MONTHS)** AND TODAY **(Y/N) بيت مزدوزة بين اخر و اليوم**
A.	**LIST ALL MEMBERS WHO ARE CURRENTLY LIVING IN THIS HOUSEHOLD AND EATING FROM THE SAME POT**(سجل كل اعضاء الزين يسكنون الان فى هزى البيت وياكلون فى نفس هلا(قدر					
01						
02						
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
B.	**DID ANY MEMBERS OF THE HOUSEHOLD LEAVE BETWEEN LAST 3 MONTHS AND TODAY? IF SO LIST THEM** هل اعضاء البيت يسكن بين نهاية (ازكر اليوم) و اليوم ازا نعم سجلهم					
01						
02						
03						
C.	**DID ANY MEMBERS OF THE HOUSEHOLD DIE BETWEEN LAST 3 MONTHS AND TODAY? IF SO LIST THEM** هل العضاء البيت يموتون بين نهاية(ازكر اليوم)واليوم؟ازا نعم سجلهم					
01						
02						

MORTALITY SUMMARY (for supervisor only) خلاصة الوفيات (خاص لمشرف)			
		TOTAL	**Under 5**
1. Members present now	**A.** COL **1**		
2. Joined household between last 3 months) and today	**A**. COL **6**		
3. Members that left the household between last 3 months) and today	**B**. COL **1**		
4. Births between last 3 months) and today	**A, B**. COL **5**		
5. Deaths between last 3 months) and today	**C**. COL **1**		

NB:

- Household members are defined as members who are living together *in the camp* and who are eating from the same cooking الاعضاء البيت هم الزين يسكنون فى معسكرة وياكلون فى نفس اكل
- Members of the household present now are the members who slept in the household last night. Members of the household who slept here last night but who are away today to the market/elsewhere and will return before the end of the day should be listed here also. الاعضاء البيت الموجدين الان و نامو فى البيت فى الليل الماضيى وايضا الاضاء البيت الزين نامو فى البيت فى الليل الماضى وزهبوا الى شوق وسوف يعودون قبل نهية اليوم يمكن تسجيل ايضا
- A child who was born and dead during the recall period is counted as a death only when entering data in ENA (SMART Version 1, April 2006). الطفل الزى تم ميلادة و مات خلال فترة زكر يمكن تسجلة كلا ميت

SENS CHILDREN 6-59 QUESTIONNAIRE

Date (dd/mm/yyyy) / يوم مقابلة:	**Camp**المعسكرة	**Cheikh/Boma…….**	**Block/Code Number/**رغم مربع
|___|___|/|___|___|/|___|___||___|___|	Doro=1, Yusuf Batil =2 , Gendrassa=3 , Jammam=4 , Yida=5 |___|	|___|___|___|	|___|___|___|
Cluster Number(*in cluster survey only*)……	**HH Number**رغم ربة البيت	**House/Tent Number** رغم خيمة/بيت	**Team Number**رغم فريق
|___|___|	|___|___|___|___|	|___|___|___|	|___|

If child is less than 6 months stop at the dark line (CH6) and proceed to IYCF.

Date of interview (dd/mm/yyyy): التاريخ المقابلة يوم/شهر/سنة |___|___|/|___|___|/|___|___|___|___|						**Cluster Number (*in cluster survey only*)** رغم المجموع |___|___|							**Team number**رغم الفريق |___|				
CH1	**CH2**	**CH3**	**CH4**	**CH5**	**CH6**	**CH7**	**CH8**	**CH9**	**CH10**	**CH11**	**CH12**	**CH13**	**CH14**	**CH15**	**CH16**	**CH17**
ID البطاقة	**HH ربة البيت**	**Consent الموفقة given** 1=yes نعم 2=no لا 3=absent غاب	**Sex** نوع (m/f) **زكر/انثى**	**Birthdate* تاريخ الميلاد** dd/mm/yyyy يوم/شهر/سنة	**Age*** سنة * شهور) ((months)	**Weight وزن**(kg) ±100g -100جرام +	**Height طول (سنتمتر)**(cm) ±0.1cm	**Oedema وزمة الامعاء** (y/n)	**MUAC مقياس يد الاعلى** (mm)	**Child enrolled الطفل المسجل** 1=SFP الكل الاضافى 2=TFP الكل اللعلاج 3=None لاشيئ	**Measles الحصبة** 1=yes card نعم لى بطاقة 2=yes recall نعم ازكر 3=no or don't know لا عرف	**DPT3** 1=yes card نعم لى بطاقة 2=yes recall نعم ازكر 3=no or don't know لا عرف	**Vit. A in past 6 فيتامين ا فى فتر 6شهور months**أ (SHOW CAPSULE) 1=yes card نعم لى بطاقة 2=yes recall نعم ازكر 3=no or don't know لا اعرف	**Diarrhoea in past 2 weeks اسهلات خلال فترة 2اسبوع الماضية** 1=yes نعم 2=no لا 8=DK لا اعرف	**Hb** *(g/dL)*	**Do you own a mosquito net? 1=Yes 2=No If Yes, Physically verify (get Consent first).**
01				/ /												
02				/ /												
03				/ /												
04				/ /												

05				/ /													
06				/ /													
07				/ /													
08				/ /													
09				/ /													
10				/ /													
11				/ /													
12				/ /													
13				/ /													
	*The exact birth date should only be taken from an age documentation showing day, month and year of birth. It is only recorded if an official age documentation is available; if the mother recalls the exact date, this is not considered to be reliable enough. **Leave blank if no official age documentation is available.** **If no age documentation is available, estimate age using local event calendar. If an official age documentation is available, record the age in months from the date of birth. الالواثائق فية التاريغ/شهر/سنة الميلاد ازا يوجد سجل الواثائق الرسمية ولا تسجل حتى لوالام يتزكر التاريغ الميلاد اترك خالية ازا الوثائق رسمية غير موجود.وازا لا توجد وثائق الميلاد خمن حسب حواديث المحلى. وازا سجل التاريغ ا موجود سجل																

Annex -SENS IYCF questionnaire

No	QUESTION الاسئللة	ANSWER CODES الجابات	
SECTION IF1			
IF1	Sex نوع	Male زكر ..... 1 Female انثى 2	|___|
IF2	Birthdate التاريخ الميلاد RECORD FROM AGE DOCUMENTATION. LEAVE BLANK IF NO VALID AGE DOCUMENTATION سجل من وثيق	Day/Month/Year……|___|___| /|___|___| / |___|___|___|___| **يوم/شهر/سنة**	
IF3	Child's age in months سنة الطفل فى شهر	IF AGE DOCUMENTATION NOT AVAILABLE, ESTIMATE USING EVENT CALENDAR. IF AGE DOCUMENTATION AVAILABLE, RECORD THE AGE IN MONTHS FROM THE DATE OF BIRTH *ازا لا توجد وثيقةتاريخ الميلاد خمن التارغ خلال حدث فى المحلى*	|___|
IF4	Has [NAME] ever been breastfed? هل (الاسم) دائما يرضى	Yes نعم..... 1 No لا.....2 DK لا اعرف 8	|___| **IF ANSWER IS 2 or 8 GO TO IF7**
IF5	How long after birth did you first put [NAME] to the breast? بعد الميلاد مباشراً كم من زمن رضيض الطفل؟	Less than one hour بعد اقل من ساعة ..... 1 Between 1 and 23 hours بين 1 و 23 ساعة .....2 More than 24 hours اكثر من 24 ساعة .....3 DK لا اعرف 8	|___|
IF6	Was [NAME] breastfed yesterday during the day or at night? هل رضيض الفلك خلال نهار ام الليل؟	Yes نعم ..... 1 No لا .....2 DK لا اعرف 8	|___|
SECTION IF2			
IF7	Now I would like to ask you about liquids that [NAME] may have had yesterday during the day and at night. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] receive any of the following? الان اريد اسال عن السائل ممكن اخزت خلال النهار امس و فى ليل.لى رغبة لمعرفة ازا طفلك لة مواد حتلا لو مغلوط مع بعض من اكل خلال يوم او ليل امس(اسم) هل استلام بعض من مزكورة: ASK ABOUT EVERY LIQUID. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOESN'T KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE. اسال عن السائل ازا اخزوا ضع دئرة فى (1) و ازا لم تاخز ضع دئرة فى (2) و ام ازا لاعرف ضع دئرة فى (8)		

		Yes	No	DK
7A. Plain water مياة السهل	7A……1		2	8
7B. Infant formula: for example (Libto Mama)] طفل مرضيى على سبيل المثال اضيف عيش الماحلى من اكل قوى غير قوى(مبتومامة, لبتونيل)	7B……1		2	8
7C. Milk such as tinned, powdered, or fresh animal milk: for example (Nido, Formost) لبن علبة المجفيف او لحم حيوان طازج على سبيل المثل اضيف بعض لبن علب	7C……1		2	8
7D. Juice or juice drinks (Gungules-Aradeb, Kedem) عصير او مشروب عصير اضيف مشروبات المحلى (قنفوليس, اريديب, قديم) .	7D……1		2	8
7E. Clear broth or Soup مرق الصافى	7E……1		2	8
7F. Sour milk or yogurt for example: (Zabadi , Roob) لبن حامض (زبادي , روب)	7F……1		2	8
7G. Thin porridge for example: (Medida Khafif) **نثة خفيف ازكر اسم المحلى** (مديدة خفيف)	7G……1		2	8
7H. Tea or coffee with milk الشاى لبن او قهوة	7H……1		2	8
7I. Any other water-based liquids (kastar), Serilak): for example sodas, other sweet drinks, herbal infusion, gripe water, clear tea with no milk, black coffee, ritual fluids ازكر بعض من السوائل مثل مشروبات غازية و مشرونيا ت الشاى خالى من لبن مشروبات الحلوة مشروبات عشبية	7I……1		2	8

IF8	Yesterday, during the day or at night, did [NAME] eat solid or semi-solid (soft, mushy) food? امس خلال اليوم او اليل هل (اسم) اكلت اكل صلب ام شبة صلب (لين عصبى)	Yesنعم……..….1 No لا ……..2 DK… لااعرف……..8	|___|
SECTION IF3			
IF9	Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night? هل (اسم) شرب اى شئ من زجاج لة حلمةا امس خلال النها ر او اليل	Yes نعم.....1 No لا ……..…....2 DK لا اعرف ……..…....8	|___|
SECTION IF4			
IF10	Is child aged 6-23 months? هل طفلك عمره 6-23 شهر REFER TO IF2	Yes نعم ……...……1 Noلا ……...…….2	|___| **IF ANSWER IS 2 STOP NOW** **ازا اللجا بة 2 قف الان**

IF11 Now I would like to ask you about some particular foods [NAME] may eat. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] consume any of the following?
الان اريد عن اسا ل بعض غزاء ت (اسم)توكل طفلك لة هزى المواد حتى لو مخلوت مع اغزية اخرى امس خلال اليل او نها ر (اسم) يا كل التا لي:

ASK ABOUT EVERY ITEM. IF ITEM WAS GIVEN,CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOESN'T KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE.
اسا ل كل المواد ازا المواد قد ضع دائرة (1)ازا المواداعطى دائرة (2)و ازا لم تعرف ضع دائرة (8) كل خطوط عن تكن لة رمز

		Yes	No	DK
IF12				
	11A. **Flesh foods** for example: beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart غزاء لحمى (سجل كل لحم العا مة مثل سمك دجاج وكبد)على سبيل مثا ل لحم بقر ضا ن بط ارنب لحم خنزير كبد كلية	11A…….....1	2	8
	11B CSB+ Premix الغزاء المخلوتة وقوى وسجل الموجود فى المنطقة	11B……...……1	2	8
	11C. **FBF++** : for example CSB++ ا لغزاء ا لقوى مـ ثل زرة وف ول صويـ ا	11C…….....1	2	8
	11D. **RUTF** : for example Plumpy'Nut® (SHOW SACHET) ا لجا هزة يـ سـ تعامل فـ ى ا لـ علاج سجل هزى ا لـ غزذ ية ا لمحـ لى ا لـ غزاء	11D……..…1	2	8
	11E. **RUSF** : for example Plumpy'Sup® (SHOW SACHET) محـ لى دالا ضا فـ ى سجل هزة ا لـ كل ا لموجو ا لـ كل ا لجاهزة	11E……...…1	2	8
		11F……...…1	2	8
	11G. Infant formula: for example Libto Mama .االـ قوى لـ و صـ فة ا لـ ط فل ا لـ ر ضى ازكر بـ عض من هزة ا سماء ا لـ غزذ ية ا ل حديـ دى	11G……..……..…….....1	2	8
	11H. **List any *iron fortified* solid, semi-solid or soft foods designed specifically for infants and young children available in the local setting that are different than distributed commodities. سجل لـ ين ا لمـ صـ نع لـ لاط فال والاط فال يـ ر ضى ا لموجون فـ ى ا لمـ نط قة ولة فـ رق من ا لـ غزي بـ عض ا لـ غزذ ي شـ بة صـ لب و صـ لب او**	11H……..……..….....1	2	8

Appendix 7: Calendar of Events

JANUARY	CPA celebrations New Year 1st January	**49 -** CPA celebrations New Year 1st January	**37 -** CPA celebrations 20th January New Year 1st January	**25-** CPA celebrations Referendum vote 9th – 15th January New Year 1st January	**13 -** CPA Referendum celebrations 9th JanuaryNew Year 1st January	**1** - CPA Referendum celebrations 9th January New Year 1st January
FEBRUARY	Repartition day (1st January- 1st April) Sorghum harvest	**48 -** Repartition day (1st January – end February) Sorghum harvest	**36 -** Sorghum Harvest	**24-** Sorghum Harvest	**12 –** Sorghum Harvest	**0 (New born baby)**
MARCH	**59-** International women day 8th March	**47 -** International women day 8th March	**35 -** International women day 8th March	**23-** International women day 8th March	**11 -** International women day 8th March	
APRIL	**58 -**Cultivation month	**46 -** Easter day 12th April / Census in Sudan & cultivation month	**34 -** Easter day 4th April / Cultivation month General election day Governor 11th April	**22-** Easter day 24th April/ General election/ Cultivation month	**10 -** Easter day 8th April / Cultivation month	
MAY	**57 -** SPLA day 15th May 1st crop planting	**45-** SPLA day 15th May / 1st crop planting	**33 -** SPLA day 15th May / 1st crop planting	**21-** SPLA day 15th May 1st crop planting	**9 -** SPLA day 15th May 1st crop planting	
JUNE	**56 -** World refugee day 20th June / weeding of crops	**44 -** World refugee day 20th June / weeding of crops	**32-** World refugee day 20th June / weeding of crops	**20-** World refugee day 20th June / weeding of crops	**8 -** World refugee day 20th June / weeding of crops TSFP distributions at Doro camp 23rd June	
JULY	**55-** Hunger period	**43 -** Hunger period	**31 -** Hunger period	**19-** Hunger period Independent Republic of South Sudan 9th July	**7 -** Hunger period	
AUGUST	**54 -** Maize, sorghum, yield seed and fishing	**42 -** Maize, sorghum, yield seed and fishing	**30 -** Maize, sorghum, yield seed and fishing	**18-** Maize, sorghum, yield seed and fishing	**6 -** Maize, sorghum, yield seed and fishing Ramadhan 20th August BSFP distributions at Doro way station	
SEPTEMBER	**53 -** Flooding Conference 24th -29th Sept	**41 -** Flooding Conference 24th – 29th September	**29 -** Flooding Conference 24th – 29th September	**17-** Flooding Conference 24th – 29th September Khartoum and Blue Nile crisis 2nd September	**5 -** Flooding Conference 24th – 29th September Eid adha 26th October	
OCTOBER	**52**	**40**	**28**	**16**	**4 -** 2nd cycle distributions at Belila nutrition center 22nd October	
NOVEMBER	**51 -** Thanks giving 27th November	**39 -** Thanks giving 26th November	**27 -** Thanks giving 25th November	**15 -** Thanks giving 24th November	**3 -** Thanks giving 22nd November 1st round of polio campaign 5th – 9th November	
DECEMBER	**50 -** Christmas 25th December World AIDS day 1st December	**38 -** Christmas 25th December World AIDS day 1st December	**26 -** Christmas 25th December World AIDS day 1st December	**1 4-** Christmas 25th December World AIDS day 1st December	**2 -** Christmas 25th December World AIDS day 1st December 2nd round polio campaign 3rd – 7th December	