

**Standardised Expanded Nutrition Survey (SENS)
REPORT
(Yida & Ajuong Thok, Unity State, South Sudan)**

Survey conducted: October 2015

Report Finalised: March 2016



UNHCR

IN COLLABORATION WITH

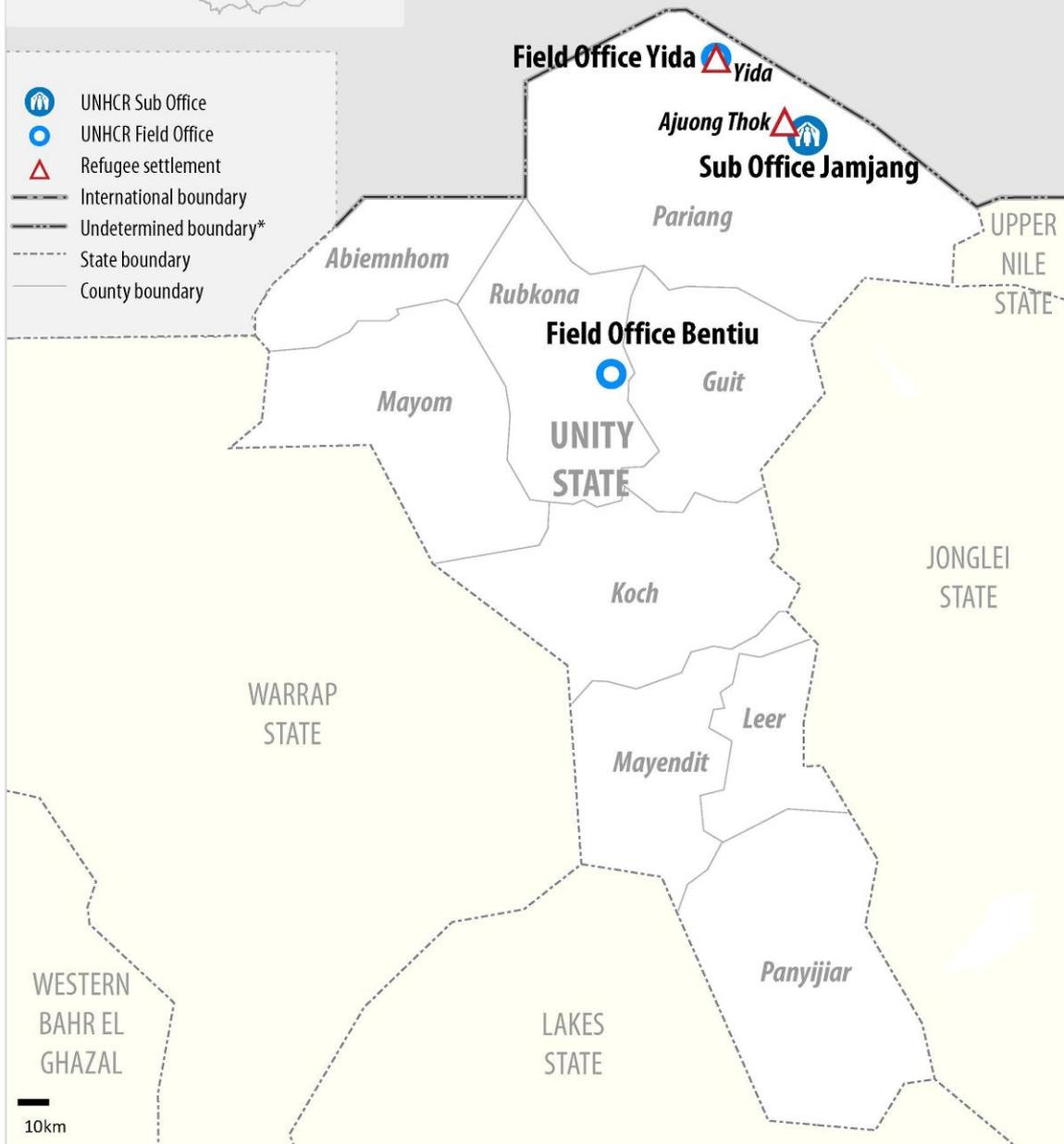
(AHA, SP, CARE, IRC)



UNHCR Presence in South Sudan, Unity State



- UNHCR Sub Office
- UNHCR Field Office
- Refugee settlement
- International boundary
- Undetermined boundary*
- State boundary
- County boundary



*The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
 * Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Sources: UNCS, UNHCR, UNDP*

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ACRONYMS AND ABBREVIATIONS

AHA	Africa Humanitarian Action
ANC	Ante Natal Care
AWD	Acute Watery Diarrhoea
BSFP	Blanket Supplementary Feeding Programme
CDR	Crude Death Rate
CI	Confidence Interval
CSB+	Corn-Soya Blend Plus
CSB++	Corn-Soya Blend Plus Plus
ENA	Emergency Nutrition Assessment
EPI	Expanded Programme on Immunization
Epi Info	Name of CDC software for Epidemiological investigations
GAM	Global Acute Malnutrition
GFD	General Food Distribution
GFR	General Food Ration
HAZ	Height-for-Age z-score
Hb	Haemoglobin
HH	Household
HIS	Health Information System
IYCF	Infant and Young Child Feeding
IRC	International Rescue Committee
LLIN	Long-Lasting Insecticidal Net
Lpppd	Litres per Person per Day
LRTI	Lower Respiratory Tract Infection
MAM	Moderate Acute Malnutrition
MUAC	Mid Upper Arm Circumference
MSF-F	Medecins Sans Frontieres France
NCHS	National Centre for Health Statistics
OTP	Out-patient Therapeutic Programme
PDM	Post Distribution Monitoring
PPS	Probability Proportional to Size
ProGres	Registration database for refugee population data
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SD	Standard Deviation
SENS	Standardised Expanded Nutrition Survey (SENS)
SFP	Supplementary Feeding Programme
SMART	Standardised Monitoring and Assessment of Relief and Transitions
SP	Samaritan's Purse
SSCRA	South Sudan Commission for Refugee Affairs
TFP	Therapeutic Feeding Programme
U5	Children under 5 years old
U5CDR	Under-5 Crude Death Rate
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund

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

Introduction

Yida refugee settlement and Ajuong Thok refugee camp are located in Pariang County of Unity State in South Sudan. The refugees are from South Kordofan State of the neighbouring Sudan where there is ongoing fighting between the rebel group Sudan People's Liberation Army – North (SPLA-N) and the Sudan government's Sudan Armed Forces (SAF). At the time of the survey, the refugee population at Yida refugee settlement was 69,920 while Ajuong Thok had a population of 31,265. According to the UNHCR ProGres database, 21.8% of the Yida population is children under 5 years while the same age group accounts for 17.9% of the Ajuong Thok population.

The nutrition survey was conducted in October 2015, with the survey report finalised in November 2015. United Nations High Commissioner for Refugees (UNHCR) coordinated the survey in collaboration with Samaritan's Purse (SP) and Africa Humanitarian Action (AHA). The International Rescue Committee (IRC) and Cooperative for Assistance and Relief Everywhere (CARE) provided logistical support in the form of survey materials.

The survey objectives are as outlined below;

Primary objectives:

1. To measure the prevalence of acute malnutrition in children aged 6-59 months
2. To measure the prevalence of stunting in children aged 6-59 months
3. To determine the coverage of measles vaccination among children aged 9-59 months
4. To determine the coverage of vitamin A supplementation in the last 6 months among children aged 6-59 months
5. To assess the two-week period prevalence of diarrhoea among children aged 6- 59 months
6. To measure the prevalence of anaemia in children aged 6-59 months and in women of reproductive age between 15-49 years (non-pregnant)
7. To investigate IYCF practices among children aged 0-23 months
8. To assess household dietary diversity
9. To determine the population's access to, and use of, improved water, sanitation and hygiene facilities
10. To determine the ownership of mosquito nets (all types and LLINs) in households
11. To determine the utilisation of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women
12. To establish the crude and under 5 mortality rates
13. To establish recommendations on actions to be taken to address the nutrition situation in Ajuong Thok and Yida refugee locations.

Secondary objectives:

- To determine the coverage of therapeutic feeding and targeted supplementary feeding programmes for children 6-59 months
- To determine enrolment into Antenatal Care and coverage of iron-folic acid supplementation in pregnant women

Methodology

The survey was conducted using the UNHCR Standardised Expanded Nutrition Survey (SENS) version 2, December 2012 guidelines and the Standardised Monitoring and Assessments of Relief and Transitions (SMART) guidelines, see www.sens.unhcr.org. Two stage cluster sampling was used to identify the survey respondents, the first stage involved identifying clusters and the second stage was to identify the households to take part in the survey.

The Emergency Nutrition Assessment (ENA) software which uses Probability Proportion to Sample Size (PPS) was used to calculate the sample size and to select the clusters. To select households for participating in the survey from the clusters, systematic random sampling was used.

The following parameters were used to calculate the sample size; percentage population under 5 years; 17.9% in Ajuong Thok and 21.8% in Yida, estimated Global Acute Malnutrition (GAM) prevalence; 3.1% in Ajuong Thok and 6.2% in Yida, desired precision; 2.8 in Ajuong Thok and 3 in Yida, design effect; 1.4 in both Ajuong Thok and in Yida, average household size; 2.8 in Ajuong Thok and 4.5 in Yida. The above parameters gave sample size of 456 households and 195 children in Ajuong Thok and 466 households and 378 children in Yida.

The survey had a total of 5 modules, 3 individual level questionnaires and 2 household level questionnaires. The modules are;

- Anthropometry and health; targeting all children (6 to 59 months) in all the sampled households;
- Infant and Young Child Feeding (IYCF); targeting all children 0 to 23 months in all the sampled households;
- Anaemia; targeting all children 6 to 59 months and all non-pregnant women 15 to 49 years in every other sampled households;
- Mosquito net coverage; targeting every other sampled households; and
- Water, Sanitation and Hygiene (WASH); targeting all the other sampled households.

Data was collected using mobile phones by 6 teams of 5 members per team, each team had two phones.

Results

Table 1 below is a summary of the survey results

Table 1 : Summary Of Results

	Yida		Ajuong Thok		Classification of public health significance or target (where applicable)
	Number / total	% (95% CI)	Number / total	% (95% CI)	
CHILDREN 6-59 months					
Acute Malnutrition (WHO 2006 Growth Standards)					
Global Acute Malnutrition (GAM)	54/685	7.9(6.1-10.1)	45/533	8.4(5.9-12.0)	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM)	43/685	6.3(4.6-8.5)	37/533	6.9(4.8-9.9)	
Severe Acute Malnutrition (SAM)	11/685	1.6(0.9-1.8)	8/533	1.5(0.7-3.2)	
Oedema	4/682	0.6(0-1.2)	2/533	0.4(0-1.0)	
Mid Upper Arm Circumference (MUAC)					
MUAC <125mm and/or oedema	25/702	3.6(2.5-5.1)	30/542	5.5(3.6-8.4)	
MUAC 115-124 mm	20/702	2.8(1.8-4.4)	26/542	4.8(3.1-7.4)	
MUAC <115 mm and/or oedema	5/702	0.7(0.3-1.7)	4/542	0.7(0.2-2.6)	
Stunting¹ (WHO 2006 Growth Standards)					
Total Stunting	216/641	33.7(29.7-37.9)	202/500	40.4(36.0-45.0)	Critical if ≥ 40%
Severe Stunting	71/641	11.1(8.6-14.2)	70/500	14.4(10.9-17.8)	
Programme coverage					

¹ Note that z-scores for height-for-age require accurate ages to within two weeks (CDC/WFP: A manual: Measuring and Interpreting Mortality and Malnutrition, 2005).

	Yida		Ajuong Thok		Classification of public health significance or target (where applicable)
	Number / total	% (95% CI)	Number / total	% (95% CI)	
Measles vaccination with card or recall (9-59 months)	480/665	72.2(63.2-81.1)	401/521	77.0(69.0-84.9)	Target of ≥ 95%
Vitamin A supplementation within past 6 months with card or recall	506/704	71.9(72.1-81.7)	401/545	73.6(65.5-81.7)	Target of ≥ 90%
Diarrhoea					
Diarrhoea in last 2 weeks	149/688	21.7(13.3-30.0)	177/534	33.1 (22.8-43.5)	
Anaemia					
Total Anaemia (Hb <11 g/dl)	391/694	56.3(33.9-43.7)	303/542	55.9(50.9-60.9)	High if ≥ 40%
Mild (Hb 10-10.9)	194/694	28.0(24.2-31.8)	146/542	26.9(22.7-31.2)	
Moderate (Hb 7-9.9)	187/694	27.0(21.6-32.3)	151/542	27.9(23.4-32.3)	
Severe (Hb <7)	10/694	1.4(0.5-2.4)	6/542	1.1(0.3-2.0)	
CHILDREN 0-23 months					
IYCF indicators					
Timely initiation of breastfeeding	225/318	70.8(61.5-80.1)	201/271	74.2(65.4-83.0)	
Exclusive breastfeeding under 6 months	43/61	70.5(56.6-84.3)	43/50	86.0(76.5-95.5)	
Consumption of iron-rich or iron-fortified foods	180/258	69.8(55.2-84.3)	108/221	48.9(42.3-55.5)	
Bottle feeding	8/320	2.5(0.2-4.8)	0/271	0(0-0)	
WOMEN 15-49 years					
Anaemia (non-pregnant)					
Total Anaemia (Hb <12 g/dl)	67/223	30.0(22.4-37.7)	66/192	34.4(27.6-41.2)	High if ≥ 40%

	Yida		Ajuong Thok		
	Number / total	% (95% CI)	Number / total	% (95% CI)	Classification of public health significance or target (where applicable)
Mild (Hb 11-11.9)	38/223	17.0(12.0-22.1)	44/192	22.9(16.7-29.2)	
Moderate (Hb 8-10.9)	29/223	13.0(7.7-18.3)	20/192	10.4(6.5-14.4)	
Severe (Hb <8)	0/223	0(0-0)	2/192	1.0(0-2.5)	
WASH					
Water quality					
Proportion of households using improved drinking water source	457/457	100.0(100.0-100.0)	454/455	99.8 (99.3-100.0)	
Water quantity					
Proportion of households that use:					Average quantity of water available per person / day ≥ 20 litres
≥ 20 lpppd	182/457	39.8(31.2-48.5)	153/455	33.6 (26.8-40.5)	
15 - <20 lpppd	119/457	26.0 (9.5-18.6)	106/455	23.3 (18.5-28.0)	
<15 lpppd	156/457	34.1 (26.6-41.7)	196/455	43.1 (35.1-51.1)	
Average water usage in litres/person/day	18.6lpppd		16.2lpppd		
Satisfaction with drinking water supply					
Proportion of households that say they are satisfied with drinking water supply	338/457	74.0 (61.7-86.2)	232/455	51.0 (36.5-65.5)	
Safe excreta disposal					
Proportion of households that use:					

	Yida		Ajuong Thok		Classification of public health significance or target (where applicable)
	Number / total	% (95% CI)	Number / total	% (95% CI)	
An improved excreta disposal facility (improved toilet facility, 1 household)	160/454	35.2 (26.3-44.2)	184/454	40.5 (29.1-51.9)	
A shared family toilet (improved toilet facility, 2 households)	68/454	15.0 (9.1-20.8)	58/454	12.8 (8.0-17.5)	
A communal toilet (improved toilet facility, 3 households or more)	64/454	14.1 (9.3-18.9)	59/454	13.0 (6.8-19.2)	
An unimproved toilet (unimproved toilet facility or public toilet)	162/454	35.7 (27.2-44.2)	153/454	33.7 (23.7-43.7)	
MOSQUITO NET COVERAGE					
Mosquito net ownership					
Proportion of households owning at least one LLIN	198/234	84.6(76.4-92.9)	167/226	73.9 (65.0-82.8)	Target of >80%
Average number of persons per LLIN (mean)	3.3		3.6		2 persons per LLIN
Mosquito net utilisation					
Proportion of household members (all ages) who slept under an LLIN	1253/1607	78.0	913/1385	65.9	
Proportion of children 0-59 months who slept under an LLIN	300/404	74.3	264/315	83.8	
Proportion of pregnant women who slept under an LLIN	36/49	73.5	36/42	85.7	

Results Interpretation

The GAM prevalence in both Yida and Ajuong Thok is below the 10% emergency threshold. In Ajuong Thok, GAM is 8.4% and in Yida, GAM is 7.9%. According to the World Health Organisation (WHO) classification, the GAM rate in the camps is poor (WHO, 2000).

Stunting levels in Yida at 33% is classified as serious while in Ajuong Thok at 40%, the stunting is at the critical threshold borderline.

Measles and vitamin A coverage fall short of the 95% and 90% coverage target respectively.

Total anaemia prevalence in children 6 to 59 months is critical as it is above the 40% critical threshold; hence, the anaemia levels in the camps are of high public health significance. Anaemia prevalence in women is of medium public health significance in Yida and Ajuong Thok.

The rate of exclusive breastfeeding is around in both locations is high, above 70%. The IYCF indicator should be treated with caution as the sample size is small to be conclusive.

Almost all the sampled households have access to improved drinking water sources. The water usage indicator is 18.6 litres per person per day (lpppd) in Yida and 16.2lpppd in Ajuong Thok. The average water consumption is above the SPHERE standard of 15lpppd but below the UNHCR standard of 20lpppd.

Three quarters of the survey participants are satisfied with the drinking water supply in Yida while in Ajuong Thok, only half of the respondents are satisfied, this means there are issues around water supply in Yida; water consumption in Ajuong Thok is lower than in Yida.

A third of the population in both locations does not have access to improved toilet facilities, with the majority of this proportion practising open defecation.

The proportion of households that own at least one Long Lasting Insecticide-treated Mosquito Net (LLIN) is below the 80% target in Ajuong Thok and above 80% in Yida. The average number of persons sharing a mosquito net is one and a half times more than the recommended. This shows that although households have mosquito nets, they are not enough to be used by all household members.

Recommendations

Immediate Term

1. Continue implementing and strengthening the curative nutrition component.
2. Assess the causes for the increased malnutrition level, and implement appropriate strategies to prevent, and reduce the malnutrition levels.
3. As a way of improving the anaemia levels and to provide animal protein in the diet, WFP should consider supporting continuous Blanket Supplementary Feeding (BSFP) using corn soya blend plus plus (CSB++) targeting children 6 to 59 months. The use of Lipid based Nutrient Supplements and or Micro Nutrient Powders will have to be pursued as a way of addressing the high anaemia levels.
4. UNHCR and health partners should work to improve measles and vitamin A coverage through routine immunisation and immunisation campaigns.

5. Strengthen IYCF programmes in order to improve exclusive breastfeeding rates and other optimum IYCF indicators. Optimal IYCF is also a good way of addressing the high chronic malnutrition prevalence.
6. WASH partner in Ajuong Thok should consider carrying out further investigations on why people are not satisfied with the drinking water source and improve on the same.

Medium Term

1. UNHCR and partners should investigate the main causes of the anaemia, and develop and implement strategies to address anaemia and stunting.
2. Assess the reasons for high open defecation rates, promote strong hygiene promotion activities, and construct household latrines.
3. Nutrition partners in collaboration with Livelihoods partners to consider implementing proper back yard gardening project coupled with provision of training, seeds and tools as a way of addressing the anaemia situation.
4. WFP and UNHCR to consider carrying out a proper food security assessment / JAM in Yida and Ajuong Thok as a way of understanding the food security patterns and food utilisation, which may have an effect on the anaemia and stunting levels.

Long Term

1. Consider supporting livelihood activities and other nutrition sensitive interventions in Ajuong Thok to improve the local economy and increase the disposable income available to the population. Increased disposable income has high chances of having positive nutrition impact through dietary diversification.

1 Introduction

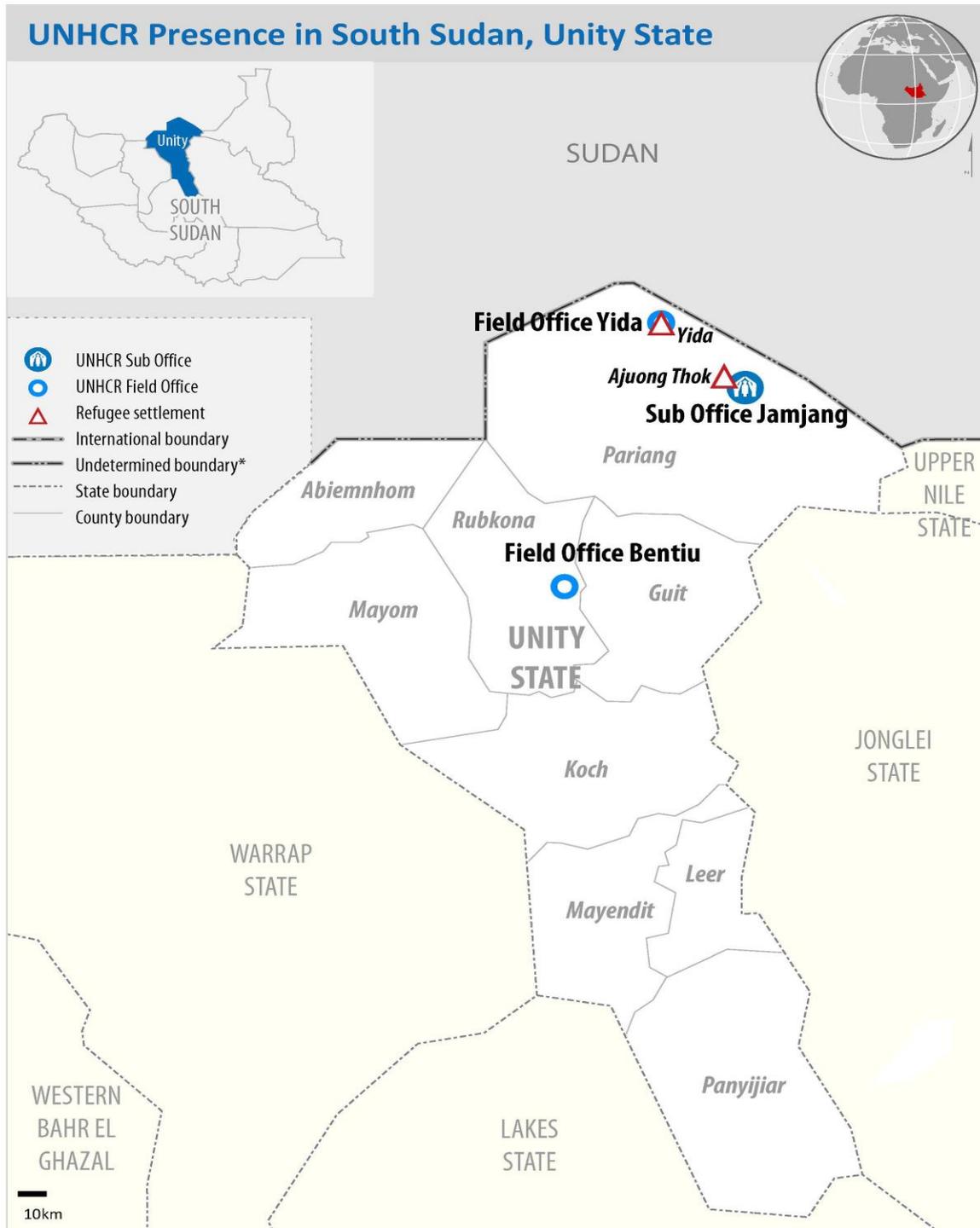
Yida and Ajuong Thok refugee locations in Pariang County of South Sudan's Unity State are home to refugees from the South Kordofan State of the neighbouring Sudan. The two locations are less than 50km away from the northern border of South Sudan and Sudan and 73km apart. The refugees started arriving in Yida in July 2011 following armed clashes between the SPLA-N and the government of Sudan Armed Forces.

Officially, Yida is not recognised as a refugee camp but a refugee settlement, as such only lifesaving assistance is provided to the refugees with services such as education and livelihoods not provided. Refugees first settled in Yida with assistance from neither UNHCR nor from the government.

Following the establishment of Ajuong Thok refugee camp in March 2013, the government of South Sudan through the South Sudan Commission for Refugee Affairs (SSCRA) issued a directive in April 2013 that refugees should be relocated from Yida to Ajuong Thok. This meant that all new arrivals were to be registered in Ajuong Thok where the whole assistance package is being offered.

Yida and Ajuong Thok locations are in what can be described as the green belt of Pariang County which is a forest with red sandy soils. The area is flat terrain surrounded by black cotton soils with poor drainage which floods during the rainy season. The rain season in the location is between June and October followed by the hot dry season which reaches its peak around March. The survey was conducted in October at the beginning of the green harvest. Figure 1 below is a map which shows the location of Yida and Ajuong Thok.

Figure1: Map Showing Location of Yida and Ajuong Thok in South Sudan



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
 * Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Sources: UNCS, UNHCR, UNDP

1.1 Description of the population

At the time of the survey, Yida had a population of 69,920 while Ajuong Thok had 31,265 individuals. The Yida population has been constant over the years, while the Ajuong Thok population increase two and a half fold from the beginning of the year. Of the total Yida population; 21.8%, (15,296) are children under 5 years old while the same population category accounts for 17.9% (5,532 individuals) of the total Ajuong Thok population (UNHCR ProGres database).

There are two major religions among the refugee population, namely Christianity and Islam. In their country of origin, the refugees are mainly agriculturalists but at the same time keeping livestock such as cattle, goats and sheep. The main crops grown are sorghum, groundnuts and sesame. Maize is grown at a very small scale. The surrounding host community are mainly pastoralists, who rely mainly on cattle for their livelihood. There is a small proportion of the host community who are agro-pastoralists. There is a small proportion of the population who are of Darfurian origin. These are mainly traders.

1.2 Food security situation

All the registered refugees in Yida and Ajuong Thok are getting the WFP General Food Distribution (GFD) which is the primary food source. SP is the WFP GFD partner. There is a small percentage in Yida however who are not getting assistance because they arrived in Yida after the April 2013 directive to have all refugees move in Yida and are unwilling to move to Ajuong Thok. This government directive stipulated that new arrivals unless they move to Ajuong Thok they can only be registered in Yida but cannot receive a ration card which entitles them to food assistance.

The recommended GFD ration comprise cereals 500g/person/day, pulses 50g/person/day, fortified vegetable oil 20g/person/day and iodised salt 5g/person/day. The food basket provides slight above the 2100Kcal min daily energy requirements. This basket composition was however cut by 30% from August 2015 and now provides 1470Kcal per person per day. Salt has not been in the pipeline since March 2015.

From the Post Distribution Monitoring (PDM), refugees report that the GFD basket runs out around day 25 of each distribution cycle and have refugees have to come up with coping strategies to get to the next distribution. Some of the coping strategies include reducing number and size of meals. Milling vouchers that were distributed to refugees to mill 50% of their cereal ration were scrapped in March 2015. Scrapping of milling vouchers coupled with reduced food basket meant that less food was available for family consumption.

There has not be a proper food security assessment in the refugee locations as such it is not possible to have a clear understanding on other available food sources.

The food and non-food items (NFI) commodities brought to Unity State are sourced mainly from Juba and transported by road during the dry season and by air operations during the rainy season or when roads are not passable due to security concerns.

There are functioning markets in both Yida and Ajuong Thok, with the Yida market being the bigger. Dry commodities characterise the markets and fresh foods and vegetables are rare to come by.

1.3 Health situation

Health care services in Yida are offered by IRC and MSF-France and in Ajuong Thok AHA is the health partner. The health services in both locations are at primary level with capacity to do blood transfusion. There is a primary health care centre (PHCC) in Pariang, the county headquarters which is being run by CARE with support from UNHCR among other donors. The government, with support from UNHCR is planning to upgrade the PHCC to hospital status. As part of the upgrade, with support

from UNHCR, the PHCC now has the capacity for minor surgeries including caesarean section. A mobile x-ray machine and an ultra sound machine have been purchased to further equip the PHCC. At the time of the survey, construction work for the x-ray and ultra sound rooms was ongoing. Equipping the PHCC is envisaged to minimise the referrals to Juba and is a way of promoting peaceful coexistence between the refugee community and the host community.

To improve refugees' health seeking behaviour and to have sustainable community health programme, UNHCR, nutrition, WASH and health agencies have come up with a comprehensive community health programme. This entails having community health workers (CHW) who are knowledgeable in health, nutrition and WASH.

Mortality trends monitoring using the UNHCR Health Information System (HIS) show that mortality rates are below the emergency thresholds of 2/10000/day for under death rate (U5DR) and 1/10000/day for crude death rate (CDR) in the refugee population. The mortality trends are illustrated in Figures 2 and 3 below. The low mortality rates are attributed to the effectiveness of the health services being provided in the camps.

Upper Respiratory Tract Infections (URTI), Lower Respiratory Tract Infections (LRTI), acute watery diarrhoea and malaria are among the leading morbidity causes in the two locations. The two types of respiratory tract infections alone account for more than 50% of the morbidities. The morbidity patterns help explain the acute malnutrition prevalence. Although respiratory tract infections have an impact on acute malnutrition, the impact is not as high as if acute watery diarrhoea was the leading morbidity. Figures 4 and 5 illustrate the common causes of morbidity among children under 5 years in Yida and Ajuong Thok.

Figure 2: Crude and Under-5 Mortality Rates - Yida

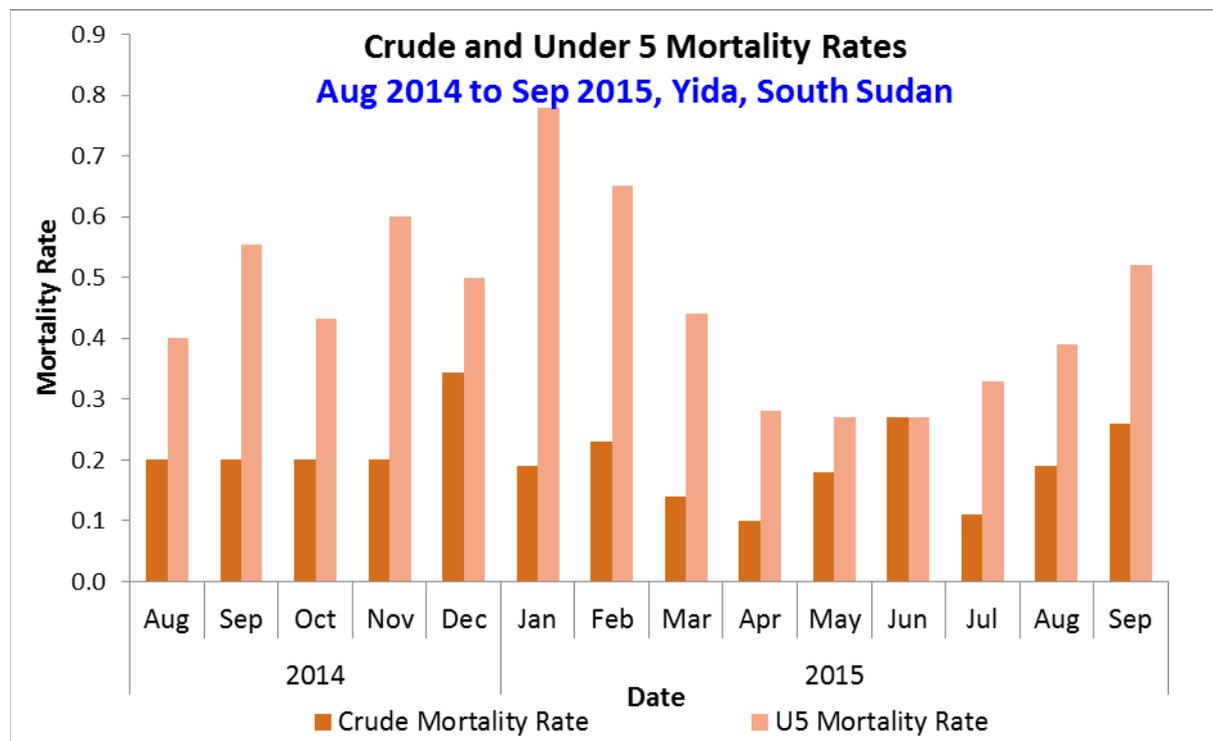


Figure 3: Crude and Under-5 Mortality Rates – Ajuong Thok

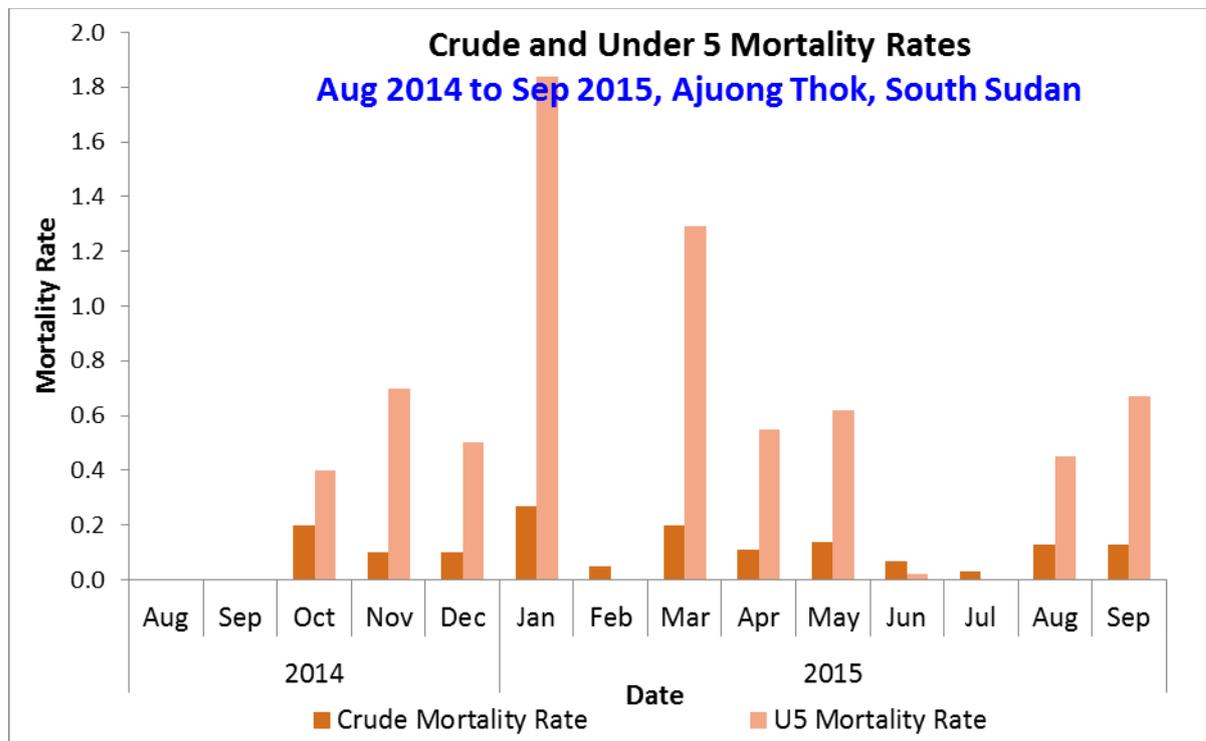


Figure 4: Top Five Causes of Morbidity In Children Under-5; Yida

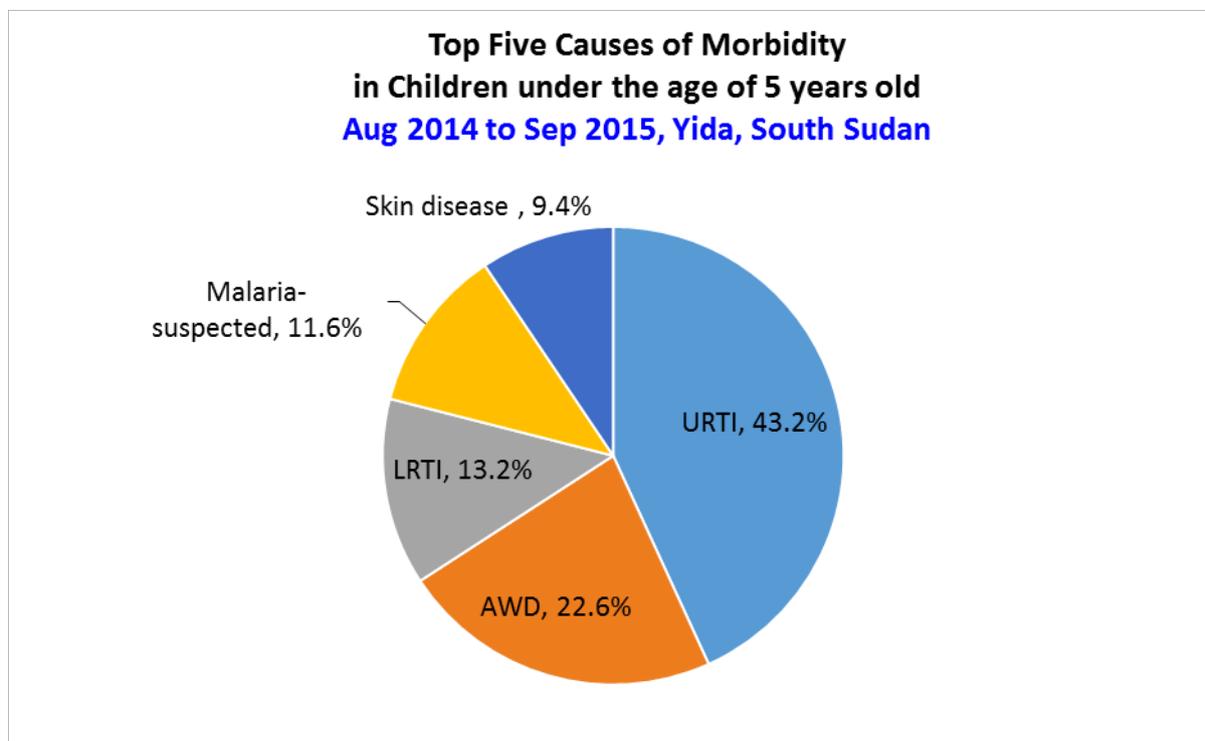
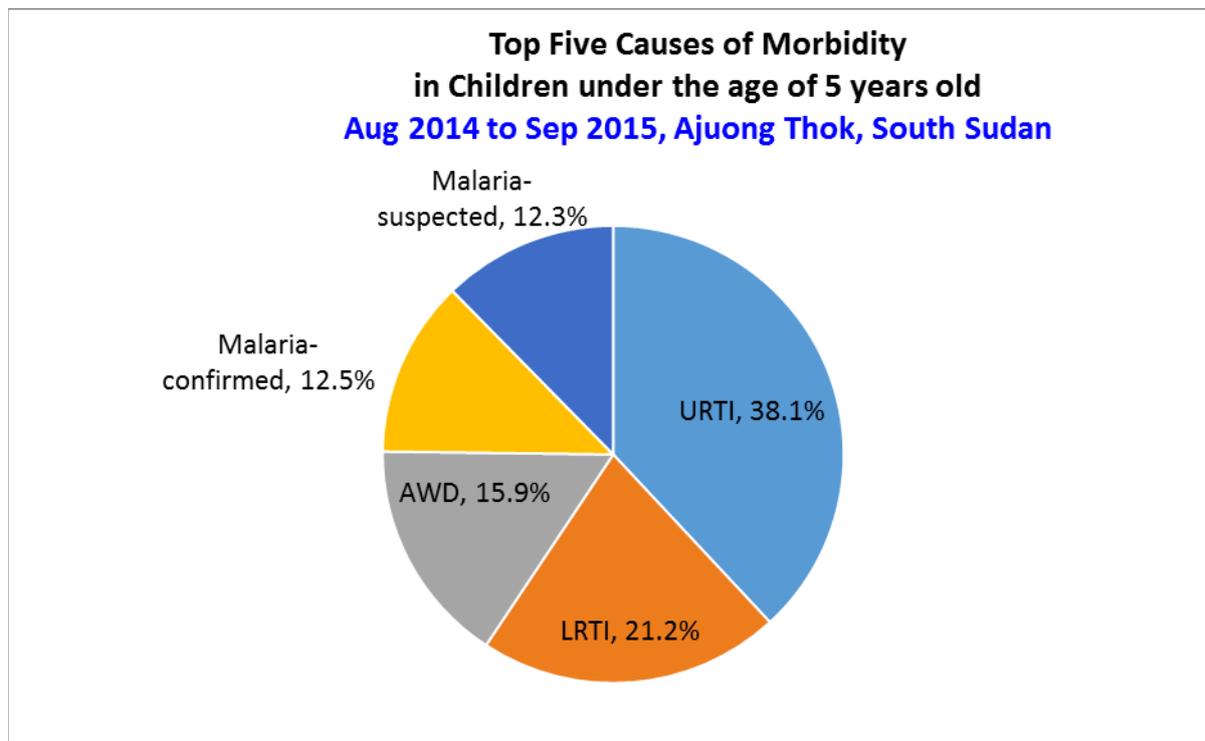


Figure 5: Top Five Causes of Morbidity In Children Under-5; Ajuong Thok



1.4 Nutrition situation

Curative Services

Preventive and curative nutrition intervention activities are being offered in the two refugee locations. This has resulted in acceptable malnutrition levels among the refugee population. The curative services include comprehensive Community Management of Acute Malnutrition (CMAM) services. The CMAM services comprises the stabilisation centre (SC) for managing SAM cases with medical complications, the Outpatient Therapeutic Programme (OTP) for managing SAM cases without medical complications and the Targeted Supplementary Feeding Programme (TSFP) for managing moderate acute malnutrition (MAM) cases. Patients admitted in the SC receive F75 and F100 while those in the OTP receive plumpy nut. The daily ration depends on the patient weight. In the TSFP, patients receive plumpy sup, one 92g sachet per person per day. The South Sudan interim guidelines for management of acute malnutrition together with international guidelines are used in the treatment of acute malnutrition. In Ajuong Thok all the curative components of the nutrition programme are offered by AHA while in Yida MSF-France is responsible for inpatient cases with SP taking responsibility of outpatient cases. Admission trends in the SAM and MAM programmes are illustrated in figures 6 and 7 below.

Preventive Services

Besides curative interventions, UNHCR and nutrition partners with WFP collaboration implemented BSFP targeting children 6 to 23 months beginning May 2015. The programme is expected to run for 6 months. For pregnant and lactating women (PLW), BSFP also commenced in May 2015, prior to that there was TSFP from the beginning of the year. The commodities used for the PLW programme were 250g/person/day CSB+, 30g person/day sugar and 20g/person/day oil.

IYCF programming was implemented in both refugee locations. The main conduit for this intervention was the use of mother to mother support groups and community health workers.

Together with the health partners, IYCF counselling was integrated in the ante natal care (ANC) and post natal care (PNC) clinics.

There is no particular programme that seeks to address the anaemia problem. In Ajuong Thok however, AHA piloted a backyard garden project with the help of CARE. Once this is seen to be a success, the project will be expanded and will be part of the anaemia strategy in the camp.

Current Nutrition Trends

Admission trends in the MAM and SAM programmes in Yida show that there are peaks around November to January and from April to July. This could be attributed to the episodes of malaria and acute watery diarrhoea experienced in the camp at the time. Admission trends in Ajuong Thok have a sharp spike from January onwards. This is due to the refugee influx that was experienced beginning end of December 2014. The population increase in Ajuong Thok also contributed to the increase in acute malnutrition, where GAM increased from 3.1% in 2014 to 8.4% in 2015.

There is an acute malnutrition increase in both camps. In Yida GAM according to the 2014 survey was 6.2%(4.7-8.2 95% CI) and SAM was 0.8%(0.4-1.7 95% CI), this increased in 2015 to GAM 7.9%(6.1-10.1 95% CI) and SAM 1.6%(0.9-1.8 95% CI). The Ajuong Thok 2014 GAM was 3.1%(1.9-5.1 95% CI) and SAM of 0.2%(0.0-2.3 95% CI) and increased to GAM 8.4%(5.9-12.0 95% CI) and SAM 1.5%(0.7-3.2 95% CI). The increased is more pronounced in Ajuong Thok than in Yida, this is probably due to the new arrivals who at one time were arriving with GAM of over 12%. The other factors that contributed to the increased malnutrition prevalence is the cessation of milling vouchers and reduction of the GFD basket. This effectively meant that there was less food in the household available for consumption.

Nutrition trends' monitoring using Mid Upper Arm Circumference (MUAC) monthly screening was conducted in both Yida and locations throughout 2014. The findings show malnutrition prevalence less than 5% in both locations. The same results were found in the survey.

Stunting prevalence is of medium public health concern in Yida with total stunting of 33.7(29.7-37.9) and severe stunting of 11.1(8.6-14.2) In Ajuong Thok, the survey results showed total stunting of 40.4%(36.0-45.0 95% CI) from 20.5 %(17.2-24.2 95% CI) and severe stunting of 14.4%(10.9-17.8 95% CI) from 5.3 %(3.8-7.4 95% CI). There is a big leap in the prevalence of stunting in both camps but more pronounced in Ajuong Thok.

The anaemia situation among children 6 to 59 months is of high public health significance at over 55% among children 6 to 23 months and over 70% among children 6 to 23 months. The increased anaemia prevalence is attributed to the fact that there is no standalone anaemia prevention intervention in the two locations. Instead, anaemia is being mainstreamed in IYCF and through small scale backyard gardens which only thrive during the rainy season.

Figure 6: Number of Admissions to Treatment Programmes for MAM and SAM in Children 6-59 Months - Yida

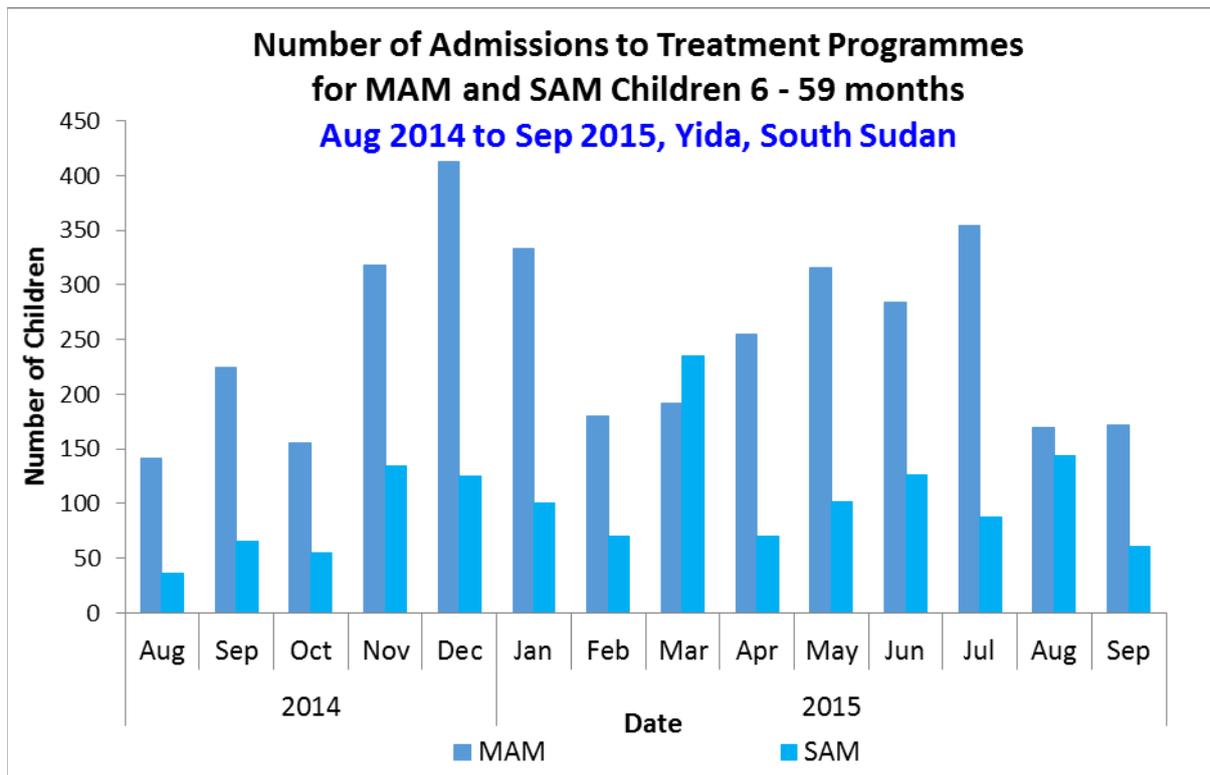
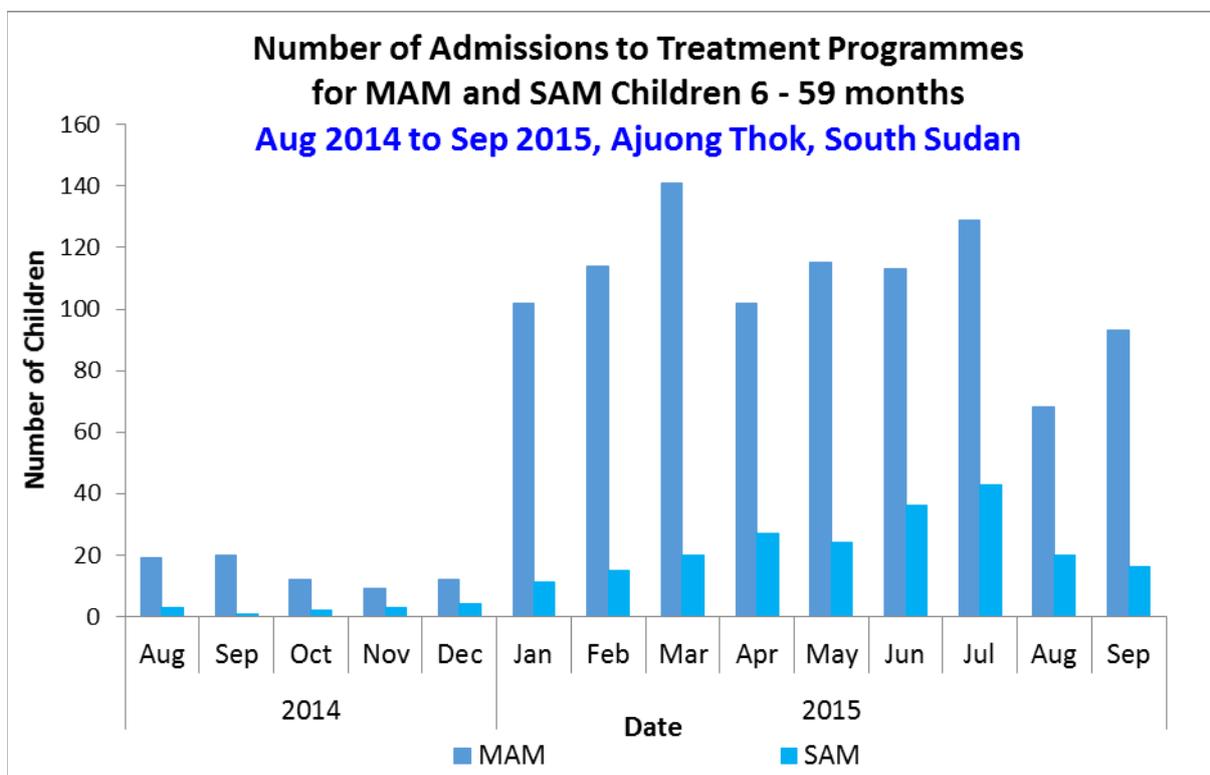


Figure 7: Number of Admissions to Treatment Programmes for MAM and SAM in Children 6-59 Months – Ajuong Thok



2 Survey Objectives

Primary objectives:

- To measure the prevalence of acute malnutrition in children aged 6-59.
- To measure the prevalence of stunting in children aged 6-59 months.
- To determine the coverage of measles vaccination among children aged 9-59 months (or context-specific target group e.g. 9-23 months).
- To determine the coverage of vitamin A supplementation received during the last 6 months among children aged 6-59 months.
- To assess the two-week period prevalence of diarrhoea among children aged 6- 59 months.
- To measure the prevalence of anaemia in children aged 6-59 months and in women of reproductive age between 15-49 years (non-pregnant).
- To investigate IYCF practices among children aged 0-23 months.
- To determine the population's access to, and use of, improved water, sanitation and hygiene facilities.
- To determine the ownership of mosquito nets (all types and LLINs) in households.
- To determine the utilisation of mosquito nets (all types and LLINs) by the total population, children 0-59 months and pregnant women.
- To establish recommendations on actions to be taken to address the situation in Ajuong Thok and Yida refugee locations.

Secondary objectives:

- To determine the coverage of therapeutic feeding and targeted supplementary feeding programmes for children 6-59 months.
- To determine enrolment into Antenatal Care clinic and coverage of iron-folic acid supplementation in pregnant women.

3 Methodology

3.1 *Sample size*

The sample size for anthropometry and health was calculated using the parameters illustrated in table 2 below. The ENA for SMART software was used to calculate the sample size. According to the SMART guidelines, the household was used as the sampling unit in the survey.

Table 2: Anthropometry and Health Sample Size Calculation

Location	% population under 5	Estimated GAM prevalence	Desired Precision	Design Effect	Non response rate	Average household size	Number of households	Number of children
Yida	21.8 %	6.2%	3	1.4	8%	4.5	378	466
Ajuong Thok	17.9 %	3.1 %	2.8	1.4	5 %	2.8	195	456

The sample size for anthropometry and health was used for the IYCF, child anaemia and WASH modules. Half the sample size of anthropometry (every other household) was used as the sample size for women anaemia and mosquito net coverage.

For the purposes of this survey, a household was defined as the number of people who regularly stay together and eat from the same pot. The household size used in the survey was obtained from community health worker reports. The refugee total population and the proportion of children under the age of 5 years were obtained from the UNHCR ProGres database. The estimated GAM prevalence was obtained from the previous 2014 survey in Yida as well as from nutrition trends monitoring results.

Cluster sampling was used in the survey. The decision was arrived following the unavailability of complete household lists and also the unorganised nature of the settlements especially in Yida. To determine the number of clusters to be included in the survey, number of teams, time taken per household as well the available time to conduct the survey was put into consideration. With all these factors, there were 30 clusters of 16 households per cluster in both Yida and Ajuong Thok. At the end 480 households were sampled over 5 days in each location.

3.2 Sampling procedure: selecting clusters

The UNHCR ProGres database was used to obtain camp population statistics. The data used was as of September 30 2015. To assign clusters, the probability proportional to size (PPS) was employed using the ENA software. Each cluster comprised of 16 households.

3.3 Sampling procedure: selecting households and individuals

Once clusters were identified, the next stage was selection of households to participate in the survey. In Yida, community health workers were assigned to the already identified clusters where they were asked to number the households. Once the households were numbered, systematic random sampling was employed in second stage sampling. The sampling interval varied depending on the number of households in the cluster. The first household was randomly selected from pieces of papers which were numbered.

In Ajuong Thok, a cluster was the equivalence of a block. Each block has 8 compounds and there are 12 plots in each compound, making 96 plots per block. A plot is assigned to a household and it was assumed that one household stays in a plot. The sampling interval in Ajuong Thok was 6, i.e. every sixth household. The first household was randomly selected from pieces of papers which were numbered.

All the eligible household members were included in the survey; that is all children 6 to 59 months and women 15 to 49 years in a sampled household. The interview was conducted in most cases with the mother in the household or in her absence with an adult member of the household who was knowledgeable with the everyday running of the household.

In the event of an absent household or individual, the team members returned to the household twice during the course of the day. If the household or individual was not found after returning twice, the household or individual was counted as an absentee and was not replaced. If an individual or household refused to participate, it was considered a refusal and the individual or household was not replaced with another. If a selected household was abandoned, the household was replaced by another. If a selected child was disabled with a physical deformity preventing certain anthropometric measurements, the child was still included in the assessment for the relevant indicators.

3.4 Questionnaire and measurement methods

3.4.1 Questionnaire

Mobile phone questionnaires were used. The English language was used for the questionnaires. The questionnaire were set with ranges for age, height, haemoglobin as a way of minimising mistakes when collecting data. In addition skip options were provided as necessary. Piloting was conducted before the survey.

3.4.2 Measurement methods

Household level indicators

- **WASH and Mosquito net:** The questionnaire was based on the standard SENS questionnaires. For WASH, irrelevant latrine and water source options were not included.

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 and year) was recorded from either a child health card or birth notification if available. If no reliable proof of age was available, as was with most children age was estimated in months using a local event calendar or by comparing the selected child with a sibling whose age was 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 measured and a cut off between 65.0 and 110.0 cm was used for inclusion. The UNHCR Manifest was not used for recording age.
- **Age of women 15-49 years:** Reported age was recorded in years.
- **Weight of children 6-59 months:** Measurements were taken to the nearest 100 grams using an electronic scale (SECA scale). The scale was placed on firm flat ground before measurements were taken. The double-weighing technique was used to weigh young children unable to stand on their own or unable to understand instructions not to move while on the scale. Clothes were removed during weighing although where necessary, light undergarments were allowed.
- **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 children ≥ 87 cm were measured standing up.

- **Oedema in children 6-59 months:** The presence of bilateral oedema was assessed by applying gentle thumb pressure on to the tops of both feet of the child for three seconds. If a shallow indent remained in both feet, oedema was recorded as present. The survey coordinators verified all oedema cases reported by the survey teams. There was no oedema cases recorded in the survey.
- **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 standard tapes.
- **Child enrolment in selective feeding programme for children 6-59 months:** This was assessed for the outpatient therapeutic programme and for the supplementary feeding programme using card or recall. The programme products were shown when recall was used, plumpy nut for the OTP and plumpy sup for the TSFP.
- **Measles vaccination in children 9-59 months:** Measles vaccination was assessed by checking for the measles vaccine on the Expanded Programme on Immunisation (EPI) card or by carers recall if no EPI card was available. For ease of data collection, all children aged 6-59 months were assessed for measles but analysis was only done on children aged 9-59 months.
- **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 an EPI card or health card if available, or by asking the caregiver to recall if no card was available. A vitamin A capsule was shown to the caregiver when asked to recall.
- **DPT3/PENTA3 vaccination:** DPT3 or PENTA 3 vaccination was assessed by checking for the DPT3/PENTA3 vaccine on the EPI card or by caregiver's recall if no EPI card was available. All children 0 to 59 months were assessed for DPT3/PENTA3 vaccine.
- **Haemoglobin (Hb) concentration in children 6-59 months and women 15-49 years (non-pregnant):** 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. The third drop was collected after wiping the first two drops.
- **Diarrhoea in last 2 weeks in children 6-59 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 in pregnant women:** Whether the woman was enrolled in the ANC programme and was receiving iron-folic acid pills was assessed by use of the ANC card or by recall. An iron-folic acid pill was shown to the pregnant woman when asked to recall.
- **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 2010). Infant formula feeding and bottle use was also assessed.
- **Referrals:** Children aged 6-59 months were referred to the health post for treatment when MUAC was <11.5cm, when oedema was present or when haemoglobin was <7.0g/dL.

Women of reproductive age were referred to the hospital for treatment if haemoglobin was < 8.0 g/dL.

- **Mortality:** A recall period of 90 days from the interview date was used to recall if any household member died in the past 3 months.

3.5 Case definitions, inclusion criteria and calculations

In this survey, a household was defined as a group of people who cook and eat together from the same pot.

Table 3 shows the definition and classification of the nutritional indicators used. Main results are reported according the WHO Growth Standards 2006. Results using the NCHS Growth Reference 1977 are reported in **Appendix 4**.

Table 3: Nutritional Status and Anaemia indicators and cut-offs used

Indicator		Children 6-59 months	Women 15-49 years Non-Pregnant
Acute Malnutrition ¹	Global acute malnutrition	WHZ <-2 and/or oedema	--
	Moderate acute malnutrition	WHZ <-2 and ≥-3	--
	Severe acute malnutrition	WHZ <-3 and/or oedema	--
Stunting ¹	Total stunting	HAZ <-2	--
	Moderate stunting	HAZ <-2 and ≥-3	--
	Severe stunting	HAZ <-3	--
Underweight ¹	Total underweight	WAZ <-2	--
	Moderate underweight	WAZ <-2 and ≥-3	--
	Severe underweight	WAZ <-3	--
Malnutrition (MUAC)	--	<12.5cm and/or oedema	--
	--	≥11.5cm and <12.5cm	--
	--	<11.5cm and/or odema	--
Anaemia	Total anaemia	Hb <11.0 g/dL	Hb <12.0 g/dL
	Mild anaemia	Hb 10.0 - 10.9 g/dL	Hb 11.0 - 11.9 g/dL
	Moderate anaemia	Hb 7.0 - 9.9 g/dL	Hb 8.0 - 10.9 g/dL
	Severe anaemia	Hb <7.0 g/dL	Hb <8.0 g/dL

¹ Calculated using NCHS Growth Reference 1977 and WHO Growth Standards 2006

WHZ: weight-for-height z-score, **HAZ:** height-for-age z-score, **WAZ:** weight-for-age z-score

Selective Feeding Programme Coverage (children 6-59 months)

Selective feeding programme coverage was assessed using the direct method as follows:

Targeted supplementary feeding programme

Coverage of TSFP programme (%) =

$$100 \times \frac{\text{No. of surveyed children with MAM according to SFP admission criteria who reported being registered in SFP}}{\text{No. of surveyed children with MAM according to SFP admission criteria}}$$

Therapeutic feeding programme

Coverage of OTP programme (%) =

$$100 \times \frac{\text{No. of surveyed children with SAM according to OTP admission criteria who reported being registered in OTP}}{\text{No. of surveyed children with SAM according to OTP admission criteria}}$$

Infant and Young Child Feeding (IYCF) Indicators (children 0-23 months)

Infant and young child feeding practices were assessed based on standard WHO recommendations (WHO, 2010) as follows:

- **Timely initiation of breastfeeding: WHO core indicator 1** - Proportion of children 0-23 months of age who were put to the breast within one hour of birth.

Children 0-23 months of age who were put to the breast within one hour of birth
Children 0-23 months of age

- **Exclusive breastfeeding under 6 months: WHO core indicator 2** - 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, minerals, medicines).

Infants 0–5 months of age who received only breast milk during the previous day
Infants 0–5 months of age

- **Continued breastfeeding at 1 year: WHO core indicator 3** - 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

- **Introduction of solid, semi-solid or soft foods: WHO core indicator 4** - 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

- **Consumption of iron-rich or iron-fortified foods: WHO core indicator 8** - Proportion of children 6–23 months of age who receive an iron-rich or iron-fortified food that is specially designed for infants and young children, or that is fortified in the home.

Children 6–23 months of age who received an iron-rich food or a food that was specially designed for infants and young children and was fortified with iron, or a food that was fortified in the home with a product that included iron during the previous day

Children 6–23 months of age

- **Continued breastfeeding at 2 years: WHO optional indicator 10** - Proportion of children 20–23 months of age who are fed breast milk.

Children 20–23 months of age who received breast milk during the previous day

Children 20–23 months of age

- **Bottle feeding: WHO optional indicator 14** - Proportion of children 0-23 months of age who are fed with a bottle.

Children 0–23 months of age who were fed with a bottle during the previous day

Children 0–23 months of age

- **Infant formula intake** – Proportion of children 0-23 months consuming infant formula

Children 0-23 months of age consuming infant formula

Children 0-23 months of age

- **Consumption of FBF+** - Proportion of children 6-59 months consuming CSB+

Children 6-59 months of age consuming CSB+

Children 6-59 months of age

- **Consumption of FBF super** – Proportion of children 6 to 59 months consuming CSB++

Children 6-59 months of age consuming CSB++

Children 6 to 59 months

WASH

The table below provides an overview of the definitions of drinking water and sanitation (toilet) facilities used in the survey and available in Yida and Ajuong Thok refugee locations.

Table 4: WASH Indicators Definition and Classification

Drinking Water	Improved source	Unimproved source
	Public tap/tap stand	Small water vendor (cart with small tank or drum) Surface water (river, dam, lake, pond, stream, canal, irrigation channels). Rainwater collection from surface run off.
Sanitation facility definition		
	Improved category	Unimproved category
	Pit latrine with slab	Pit latrine without slab (slab with holes) /open pit No facilities or bush or field/open defecation

Sanitation facility classification based on definition and sharing	
Improved excreta disposal facility	A toilet in the above “improved” category AND one that is not shared with other families*.**
Shared family toilet	A toilet in the above “improved” category AND one used by 2 families / households only (for a maximum of 12 people)**
Communal toilet	A toilet in the above “improved” category AND one used by 3 families / households or more
Unimproved toilet	A toilet in the above “unimproved” category OR a public toilet which any member of the public can use e.g. in hospitals or markets
<p>*To maintain consistency with other survey instruments (e.g. the multiple indicator cluster survey), UNHCR SENS WASH module classifies an “improved excreta disposal facility” as a toilet in the above “improved” category AND one that is not shared with other families / households.</p> <p>**According to UNHCR WASH monitoring system, an “improved excreta disposal facility” is defined differently than in other survey instruments and is defined as a toilet in the above “improved” category AND one that is shared by a <i>maximum</i> of 2 families / households or with no more than <i>12 individuals</i>. Therefore, the following two categories from the above SENS survey definitions are considered “improved excreta disposal facility” for UNHCR WASH monitoring system: “improved excreta disposal facility” and “shared family toilet”.</p>	

Safe excreta disposal for children aged 0-3 years: The safe disposal of children’s faeces is of particular importance because children’s faeces are the most likely cause of faecal contamination to the immediate household environment. It is also common for people to think that children’s faeces are less harmful than adult faeces. “Safe” is understood to mean disposal in a safe sanitation facility or by burying. This is the method that is most likely to prevent contamination from faeces in the household.

3.6 Classification of public health problems and targets

Anthropometric data: UNHCR 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 <10% and the target for the prevalence of severe acute malnutrition (SAM) should be <2%. For stable camps, the target is to have GAM<5%.

Table 5 below shows the classification of public health significance of the anthropometric results for children under-5 years of age.

Table 5: 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 includes the following indicators:

Table 6: Performance indicators for selective feeding programmes (UNHCR Strategic Plan for Nutrition and Food Security 2008-2012)*

	Recovery	Case fatality	Defaulter rate	Coverage		
				Rural areas	Urban areas	Camps
SFP	>75%	<3%	<15%	>50%	>70%	>90%
SC/OTP	>75%	<10%	<15%	>50%	>70%	>90%

* Also meet SPHERE standards for performance

Measles vaccination and vitamin A supplementation in last 6 months coverage: UNHCR recommends the following target:

Table 7: Recommended targets for measles vaccination and vitamin A supplementation in last 6 months (UNHCR SENS Guidelines)

Indicator	Target Coverage
Measles vaccination coverage (9-59m)	95% (also SPHERE)
Vitamin A supplementation in last 6 months coverage	90%

Anaemia data: The UNHCR Strategic Plan for Nutrition and Food Security (2008-2010) 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 for the prevalence of anaemia should be classified according to WHO criteria as shown in the Table below.

Table 8: 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 apply to UNHCR WASH programmes:

Table 9: UNHCR WASH Programme Standard

UNHCR Standard	Indicator
Average quantity of water available per person/day	> or = 20 litres

Mosquito nets: WHO defines a long-lasting insecticidal net as a factory-treated mosquito net made with netting material that has insecticide incorporated within or bound around the fibres. The net

must retain its effective biological activity without re-treatment for at least 20 WHO standard washes under laboratory conditions and three years of recommended use.

Table 10: UNHCR Mosquito Net Programme Standards

UNHCR Standard	Indicator
Proportion of households owning at least one Long-Lasting Insecticide treated bed net (LLIN)	>80%
Average number of persons per LLIN	2 persons per LLIN

3.7 Training, coordination and supervision

3.7.1 Survey teams and supervision

In each location there were six teams conducting data collection, four of the six teams had five members while two had four members. Two team members were responsible for entering data in the two phones which each team had. One phone was for individual questionnaires while the other was for household level questionnaires. The third team member was taking haemoglobin measurements while the other two members were taking anthropometric measurements. For teams that had four members, the team member completing the individual questionnaires was also the assistant measurer. It was not possible for all teams to have 5 members as two of the trained enumerators later dropped out before data collection. Twenty eight enumerators were used to collect the survey data. A team leader was assigned for each team from among the team members. The enumerators were drawn from the refugee population, partners were asked to assist in identifying capable people who had the capacity to grasp the survey concepts as well as use the mobile phones.

There were two dedicated survey supervisors; one from SP and the other from AHA, both Nutrition Programme Managers. The survey coordinator was roving between teams. The Survey Coordinator was the UNHCR Associate Nutrition and Food Security Officer based in Unity State.

3.7.2 Training

The training lasted for five days from 05 to 09 October 2015. The first three days were dedicated to the actual training, the fourth day was used for piloting and the fifth day was used for standardisation. Training topics were shared between the Survey Coordinator, Survey Supervisors and the UNHCR Regional Nutrition and Food Security from the Regional Support Hub in Nairobi, Kenya who was supporting with training on using mobile phones to collect data, configuring the Open Data Kit (ODK) on the phones and setting up the server for data synchronisation and exporting. The topics covered were general survey objectives, overview of survey design, sampling, anthropometric measurements, signs and symptoms of malnutrition, data collection using the mobile phones and interview skills, WASH interview, IYCF interview, mosquito net coverage interview and anaemia assessment skills.

During the standardisation exercise, each team was asked to collect data from four households. The standardisation was conducted in the Yida Bomas which were not sampled to participate in the survey. A feedback session was conducted after the teams returned from the exercise to address challenges encountered.

3.8 **Data collection**

Data collection

Data collection in Yida was from 11 to 15 November 2015. One day were given in-between to allow travelling from Yida to Ajuong Thok and for the teams to recuperate. Thereafter data collection resumed in Ajuong Thok from 17 to 21 October 2015. In Yida, the refugee leadership provided a guide who was responsible for introducing the teams and the survey to the households.

The questionnaires were developed with remote support from CartONG. Data was collected using the ODK for Android platform using 9 Phantom Techno phones and three HTC One phones. Each team had two phones with one phone being kept in case there is a problem with the other phone. All in all there were 14 phones, 10 Techno and 4 HTC, but 13 were functional the tenth Techno was not functioning.

3.9 **Data analysis**

At the end of each day's data collection, the Survey Coordinator and the Survey Supervisors checked each and every questionnaire for completeness and then finalised the questionnaires. Once the questionnaires were finalised, they were send to the server for synchronisation and exporting. After exporting the data, the anthropometric data plausibility check was conducted to identify areas and teams that need more supervision or to be strengthened. Teams that require more supervision were given more attention the following day.

The ODK exports data in csv format, for cleaning and analysis the data was saved in Microsoft Excel 1997 to 2003 format. Anthropometric data was also cleaned using flexible cleaning criterion (+/- 3 SD from the observed mean; also known as SMART flags in the ENA for SMART software). SMART flags were excluded in the analysis. Anthropometry indices were analysed using the ENA for SMART August 2015 version was used. Epi Info version 3.5.4 was used to analyse all the other data.

4 **Results**

4.1 **Results-Yida**

The demographic characteristics are illustrated in table 12 below. It will be noticed that the number of under 5 survey is much higher than anticipated and there was no non response observed. This is particularly due to the fact that the survey coincided with a ration card replacement exercise when all the refugees were in the camp for the exercise. The population figures are obtained from the mortality module of the survey. Also the survey coincided with the general food distribution exercise.

Table 12 : Demographic Characteristics of the Yida Survey Population

Total households surveyed	468
Total population surveyed	3214
Total U5 surveyed	808
Average household size	6.9
% of U5	25.1

4.1.1 Anthropometry and Health; Children 6-59 months

4.1.1.1 Sample size and clusters

Table 11: Target and Actual Number Captured

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	378	808	232%
Clusters (where applicable)	30	30	100%

Table 12: Children 6-59 Months - Distribution of Age and Sex of Sample

AGE (mo)	Boys		Girls		Total		Ratio
	no.	%	no.	%	no.	%	Boy:girl
6-17	74	43.8	95	56.2	169	24.0	0.8
18-29	98	53.0	87	47.0	185	26.3	1.1
30-41	55	46.2	64	53.8	119	16.9	0.9
42-53	83	54.6	69	45.4	152	21.6	1.2
54-59	45	57.7	33	42.3	78	11.1	1.4
Total	355	50.5	348	49.5	703	100.0	1.0

Percentage of children with no exact birthday: 52 %

The children who participated in the survey were included using their exact ages as on the official documentation available or using age estimation from the calendar of events. The overall boy: girl ratio was 1.0; and it can be concluded that both sexes were equally represented in the survey.

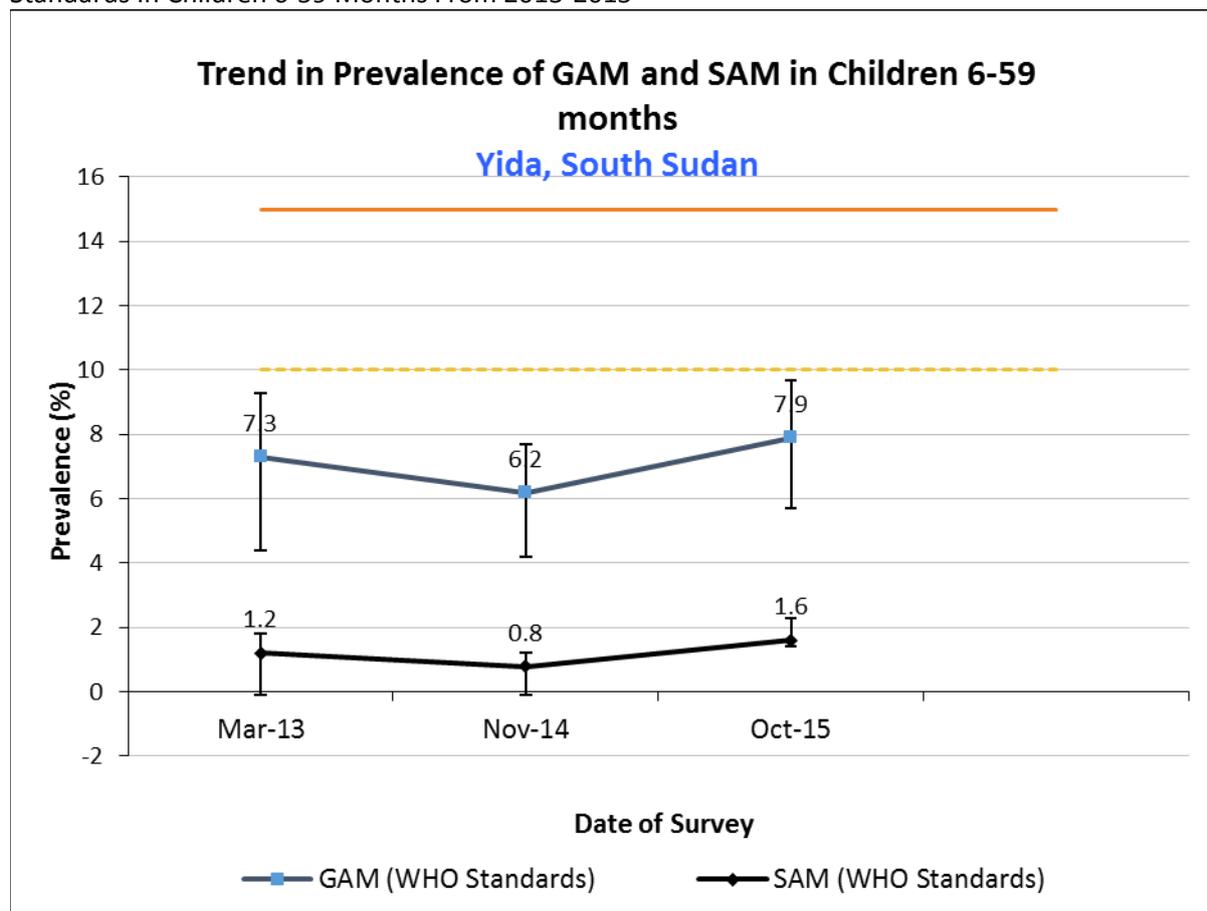
4.1.1.2 Anthropometric results (based on WHO Growth Standards 2006)

Table 13: Prevalence of Acute Malnutrition Based On Weight-For-Height Z-Scores (And/Or Oedema) and By Sex

	All n = 685	Boys n = 347	Girls n = 338
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(54) 7.9 % (6.1 - 10.1 95% C.I.)	(26) 7.5 % (5.1 - 10.9 95% C.I.)	(28) 8.3 % (6.1 - 11.1 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(43) 6.3 % (4.6 - 8.5 95% C.I.)	(18) 5.2 % (3.1 - 8.5 95% C.I.)	(25) 7.4 % (5.2 - 10.5 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(11) 1.6 % (0.9 - 2.8 95% C.I.)	(8) 2.3 % (1.3 - 4.2 95% C.I.)	(3) 0.9 % (0.3 - 2.8 95% C.I.)

The prevalence of oedema is 0.6%

Figure 8: Trends in the Prevalence of Global and Severe Acute Malnutrition Based On WHO Growth Standards In Children 6-59 Months From 2013-2015



The GAM and SAM trends graph above shows an increase in the acute malnutrition prevalence in 2015 compared to the other years. Possible reasons are elaborated in the discussion section of this report. The GAM is classified as poor according to the WHO classification.

Table 14: Prevalence of Acute Malnutrition by Age, Based On Weight-For-Height Z-Scores and/or Oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	163	0	0.0	9	5.5	152	93.3	2	1.2
18-29	178	3	1.7	14	7.9	161	90.4	0	0.0
30-41	116	0	0.0	2	1.7	113	97.4	1	0.9
42-53	150	2	1.3	10	6.7	137	91.3	1	0.7
54-59	78	2	2.6	8	10.3	68	87.2	0	0.0
Total	685	7	1.0	43	6.3	631	92.1	4	0.6

Figure 9: Trend in the Prevalence of Wasting By Age in Children 6-59 Months

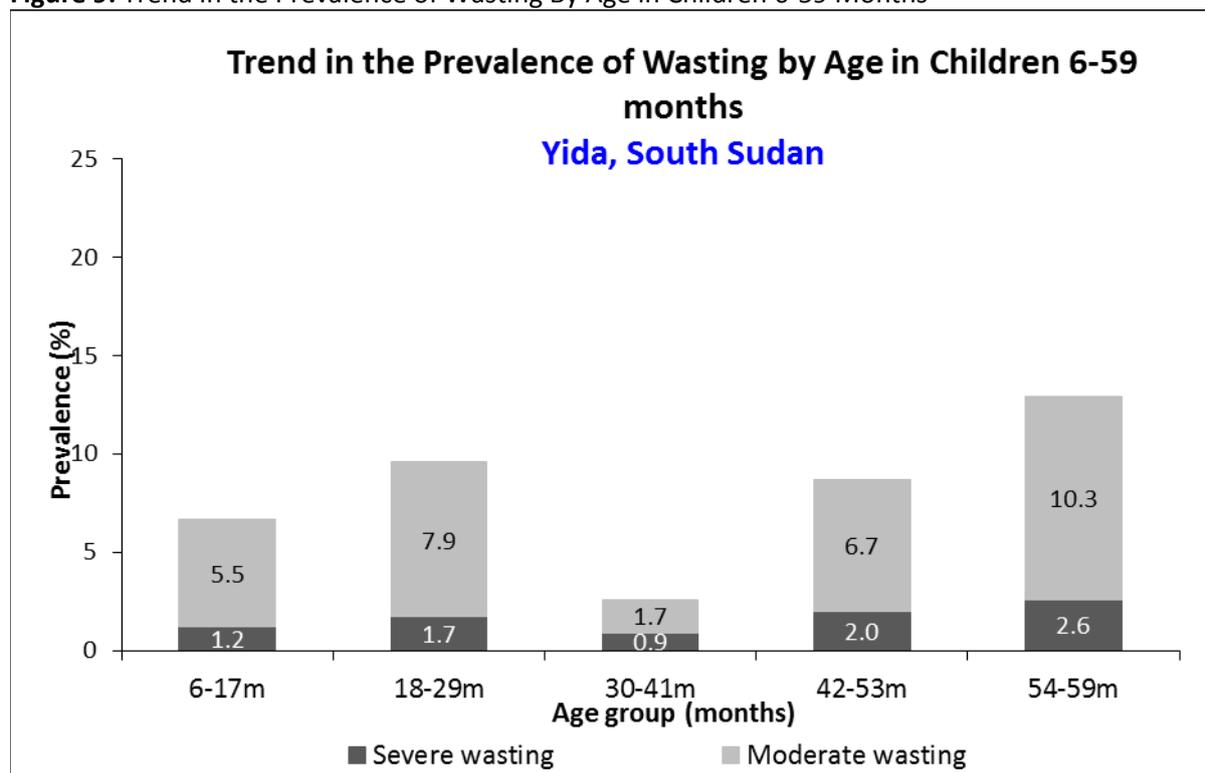


Table 15: Distribution of Severe Acute Malnutrition and Oedema Based On Weight-For-Height Z-Scores

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 4 (0.6 %)
Oedema absent	Marasmic No. 15 (2.1 %)	Not severely malnourished No. 682 (97.3 %)

Figure 10 in the next page shows that the distribution for weight-for-height z-scores for the survey sample is shifted to the left, illustrating poor nutritional status of the surveyed population than the international WHO Standard population of children aged 6-59 months.

Figure 10: Distribution of Weight-For-Height Z-Scores (Based On WHO Growth Standards; The Reference Population Is Shown In Green And The Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population

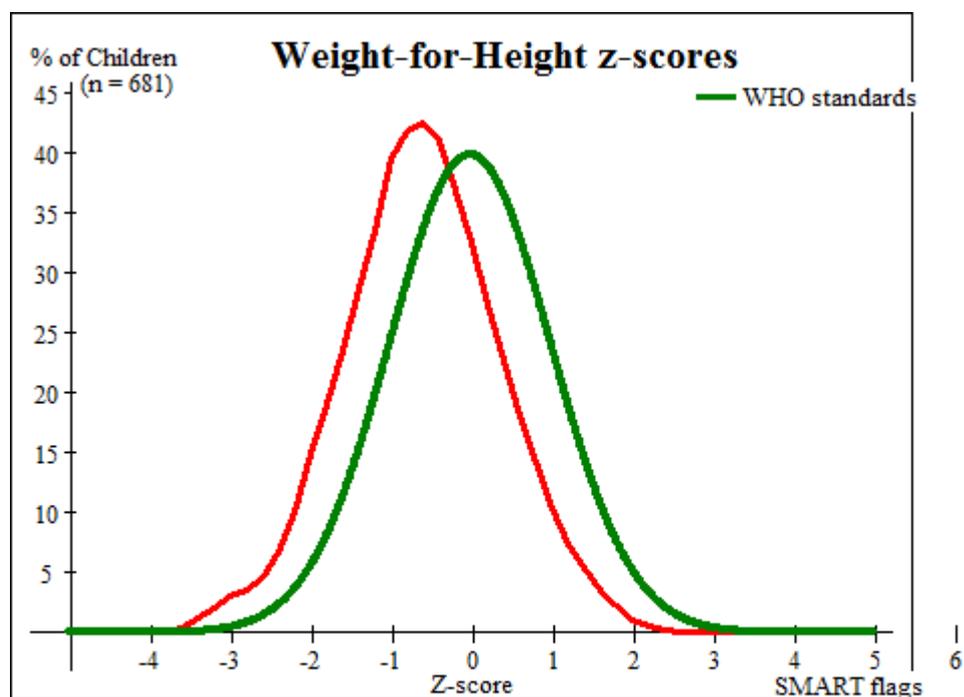


Table 16: Prevalence of MUAC Malnutrition

	All n = 702	Boys n = 355	Girls n = 347
Prevalence of global malnutrition (< 125 mm and/or oedema)	(25) 3.6 % (2.5 - 5.1 95% C.I.)	(10) 2.8 % (1.5 - 5.4 95% C.I.)	(15) 4.3 % (2.6 - 7.1 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(20) 2.8 % (1.8 - 4.4 95% C.I.)	(7) 2.0 % (0.9 - 4.3 95% C.I.)	(13) 3.7 % (2.2 - 6.3 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(5) 0.7 % (0.3 - 1.7 95% C.I.)	(3) 0.8 % (0.3 - 2.6 95% C.I.)	(2) 0.6 % (0.1 - 2.4 95% C.I.)

MUAC is used to monitor malnutrition trends and for admission and discharge in nutrition programmes. The MUAC findings are not very different from the trends monitoring results using MUAC.

Table 17: Prevalence of MUAC Malnutrition by Age, Based On MUAC Cut Off's and/or Oedema

Age (mo)	Total no.	Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	168	1	0.6	11	6.5	156	92.9	2	1.2
18-29	185	0	0.0	8	4.3	177	95.7	0	0.0
30-41	119	0	0.0	1	0.8	118	99.2	1	0.8
42-53	152	0	0.0	1	0.7	151	99.3	1	0.7
54-59	78	0	0.0	0	0.0	78	100.0	0	0.0
Total	702	1	0.1	21	3.0	680	96.9	4	0.6

Table 18: Prevalence of Underweight Based On Weight-For-Age Z-Scores by Sex

	All n = 684	Boys n = 347	Girls n = 337
Prevalence of underweight (<-2 z-score)	(167) 24.4 % (20.4 - 28.9 95% C.I.)	(83) 23.9 % (19.2 - 29.3 95% C.I.)	(84) 24.9 % (19.6 - 31.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(127) 18.6 % (15.6 - 22.0 95% C.I.)	(62) 17.9 % (13.7 - 22.9 95% C.I.)	(65) 19.3 % (15.3 - 24.0 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(40) 5.8 % (3.8 - 9.0 95% C.I.)	(21) 6.1 % (3.7 - 9.7 95% C.I.)	(19) 5.6 % (3.2 - 9.7 95% C.I.)

Figure 11: Distribution of Weight-For-Age Z-Scores (Based On WHO Growth Standards; The Reference Population Is Shown In Green And The Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population

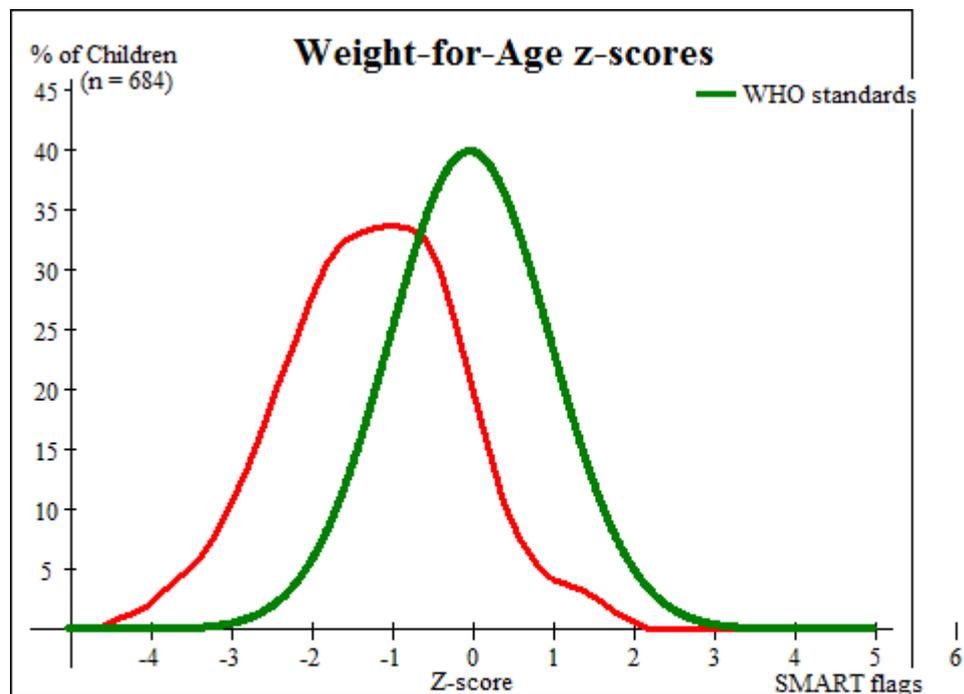


Table 19: Prevalence of Underweight by Age, Based On Weight-For-Age Z-Scores and/or Oedema

Age (mo)	Total no.	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (>= -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	159	5	3.1	29	18.2	125	78.6	2	1.3
18-29	181	14	7.7	43	23.8	124	68.5	0	0.0
30-41	116	7	6.0	17	14.7	92	79.3	1	0.9
42-53	150	5	3.3	25	16.7	120	80.0	1	0.7
54-59	78	9	11.5	13	16.7	56	71.8	0	0.0
Total	684	40	5.8	127	18.6	517	75.6	4	0.6

Table 20: Prevalence of Stunting Based On Height-For-Age Z-Scores and By Sex

	All n = 641	Boys n = 329	Girls n = 312
Prevalence of stunting (<-2 z-score)	(216) 33.7 % (29.7 - 37.9 95% C.I.)	(120) 36.5 % (31.6 - 41.7 95% C.I.)	(96) 30.8 % (25.2 - 37.0 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(145) 22.6 % (19.3 - 26.3 95% C.I.)	(80) 24.3 % (20.1 - 29.1 95% C.I.)	(65) 20.8 % (16.2 - 26.4 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(71) 11.1 % (8.6 - 14.2 95% C.I.)	(40) 12.2 % (8.4 - 17.2 95% C.I.)	(31) 9.9 % (6.7 - 14.5 95% C.I.)

Figure 12: Trends in the Prevalence of Global and Severe Stunting Based On WHO Growth Standards In Children 6-59 Months From 2003-2015

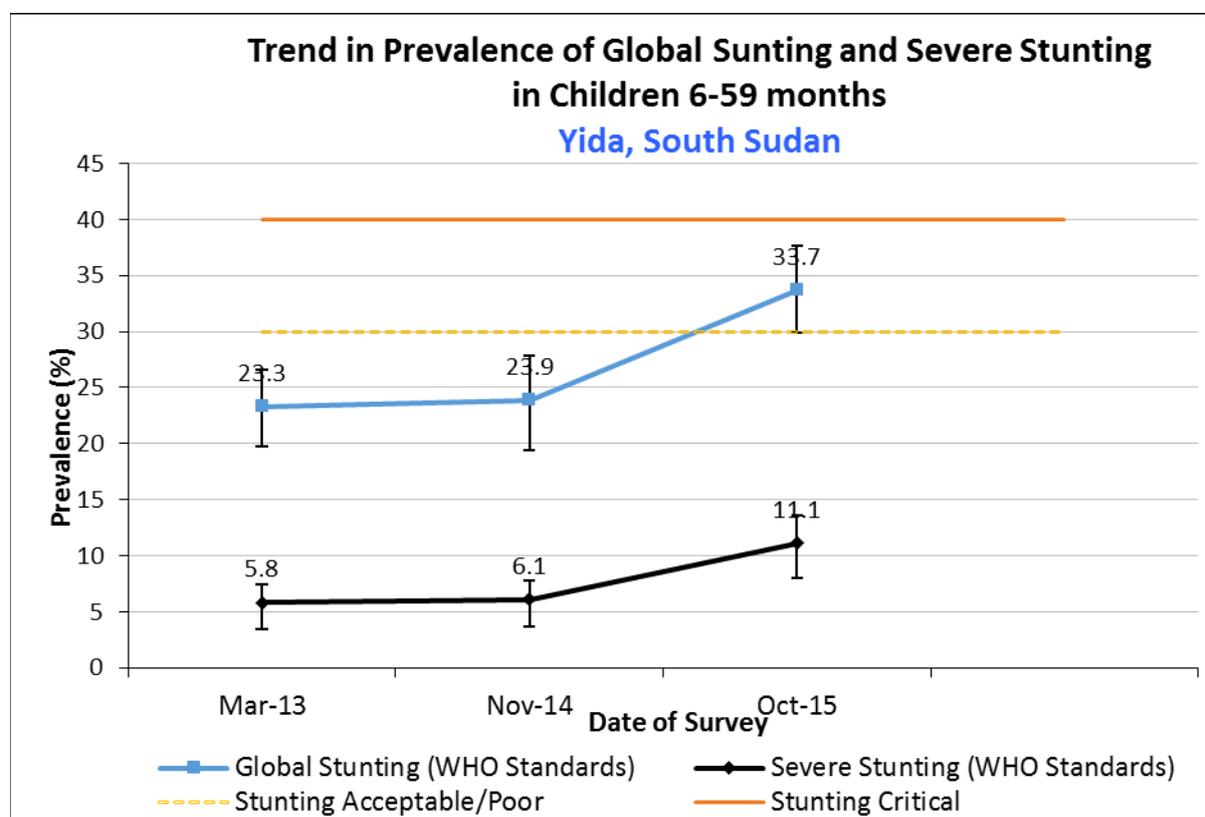


Table 21: Prevalence of Stunting By Age Based On Height-For-Age Z-Scores

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	153	10	6.5	34	22.2	109	71.2
18-29	171	30	17.5	49	28.7	92	53.8
30-41	102	9	8.8	26	25.5	67	65.7
42-53	143	14	9.8	25	17.5	104	72.7
54-59	72	8	11.1	11	15.3	53	73.6
Total	641	71	11.1	145	22.6	425	66.3

Figure 13: Trends in the Prevalence of Stunting By Age in Children 6-59 Months

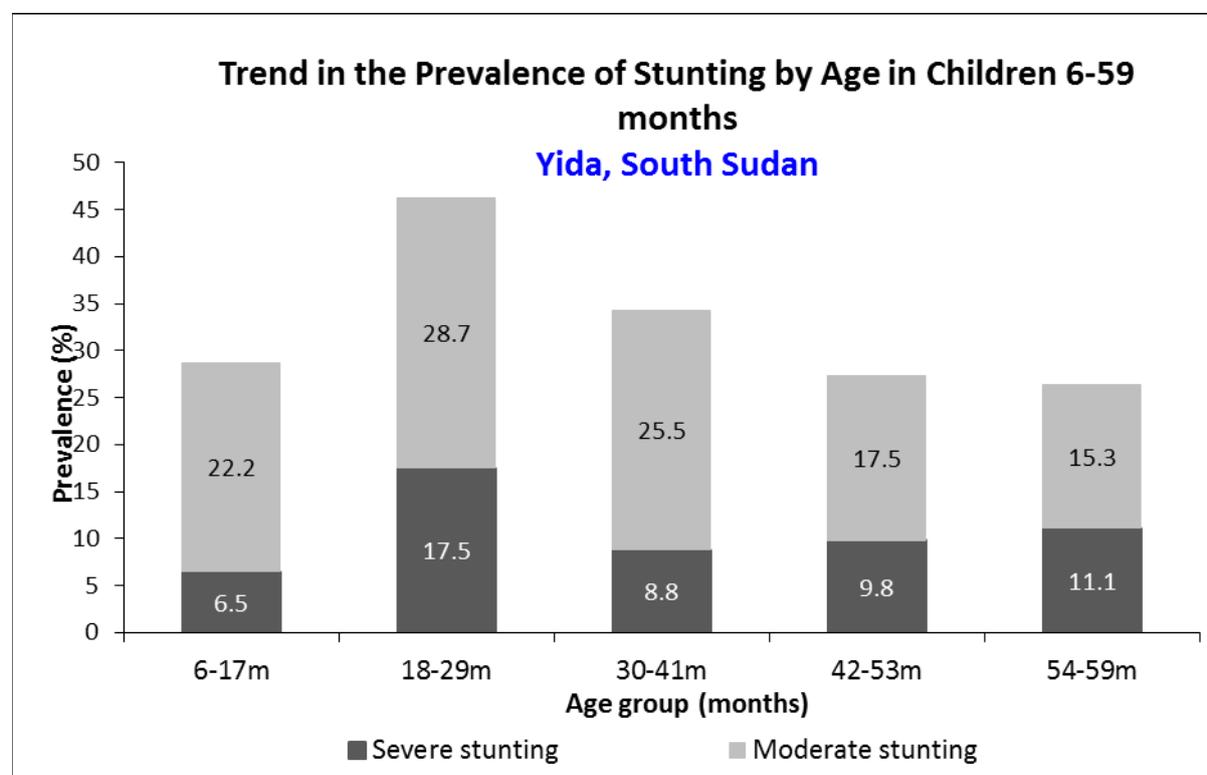


Figure 14: Distribution of Height-For-Age Z-Scores (Based On WHO Growth Standards; The Reference Population Is Shown In Green And The Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population

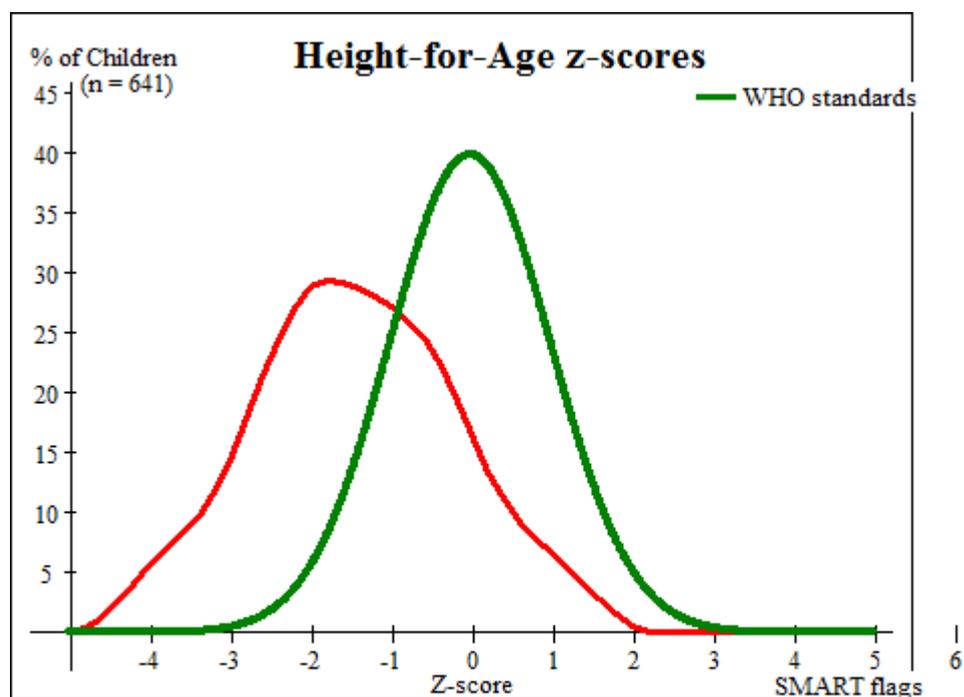


Table 22: Prevalence of Overweight Based On Weight for Height Cut Off's And By Sex (No Oedema)

	All n = 685	Boys n = 347	Girls n = 338
Prevalence of overweight (WHZ > 2)	(1) 0.1 % (0.0 - 1.1 95% C.I.)	(1) 0.3 % (0.0 - 2.2 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)
Prevalence of severe overweight (WHZ > 3)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 22: Prevalence of Overweight by Age, Based On Weight for Height (No Oedema)

Age (mo)	Total no.	Overweight (WHZ > 2)		Severe Overweight (WHZ > 3)	
		No.	%	No.	%
6-17	163	0	0.0	0	0.0
18-29	178	1	0.6	0	0.0
30-41	116	0	0.0	0	0.0
42-53	150	0	0.0	0	0.0
54-59	78	0	0.0	0	0.0
Total	685	1	0.1	0	0.0

Table 23: Mean Z-Scores, Design Effects and Excluded Subjects

Indicator	n	Mean z-scores \pm SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	681	-0.62 \pm 0.95	1.01	6	16
Weight-for-Age	684	-1.23 \pm 1.10	1.59	4	15
Height-for-Age	641	-1.43 \pm 1.26	1.16	2	60

* contains for WHZ and WAZ the children with oedema.

4.1.1.3 Feeding programme coverage results

Table 24: Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema & WHZ

	Number/total	% (95% CI)
Supplementary feeding programme coverage	17/61	27.9(16.8-40.0)
Therapeutic feeding programme coverage	0/16	0.0(0-0)

Table 25: Programme coverage for acutely malnourished children based on MUAC and oedema

	Number/total	% (95% CI)
Supplementary feeding programme coverage	11/21	52.4 (30.8-74.0)
Therapeutic feeding programme coverage	0/1	0.0(0-0)

4.1.1.4 Measles vaccination coverage results

Table 26: Measles Vaccination Coverage for Children Aged 9-59 Months (N=665)

	Measles (with card) n=162	Measles (with card <u>or</u> confirmation from mother) n=480
YES	24.4% (15.0-33.7 95% CI)	72.2 % (63.2-81.1 95% CI)

4.1.1.5 Vitamin A supplementation coverage results

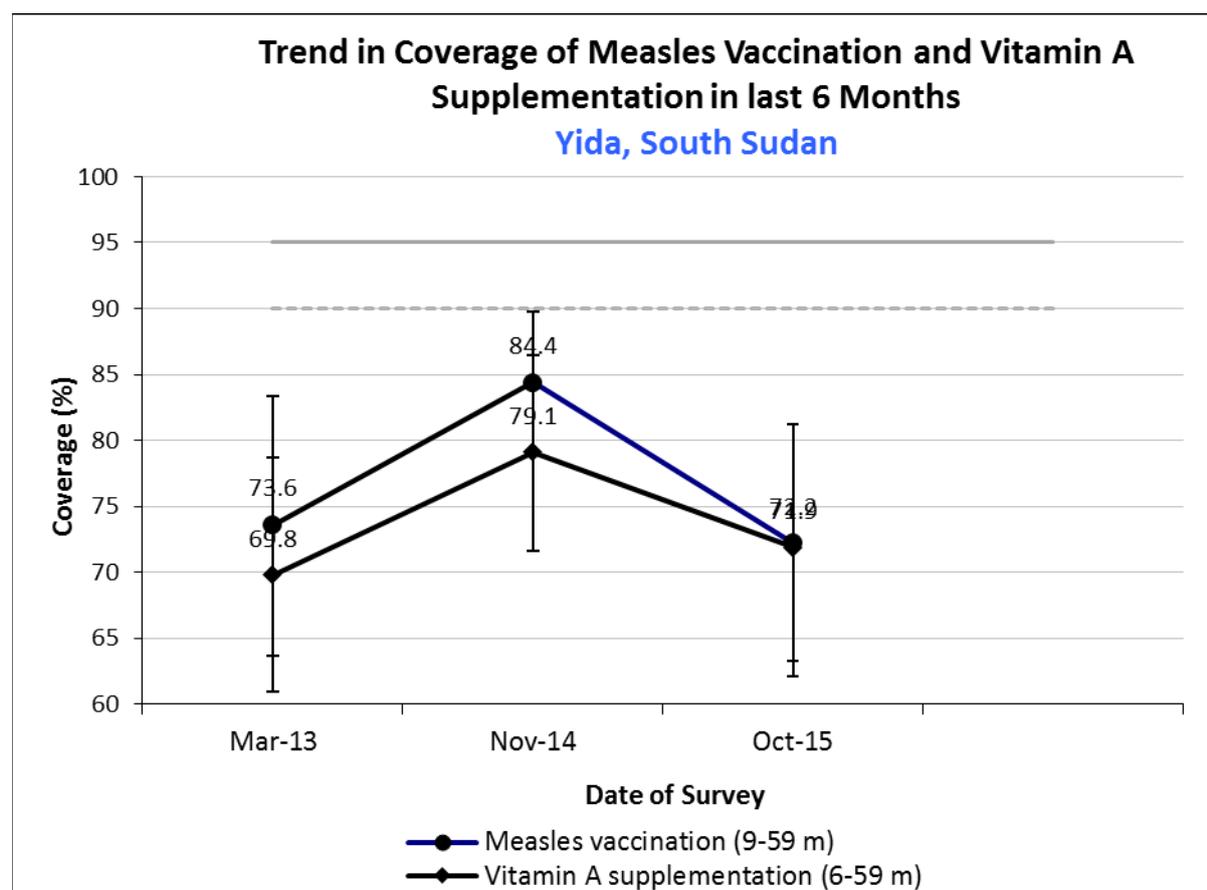
Table 27: Vitamin A Supplementation for Children Aged 6-59 Months in Past 6 Months (N=704)

	Vitamin A capsule (with card) n=133	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=506
YES	18.9% (10.2-27.6 95% CI)	71.9 % (62.1-81.7 95% CI)

Table 28: DPT3/PENTA3 Vaccination Coverage for Children Aged 0-59 Months (N=704)

	DPT3/Penta3 (with card) n=144	DPT3/Penta3 (with card <u>or</u> confirmation from mother) n=454
YES	20.5% (11.9-29.0 95% CI)	64.6 % (55.8-73.3 95% CI)

Figure 15: Trends In the Coverage of Measles Vaccination and Vitamin A Supplementation in Last 6 Months in Children 6-59 Months from 2013-2015



4.1.1.6 Diarrhoea Results

Table 29:3 Period Prevalence of Diarrhoea

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	149/688	21.7 (13.3-30.0)

4.1.2 Anaemia Results Children 6 – 59 months

The total anaemia prevalence among children 6 to 59 months is 38.8% (33.9-43.7 95% CI).

Prevalence of anaemia among children 6 to 23 months is of high public health significance at 55.3% (47.7-63.0 95% CI).

Table 30: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group

	6-59 months n = 694	6-23 months n= 255	24-59 months n= 439
Total Anaemia (Hb<11.0 g/dL)	(391) 56.3% (50.4-62.3 95% CI)	(187) 73.3% (66.1-80.6 95% CI)	(204) 46.5% (38.2-54.7 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(194) 28.0% (24.2-31.8 95% CI)	(93) 36.5% (29.6-43.3 95% CI)	(101) 23.0% (17.8-28.2 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(187) 27.0% (21.6-32.3 95% CI)	(91) 35.7% (28.3-43.1 95% CI)	(96) 21.9% (16.0-27.8 95% CI)
Severe Anaemia (<7.0 g/dL)	(10) 1.4% (0.5-2.4 95% CI)	(3) 1.2% (0.0-2.5 95% CI)	(7) 1.6% (0.3-2.9 95% CI)
Mean Hb, g/dL (95% CI) [range]	10.7 g/dL (10.5-10.9 95% CI) [2.5-14.7]	10.2 g/dL (10.0-10.4 95% CI) [6.0-12.5]	10.9 g/dL (10.7-11.2 95% CI) [2.5-14.7]

Table 31: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group

	6-59 months n = 694	6-23 months n=255	24-59 months n=439
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(197) 28.4 % (22.9-33.8 95% CI)	(94) 36.7% (29.2-44.5 95% CI)	(103) 23.5 % (17.5-29.5 95% CI)

Figure 16: Trends In Anaemia Categories in Children 6-59 Months from 2013-2015

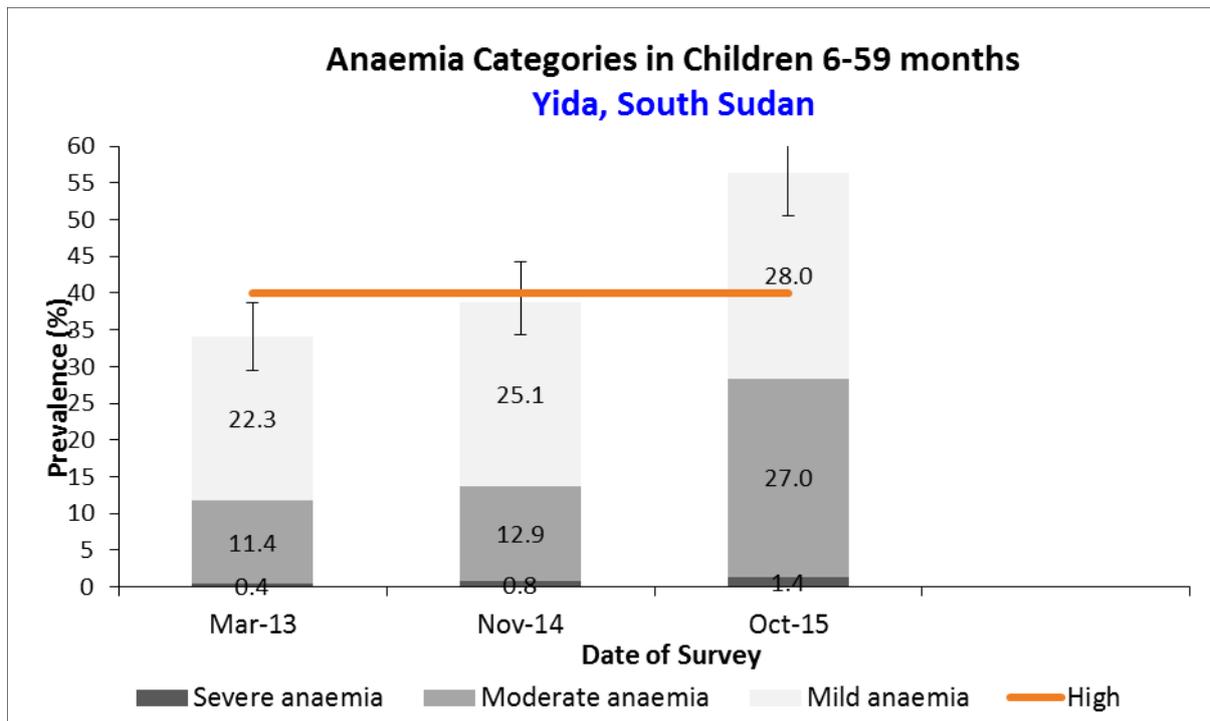


Figure 17: Trend in Total Anaemia (<11 G/Dl), and Moderate and Severe Anaemia (<10 G/Dl) With 95% CI in Children 6-59 Months from 2013-2015

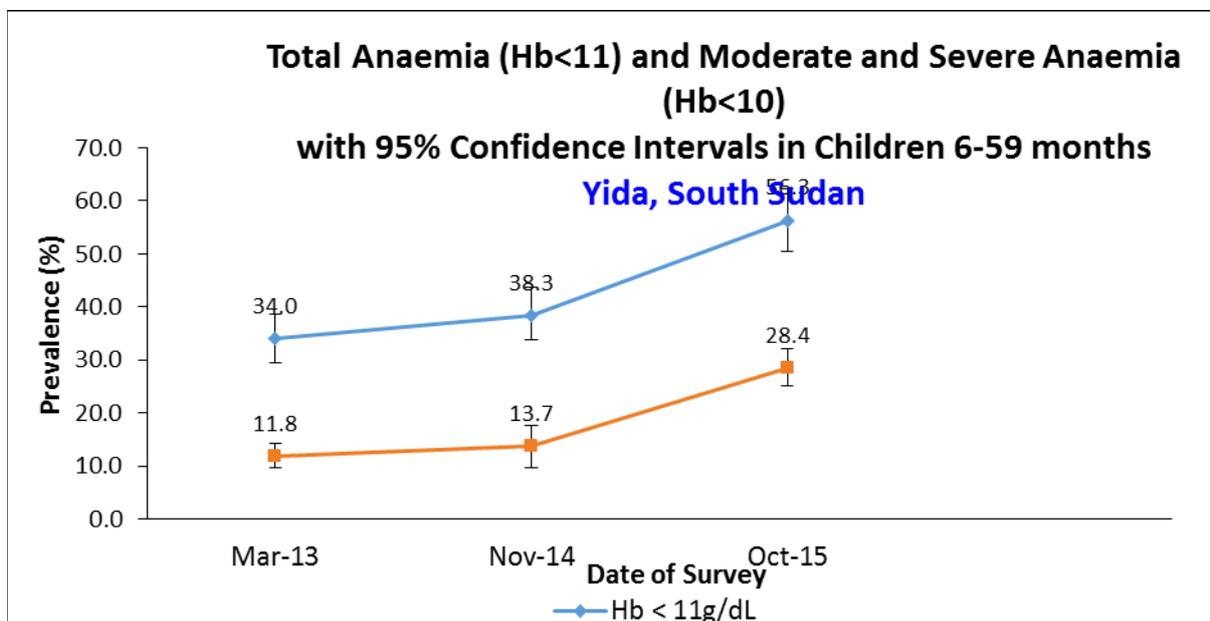
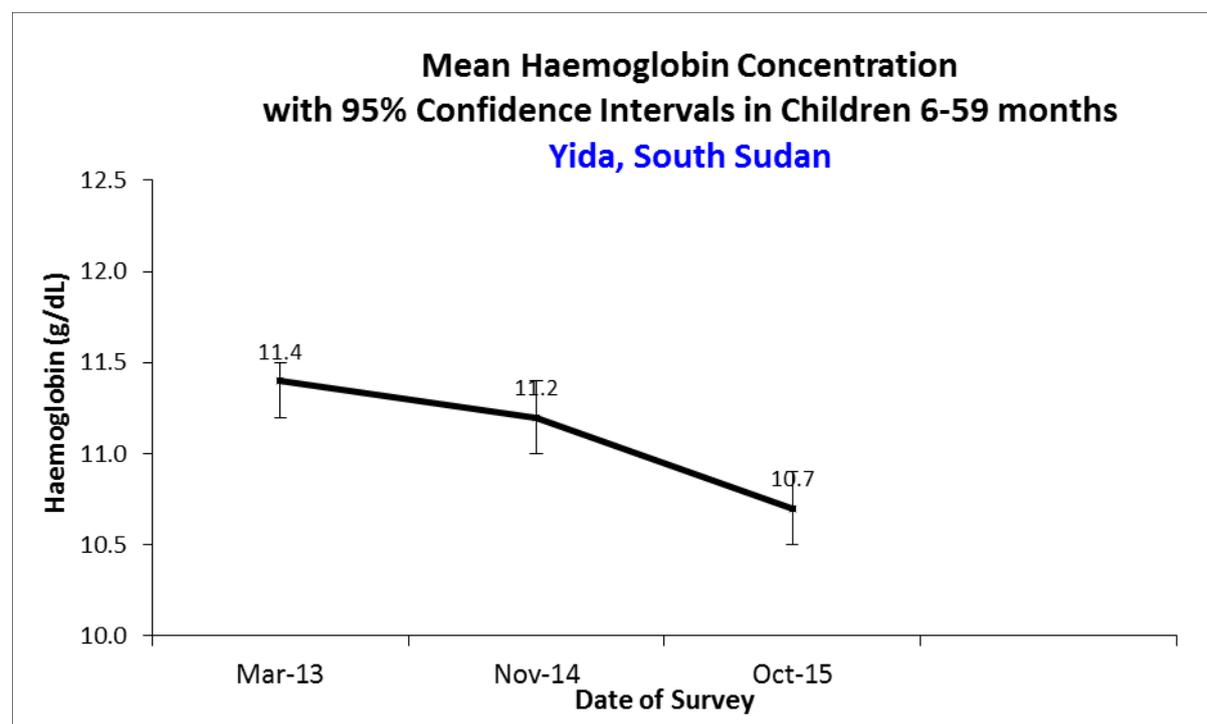


Figure 18: Trend In Mean Haemoglobin Concentration With 95% CI in Children 6-59 Months from 2013-2015.

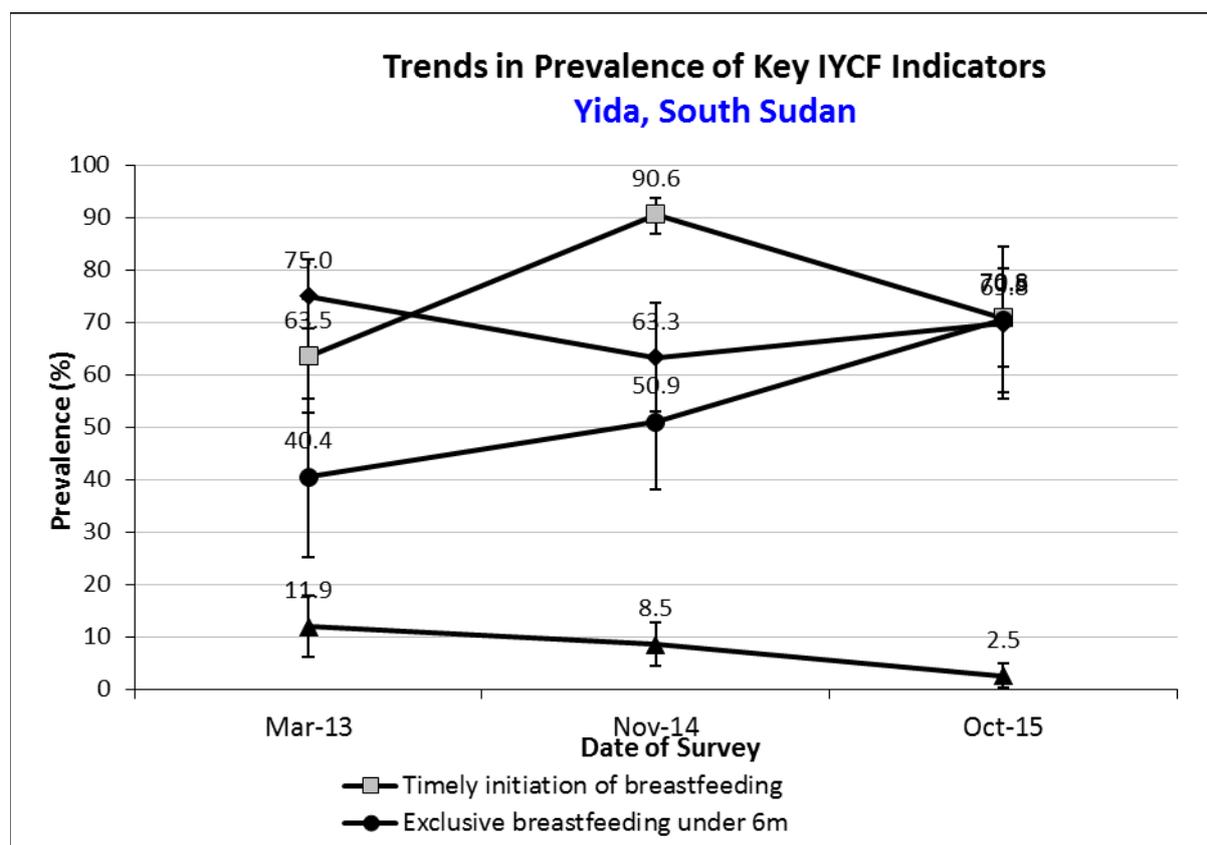


4.1.3 IYCF; Children 0-23 months

Table 32: Prevalence of Infant and Young Child Feeding Practices Indicators

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	225/318	70.8	61.5-80.1
Exclusive breastfeeding under 6 months	0-5 months	43/61	70.5	56.6-84.3
Continued breastfeeding at 1 year	12-15 months	49/57	86.0	74.1-97.8
Continued breastfeeding at 2 years	20-23 months	26/51	51.0	34.9-67.0
Introduction of solid, semi-solid or soft foods	6-8 months	18/39	46.2	27.9-64.4
Consumption of iron-rich or iron-fortified foods	6-23 months	180/258	69.8	55.2-84.3
Bottle feeding	0-23 months	8/320	2.5	0.2-4.8

Figure 19: Key IYCF Indicators From 2013-2015



Prevalence of intake

Infant formula

Table 33: Infant Formula Intake in Children Aged 0-23 Months

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	25/294	7.8 (0.0-16.6)

Fortified blended foods

Table 34: CSB+ Intake in Children Aged 6-23 Months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB	82/257	31.9 (16.8-47.1)

Table 35: CSB++ Intake in Children Aged 6-23 Months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB++	151/257	58.8 (42.8-74.7)

4.1.4 Anaemia Women 15-49 years

TABLE 36: Women Physiological Status and Age

Physiological status	Number/total	% of sample
Non-pregnant	223	84.2
Pregnant	42	15.8
Mean age (range)	26.8(15-49)	

Table 37: Prevalence of Anaemia and Haemoglobin Concentration in Non-Pregnant Women of Reproductive Age (15-49 Years)

Anaemia - Women of reproductive age 15-49 years	All n = 223
Total Anaemia (<12.0 g/dL)	(67) 30.0% (22.4-37.7 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(38) 17.0% (12.0-22.1 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(29) 13% (7.7-18.3 95% CI)
Severe Anaemia (<8.0 g/dL)	(0) 0 (0-0 95% CI)
Mean Hb, g/dL (SD) [range]	12.7 g/dL 0.1 [8.9-15.9]

Figure 20: Trends In Anaemia Categories in Women of Reproductive Age (Non-Pregnant) From 2013-2015.

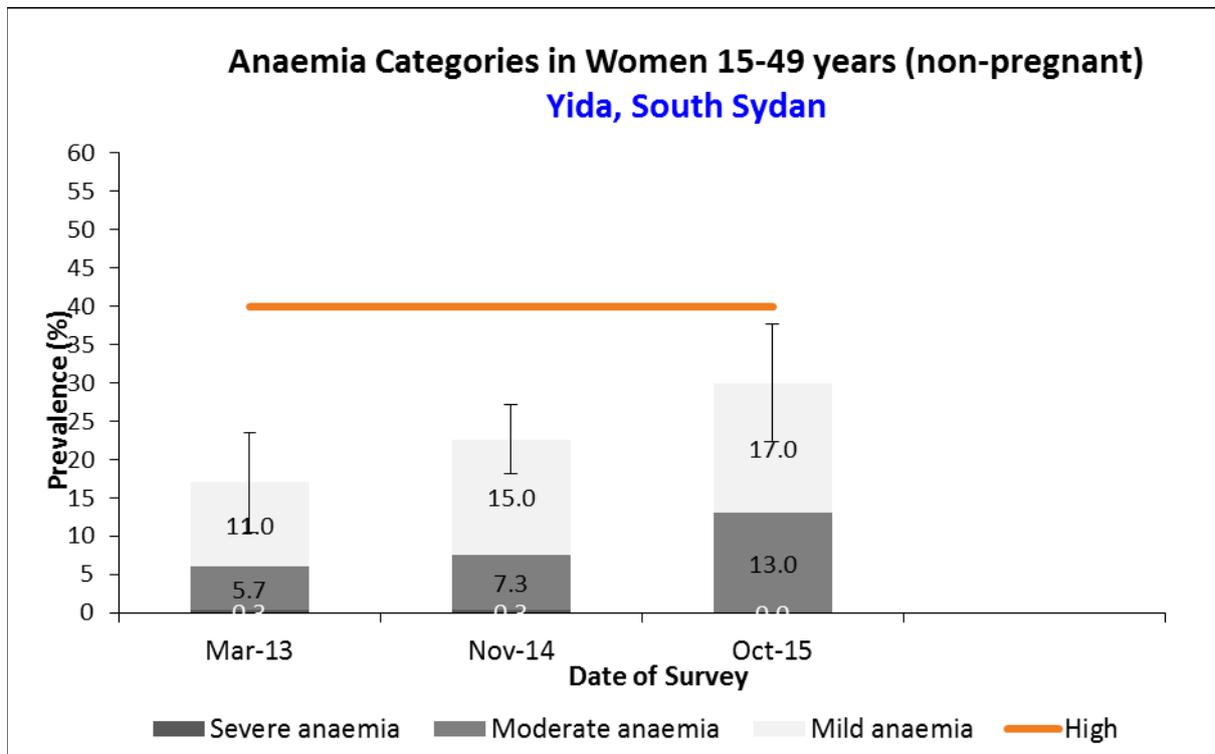


Figure 21: Trend In Mean Haemoglobin Concentration With 95% CI in Women of Reproductive Age (Non-Pregnant) From 2013-2015.

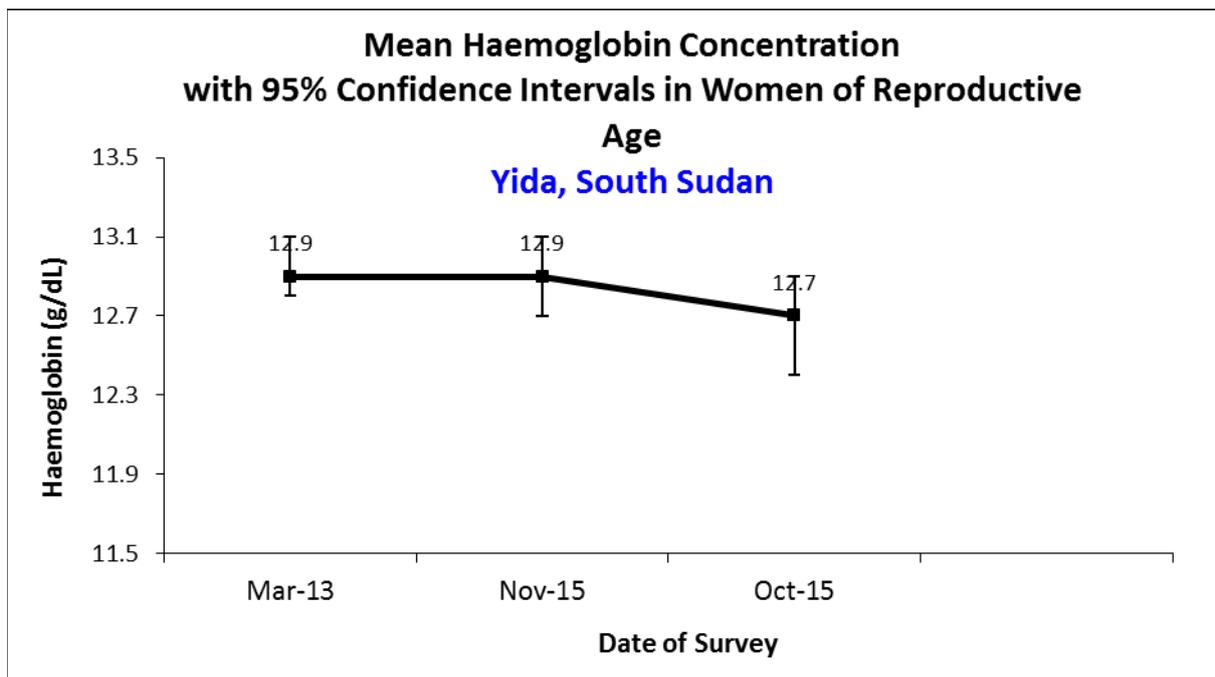


Table 4 ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	34/42	81.0 (68.3-95.6)
Currently receiving iron-folic acid pills	30/42	71.4 (54.1-88.8)

4.1.5 WASH

Table 39: WASH Sampling Information

Household data	Planned	Actual	% of target
Total households surveyed for WASH	466	457	98.1

Table 40: Water Quality

	Number/total	% (95% CI)
Proportion of households using an improved drinking water source	457/457	100 (100-100)
Proportion of households that use a covered or narrow necked container for storing their drinking water	325/457	71.1 (59.6-82.6)

Table 41: Water Quantity: Amount of Litres of Water Used Per Person per Day

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	182/457	39.8 (31.2-48.5)
15 – <20 lpppd	119/457	26.0 (9.5-18.6)
<15 lpppd	156/457	34.1 (26.6-41.7)

Add the average water usage in lpppd: _____ 18.6 lpppd _____

Table 42: Satisfaction with Water Supply

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	338/457	74.0 (61.7-86.2)

Figure 22: Proportion of Households That Say They Are Satisfied With the Water Supply

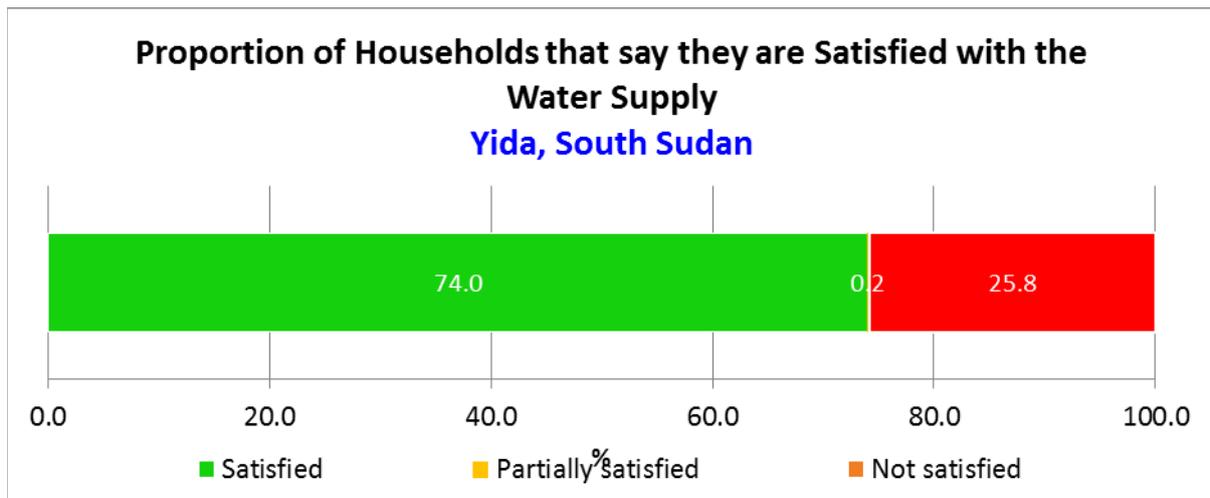


Figure 23: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

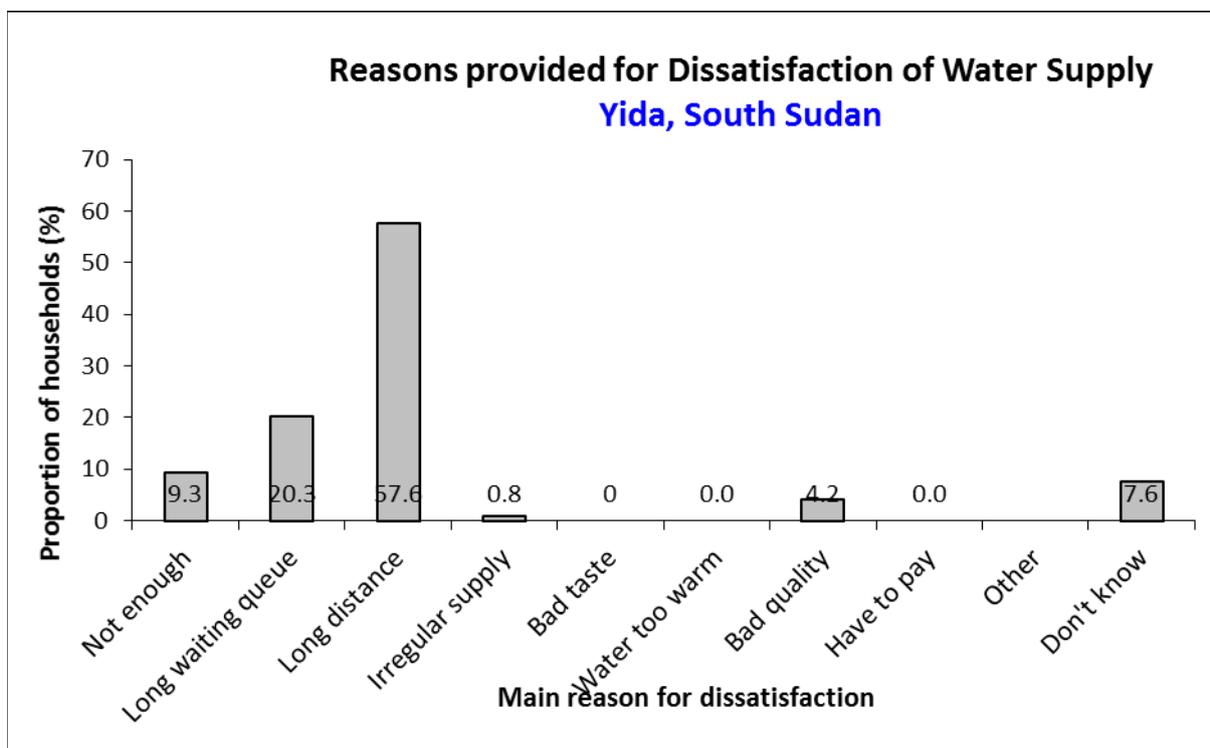


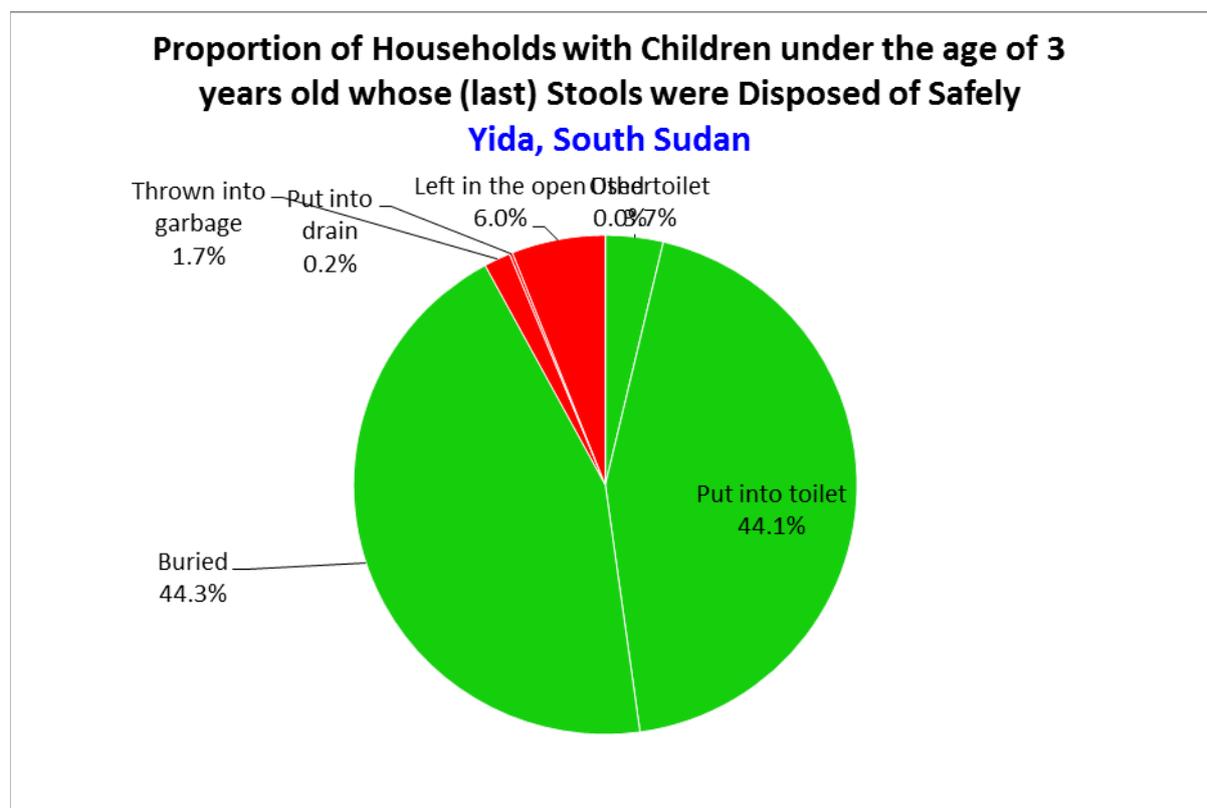
Table 43: Safe Excreta Disposal

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)	160/454	35.2 (26.3-44.2)
A shared family toilet (improved toilet facility, 2 households)	68/454	15.0 (9.1-20.8)
A communal toilet (improved toilet facility, 3 households or more)	64/454	14.1 (9.3-18.9)
An unimproved toilet (unimproved toilet facility or public toilet)	162/454	35.7 (27.2-44.2)
Proportion of households with children under three years old that dispose of faeces safely	381/414	92.0 (86.9-97.1)

*To maintain consistency with other survey instruments (e.g. the multiple indicator cluster survey), UNHCR SENS WASH module classifies an “**improved excreta disposal facility**” as a toilet in the “improved” category **AND** one that is **not shared** with other families / households.

According to UNHCR WASH monitoring system, an “improved excreta disposal facility**” is defined differently than in survey instruments and is defined as a toilet in the “improved” category AND one that is shared by a *maximum* of 2 families / households or no more than *12 individuals*. Therefore, the following two categories from the SENS survey definitions are considered “improved excreta disposal facility” for UNHCR WASH monitoring system: “improved excreta disposal facility (improved toilet facility, 1 household)” and “shared family toilet (improved toilet facility, 2 households)”.

Figure 24: Proportion of Households with Children under the Age of 3 Years Whose (Last) Stools Were Disposed of Safely



4.1.6 Mosquito Net Coverage

Table 44: Mosquito Net Coverage Sampling Information

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	233	234	100.4

Table 45: Household Mosquito Net Ownership

	Number/total	% (95% CI)
Proportion of households owning at least one mosquito net of any type	199/234	85.0 (76.8-93.3)
Proportion of households owning at least one LLIN	198/234	84.6 (76.4-92.9)

Figure 25: Household Ownership of At Least One Mosquito Net (Any Type)

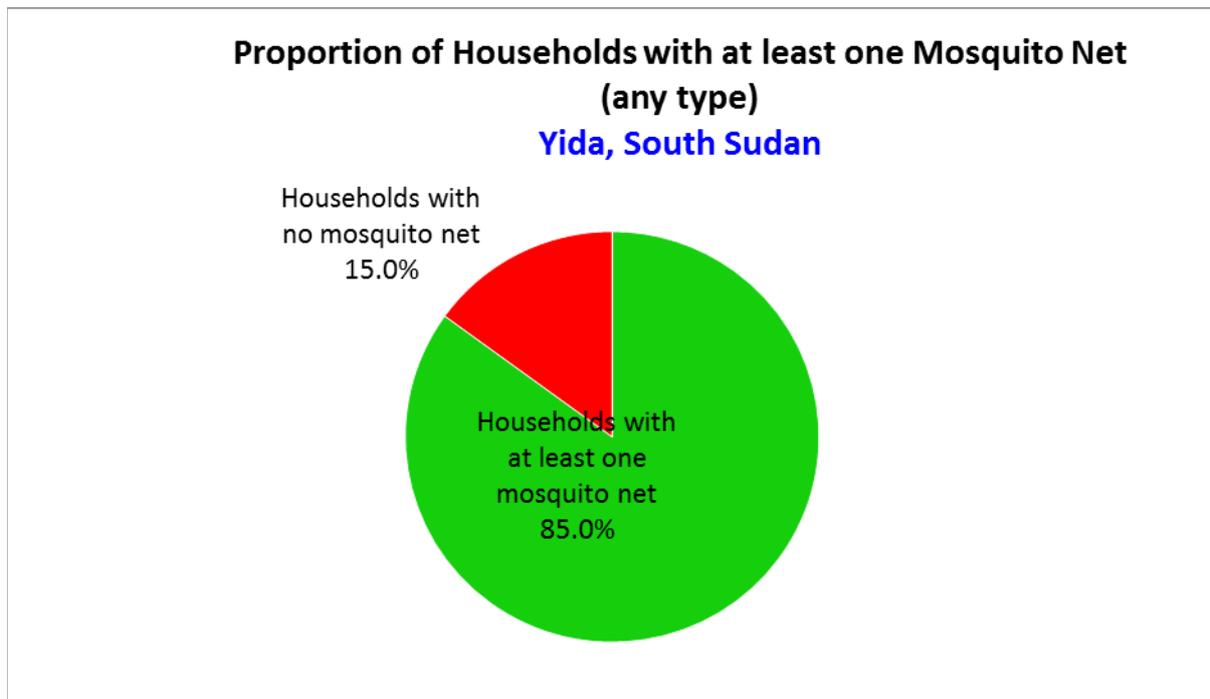


Figure 26: Household Ownership Of At Least One Llin

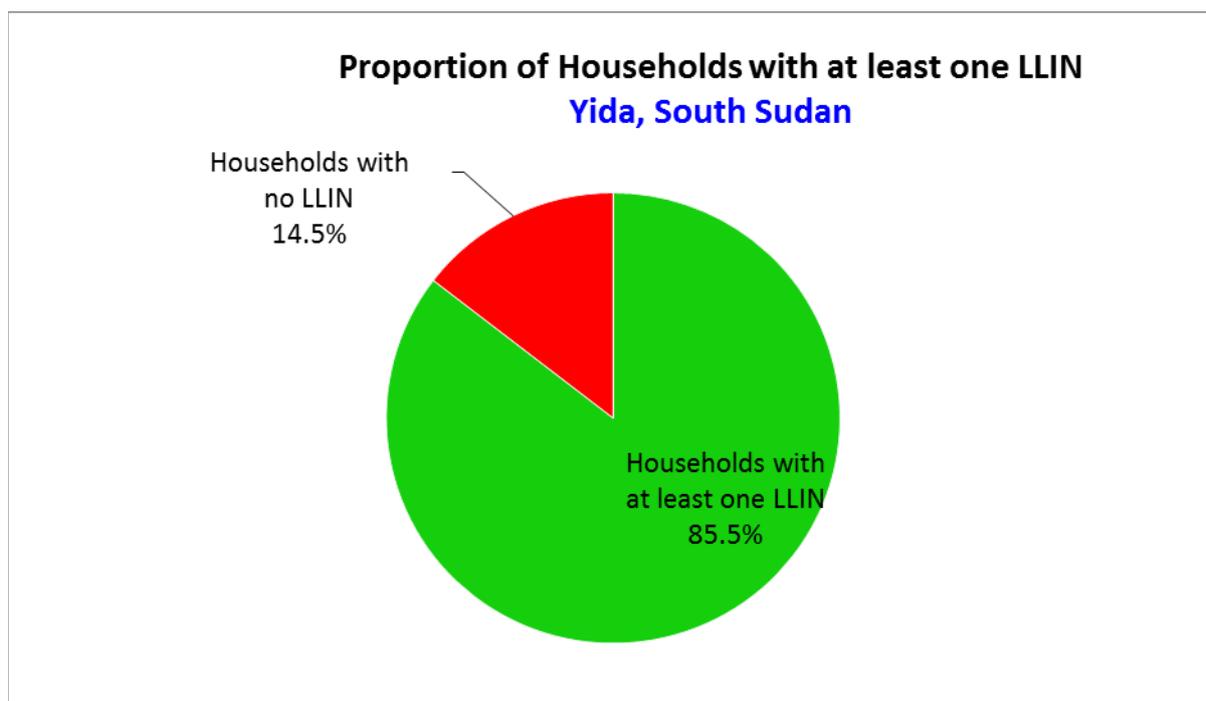


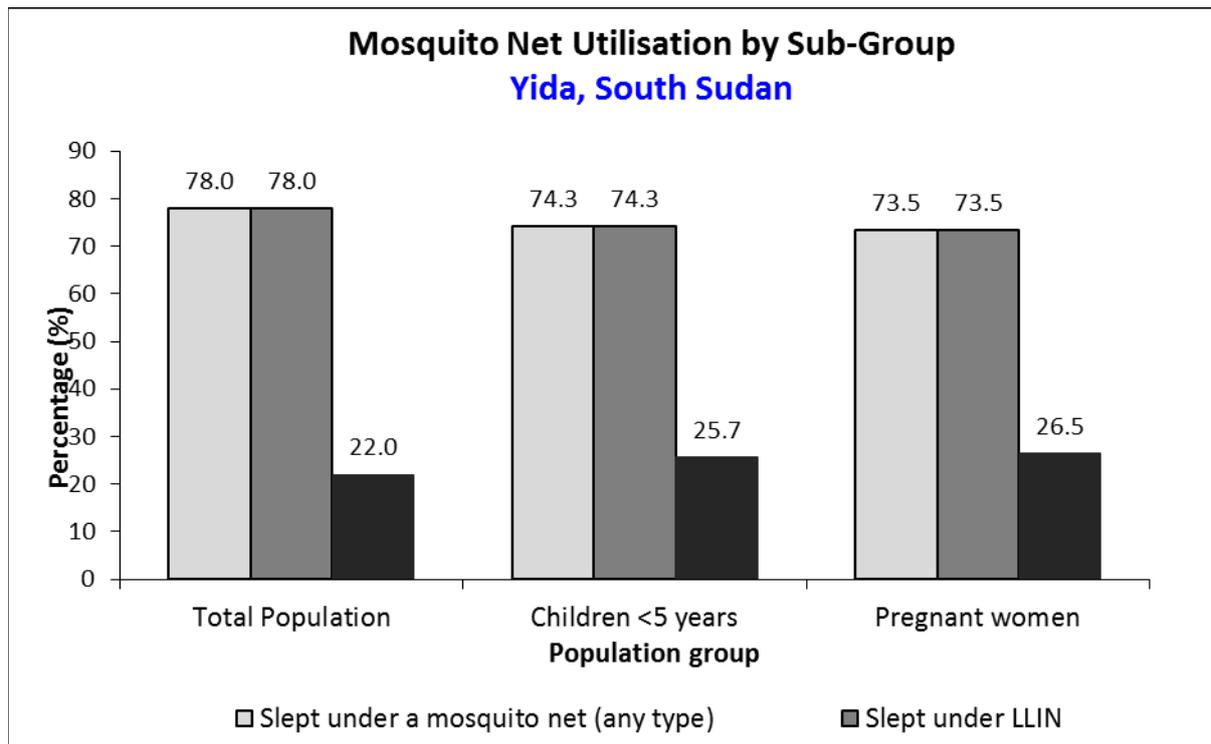
Table 46: Number Of Nets

Average number of LLINs per household	Average number of persons per LLIN
2.4	3.3

Table 47: Mosquito Net Utilisation.

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No=	%	Total No=	%	Total No=	%
Slept under net of any type	1253	78.0	300	74.3	36	73.5
Slept under LLIN	1253	78.0	300	74.3	36	73.5

Figure 27: Mosquito Net Utilisation by Sub-Group



4.2 Results-Ajuong Thok

Table 48: Demographic Characteristics of the Study Population

Total households surveyed	452
Total population surveyed	2770
Total U5 surveyed	630
Average household size	6.1
% of U5	22.7

4.2.1 Anthropometry and Health; Children 6-59 months

4.2.1.1 Sample size and clusters

Table 49: Target and Actual Number Captured

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	195	545	279%
Clusters (where applicable)	30	30	100%

Table 50: Children 6-59 Months - Distribution of Age and Sex of Sample

AGE (mo)	Boys		Girls		Total		Ratio Boy:girl
	no.	%	no.	%	no.	%	
6-17	73	50.0	73	50.0	146	26.8	1.0
18-29	81	57.9	59	42.1	140	25.7	1.4
30-41	48	44.0	61	56.0	109	20.0	0.8
42-53	39	40.6	57	59.4	96	17.6	0.7
54-59	30	55.6	24	44.4	54	9.9	1.3
Total	271	49.7	274	50.3	545	100.0	1.0

Percentage of children with no exact birthday: 54 %

All the children who participated in the survey were considered using the actual age from an official document or using an events calendar to estimate the age of the child.

4.2.1.2 Anthropometric results (based on WHO Growth Standards 2006)

Table 51: Prevalence of Acute Malnutrition Based On Weight-For-Height Z-Scores (and/or Oedema) and By Sex

	All n = 533	Boys n = 266	Girls n = 267
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(45) 8.4 % (5.9 - 12.0 95% C.I.)	(23) 8.6 % (5.5 - 13.2 95% C.I.)	(22) 8.2 % (5.0 - 13.2 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(37) 6.9 % (4.8 - 9.9 95% C.I.)	(18) 6.8 % (4.2 - 10.8 95% C.I.)	(19) 7.1 % (4.3 - 11.6 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(8) 1.5 % (0.7 - 3.2 95% C.I.)	(5) 1.9 % (0.7 - 5.2 95% C.I.)	(3) 1.1 % (0.4 - 3.5 95% C.I.)

The prevalence of oedema is 0.4%

Table 52: Prevalence of Acute Malnutrition by Age, Based On Weight-For-Height Z-Scores and/or Oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	141	3	2.1	17	12.1	121	85.8	0	0.0
18-29	136	1	0.7	11	8.1	122	89.7	2	1.5
30-41	107	0	0.0	2	1.9	105	98.1	0	0.0
42-53	95	1	1.1	3	3.2	91	95.8	0	0.0
54-59	54	1	1.9	4	7.4	49	90.7	0	0.0
Total	533	6	1.1	37	6.9	488	91.6	2	0.4

Figure 28: Trend in the Prevalence of Wasting By Age in Children 6-59 Months

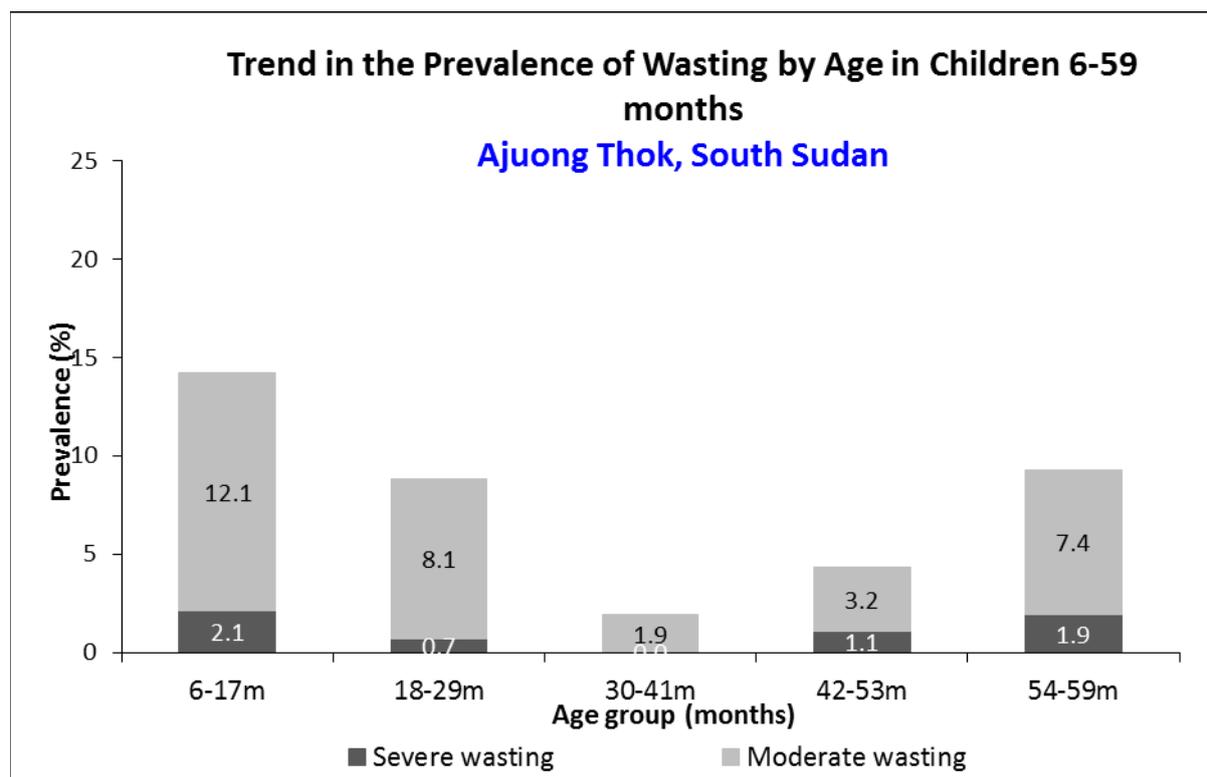


Table 53: Distribution of Severe Acute Malnutrition and Oedema Based On Weight-For-Height Z-Scores

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 1 (0.2 %)	Kwashiorkor No. 1 (0.2 %)
Oedema absent	Marasmic No. 9 (1.7 %)	Not severely malnourished No. 529 (98.0 %)

Figure 29: Distribution of Weight-For-Height Z-Scores (Based On WHO Growth Standards; the Reference Population Is Shown In Green and the Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population

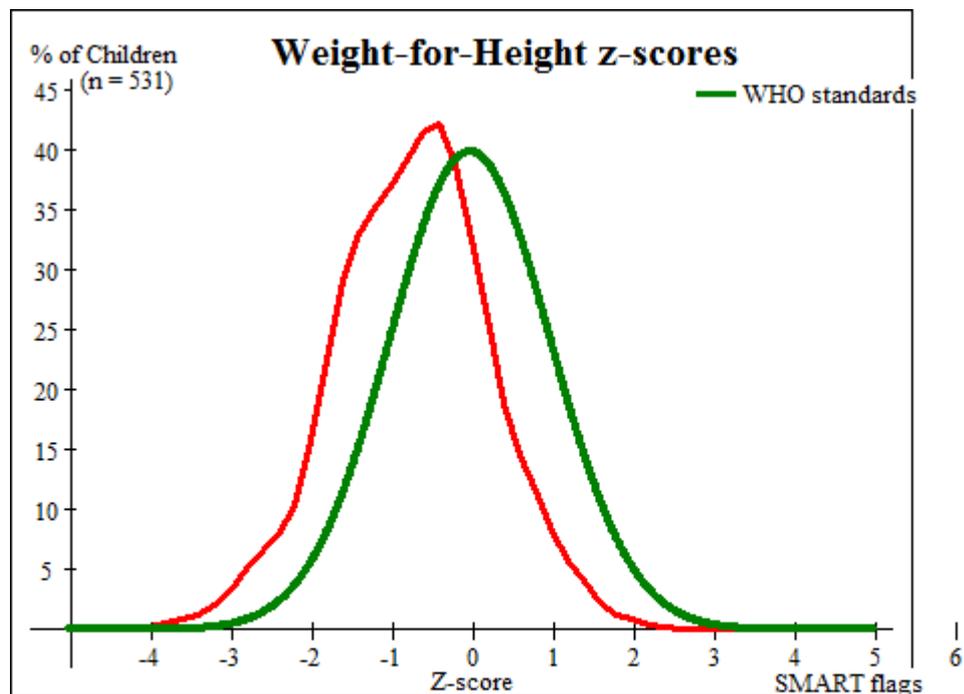


Table 54: Prevalence of MUAC Malnutrition

	All n = 542	Boys n = 270	Girls n = 272
Prevalence of global malnutrition (< 125 mm and/or oedema)	(30) 5.5 % (3.6 - 8.4 95% C.I.)	(9) 3.3 % (1.5 - 7.1 95% C.I.)	(21) 7.7 % (4.9 - 12.1 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(26) 4.8 % (3.1 - 7.4 95% C.I.)	(9) 3.3 % (1.5 - 7.1 95% C.I.)	(17) 6.3 % (4.0 - 9.6 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(4) 0.7 % (0.2 - 2.6 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(4) 1.5 % (0.4 - 5.1 95% C.I.)

Table 55: Prevalence of MUAC Malnutrition by Age, Based on MUAC Cut off's and/or Oedema

Age (mo)	Total no.	Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	144	2	1.4	15	10.4	127	88.2	0	0.0
18-29	139	1	0.7	10	7.2	128	92.1	2	1.4
30-41	109	0	0.0	1	0.9	108	99.1	0	0.0
42-53	96	0	0.0	0	0.0	96	100.0	0	0.0
54-59	54	0	0.0	0	0.0	54	100.0	0	0.0
Total	542	3	0.6	26	4.8	513	94.6	2	0.4

Table 56: Prevalence of Underweight Based On Weight-For-Age Z-Scores by Sex

	All n = 531	Boys n = 265	Girls n = 266
Prevalence of underweight (<-2 z-score)	(149) 28.1 % (23.8 - 32.7 95% C.I.)	(77) 29.1 % (21.8 - 37.6 95% C.I.)	(72) 27.1 % (22.6 - 32.0 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(111) 20.9 % (17.8 - 24.4 95% C.I.)	(55) 20.8 % (15.2 - 27.7 95% C.I.)	(56) 21.1 % (17.3 - 25.4 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(38) 7.2 % (5.0 - 10.2 95% C.I.)	(22) 8.3 % (5.3 - 12.7 95% C.I.)	(16) 6.0 % (3.6 - 9.9 95% C.I.)

Figure 30: Distribution of Weight-For-Height Z-Scores (Based On WHO Growth Standards; the Reference Population Is Shown In Green and the Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population

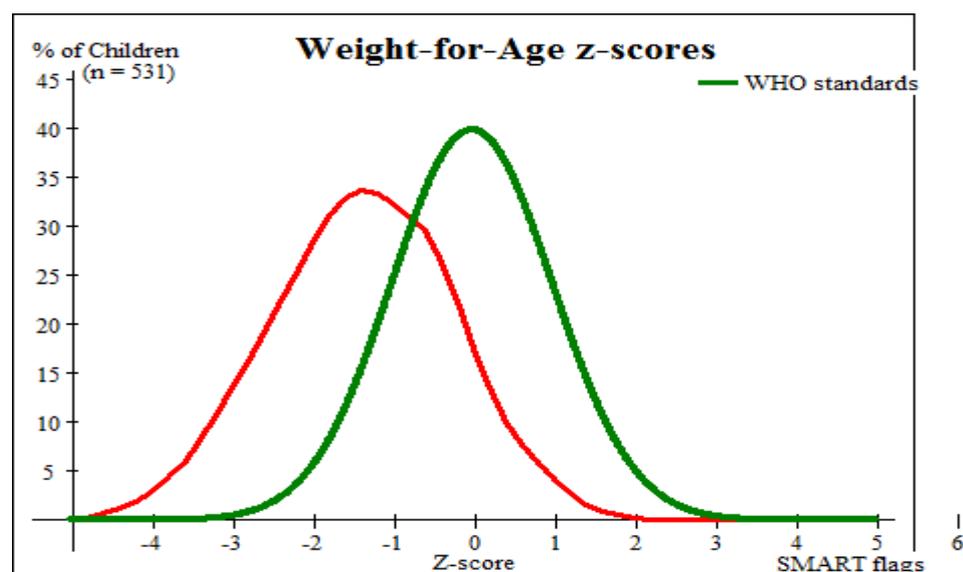


Table 57: Prevalence of Underweight by Age, Based On Weight-For-Age Z-Scores and/or Oedema

Age (mo)	Total no.	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	139	7	5.0	30	21.6	102	73.4	0	0.0
18-29	135	12	8.9	30	22.2	93	68.9	2	1.5
30-41	109	11	10.1	19	17.4	79	72.5	0	0.0
42-53	95	6	6.3	19	20.0	70	73.7	0	0.0
54-59	53	2	3.8	13	24.5	38	71.7	0	0.0
Total	531	38	7.2	111	20.9	382	71.9	2	0.4

Table 58: Prevalence of Stunting Based On Height-For-Age Z-Scores and By Sex

	All n = 500	Boys n = 251	Girls n = 249
Prevalence of stunting (<-2 z-score)	(202) 40.4 % (36.0 - 45.0 95% C.I.)	(110) 43.8 % (36.7 - 51.2 95% C.I.)	(92) 36.9 % (30.9 - 43.5 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(132) 26.4 % (22.2 - 31.0 95% C.I.)	(73) 29.1 % (23.8 - 35.1 95% C.I.)	(59) 23.7 % (18.6 - 29.6 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(70) 14.0 % (10.9 - 17.8 95% C.I.)	(37) 14.7 % (10.3 - 20.6 95% C.I.)	(33) 13.3 % (9.7 - 17.8 95% C.I.)

Table 59: Prevalence of Stunting By Age Based On Height-For-Age Z-Scores

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	132	14	10.6	28	21.2	90	68.2
18-29	126	23	18.3	38	30.2	65	51.6
30-41	98	14	14.3	27	27.6	57	58.2
42-53	92	16	17.4	25	27.2	51	55.4
54-59	52	3	5.8	14	26.9	35	67.3
Total	500	70	14.0	132	26.4	298	59.6

Figure 31: Trends in the Prevalence of Stunting By Age in Children 6-59 Months

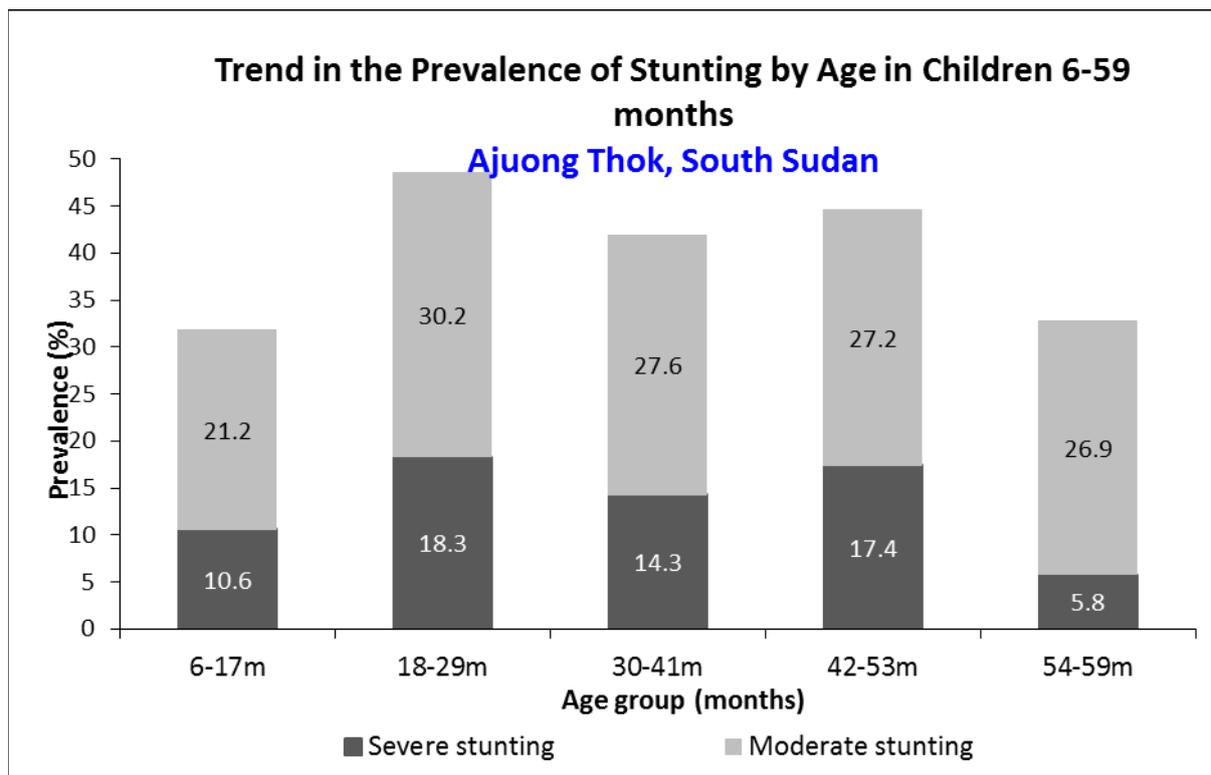


Figure 32: Distribution of Height-For-Age Z-Scores (Based On WHO Growth Standards; the Reference Population Is Shown In Green and the Surveyed Population Is Shown In Red) Of Survey Population Compared To Reference Population

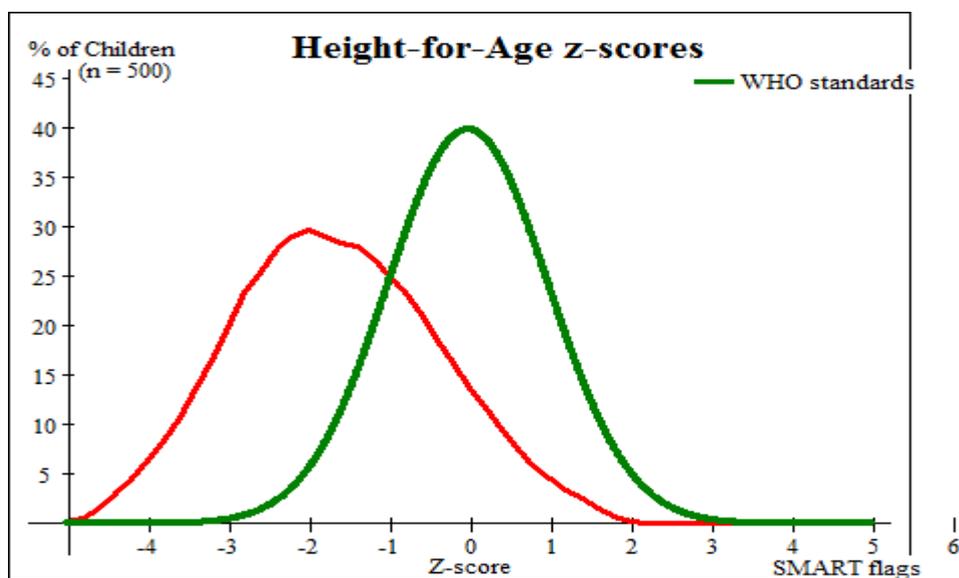


Table 60: Prevalence of Overweight Based On Weight for Height Cut Off's And By Sex (No Oedema)

	All n = 533	Boys n = 266	Girls n = 267
Prevalence of overweight (WHZ > 2)	(1) 0.2 % (0.0 - 1.5 95% C.I.)	(1) 0.4 % (0.0 - 3.1 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)
Prevalence of severe overweight (WHZ > 3)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

Table 61: Mean Z-Scores, Design Effects and Excluded Subjects

Indicator	n	Mean z-scores \pm SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	531	-0.73 \pm 0.95	1.43	7	7
Weight-for-Age	531	-1.38 \pm 1.11	1.25	4	10
Height-for-Age	500	-1.65 \pm 1.24	1.01	2	43

* contains for WHZ and WAZ the children with oedema.

4.2.1.3 Feeding programme coverage results

Table 62: Programme Coverage for Acutely Malnourished Children Based On MUAC, Oedema and WHZ

	Number/total	% (95% CI)
Supplementary feeding programme coverage	13/48	27.1(13.5-40.7)
Therapeutic feeding programme coverage	2/12	16.7(0-43.2)

Table 63: Programme Coverage for Acutely Malnourished Children Based On MUAC and Oedema

	Number/total	% (95% CI)
Supplementary feeding programme coverage	12/26	46.2(20.5-71.9)
Therapeutic feeding programme coverage	0/3	0.0(0-0)

4.2.1.4 Measles Vaccination Coverage Results

Table 64: Measles Vaccination Coverage for Children Aged 9-59 Months (N=521)

	Measles (with card) n=98	Measles (with card <u>or</u> confirmation from mother) n=401
YES	18.8% (13.1-24.5 95% CI)	77.0 % (69.0-84.9 95% CI)

4.2.1.5 Vitamin A Supplementation Coverage Results

Table 65: Vitamin A Supplementation for Children Aged 6-59 Months within Past 6 Months (N= 545)

	Vitamin A capsule (with card) n=67	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=401
YES	12.3% (7.7-16.9 95% CI)	73.6 % (65.5-81.7 95% CI)

4.2.1.6 DPT3/PENTA3 Coverage Results

Table 66: DPT3/PENTA3 vaccination coverage for children aged 9-59 months (n=545)

	DPT3/Penta3 (with card) n=79	DPT3/Penta3 (with card <u>or</u> confirmation from mother) n= 368
YES	14.5% (10.0-19.0 95% CI)	67.5% (59.4-75.6 95% CI)

4.2.1.7 Diarrhoea Results

Table 67: Period Prevalence of Diarrhoea

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	177/534	33.1 (22.8-43.5)

4.2.2 Anaemia Results Children 6 – 59 Months

Table 69: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group

	6-59 months n = 542	6-23 months n= 220	24-59 months n= 322
Total Anaemia (Hb<11.0 g/dL)	(303) 55.9% (50.9-60.9 95% CI)	(161) 73.2% (65.5-80.8 95% CI)	(142) 44.1% (37.4-50.8 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(146) 26.9% (22.7-31.2 95% CI)	(64) 29.1% (21.7-36.5 95% CI)	(82) 25.5% (20.9-30.1 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(151) 27.9% (23.4-32.3 95% CI)	(94) 42.7% (35.7-46.8 95% CI)	(57) 17.7% (12.3-23.1 95% CI)
Severe Anaemia (<7.0 g/dL)	(6) 1.1% (0.3-2.0 95% CI)	(3) 1.4% (0.0-2.9 95% CI)	(3) 0.9% (0.0-2.0 95% CI)
Mean Hb (g/dL) (95% CI) [range]	10.7 g/dL (10.5-10.8 95% CI) [5.3-14.3]	10.1 g/dL (9.9-10.3 95% CI) [6.6-13.4]	11.0 g/dL (10.8-11.2 95% CI) [5.3-14.3]

Table 70: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group

	6-59 months n = 542	6-23 months n=220	24-59 months n=322
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(157) 29.0 % (24.3-33.6 95% CI)	(97) 44.1% (36.9-51.3 95% CI)	(60) 18.6 % (13.2-24.1 95% CI)

4.2.3 IYCF Children 0-23 Months

Table 71: Prevalence of Infant and Young Child Feeding Practices Indicators

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	201/271	74.2	65.4-83.0
Exclusive breastfeeding under 6 months	0-5 months	43/50	86.0	76.5-95.5
Continued breastfeeding at 1 year	12-15 months	44/52	84.6	74.3-95.0
Continued breastfeeding at 2 years	20-23 months	26/44	59.1	43.7-74.5
Introduction of solid, semi-solid or soft foods	6-8 months	16/24	66.7	43.3-90.0
Consumption of iron-rich or iron-fortified foods	6-23 months	108/221	48.9	42.3-55.5
Bottle feeding	0-23 months	0/271	0.0	0.0-0.0

Prevalence of Intake

Infant Formula

Table 72: Infant Formula Intake in Children Aged 0-23 Months

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	8/271	3.0 (0.0-6.1)

Fortified Blended Foods

Table 73: CSB+ Intake in Children Aged 6-23 Months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB+	39/221	17.6 (13.0-23.5)

Table 74: CSB++ Intake in Children Aged 6-23 Months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB++	86/221	38.9 (32.5-45.7)

4.2.4 Anaemia; Women 15-49 Years

Table 75: Women Physiological Status and Age

Physiological status	Number/total	% of sample
Non-pregnant	193	87.7
Pregnant	27	12.3
Mean age (range)	25.4(15-49)	

Table 76: Prevalence of Anaemia and Haemoglobin Concentration in Non-Pregnant Women of Reproductive Age (15-49 Years)

Anaemia - Women of reproductive age 15-49 years	All n = 192
Total Anaemia (<12.0 g/dL)	(66) 34.4% (27.6-41.2 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(44) 22.9% (16.7-29.2 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(20) 10.4% (6.5-14.4 95% CI)
Severe Anaemia (<8.0 g/dL)	(2) 1.0% (0.0-2.5 95% CI)
Mean Hb, g/dL (SD) [range]	12.5 g/dL 0.1 [6.7-15.4]

Table 77: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	18/27	66.7 (46.0-82.8)
Currently receiving iron-folic acid pills	18/27	66.7 (46.0-82.8)

4.2.5 WASH

Table 78: WASH Sampling Information

Household data	Planned	Actual	% of target
Total households surveyed for WASH	456	455	99.8

Table 79: Water Quality

Proportion of households using an improved drinking water source	454/455	99.8 (99.3-100.0)
Proportion of households that use a covered or narrow necked container for storing their drinking water	295/455	64.8 (51.4-78.3)

Table 80: Water Quantity: Amount of Litres of Water Used Per Person per Day

Proportion of households that use:	Number/total	% (95% CI)
≥ 20 lpppd	153/455	33.6 (26.8-40.5)
15 – <20 lpppd	106/455	23.3 (18.5-28.0)
<15 lpppd	196/455	43.1 (35.1-51.1)

Add the average water usage in lpppd: _____ 16.2 lpppd _____

Table 81: Satisfaction with Water Supply

	Number/total	% (95% CI)
Proportion of households that say they are satisfied with the drinking water supply	232/455	51.0 (36.5-65.5)

Figure 33: Proportion of Households That Say They Are Satisfied With the Water Supply

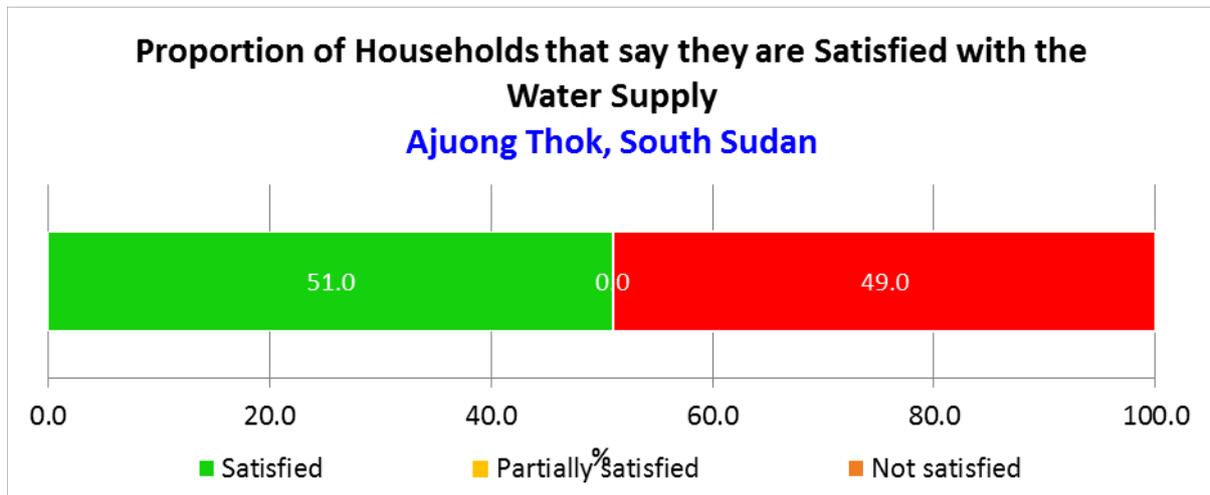


Figure 34: Main Reason for Dissatisfaction among Households Not Satisfied With Water Supply

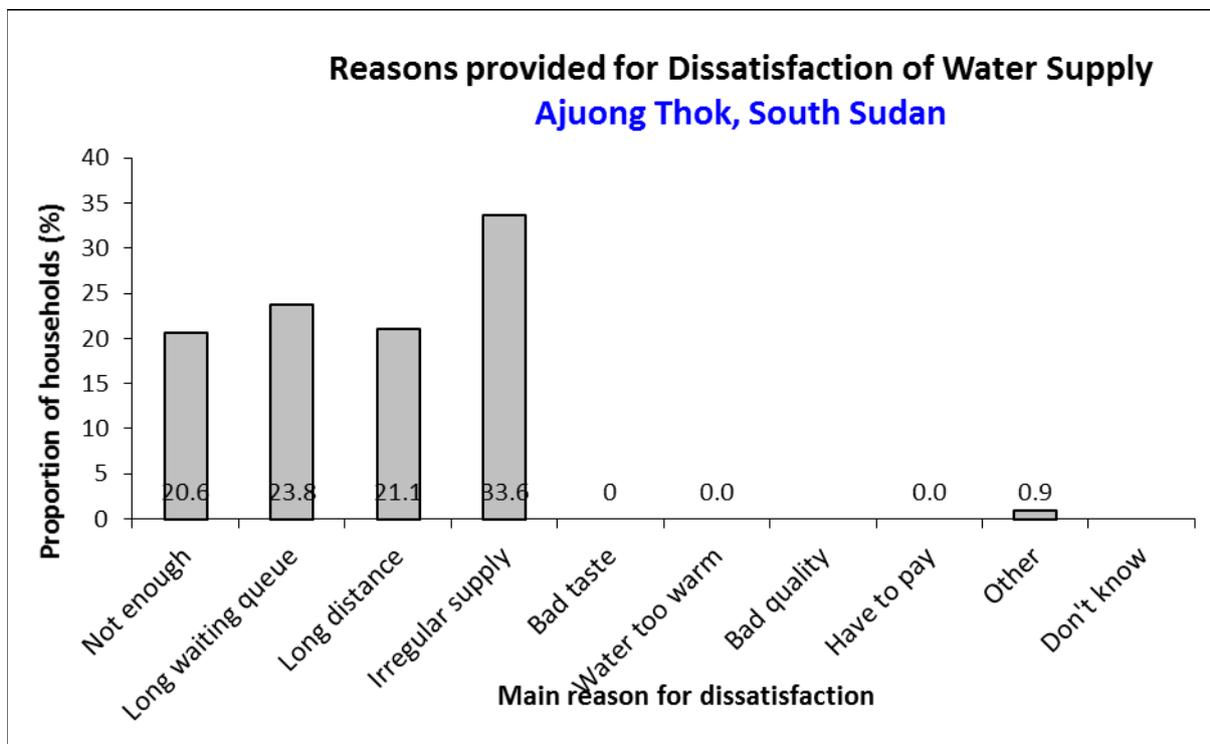


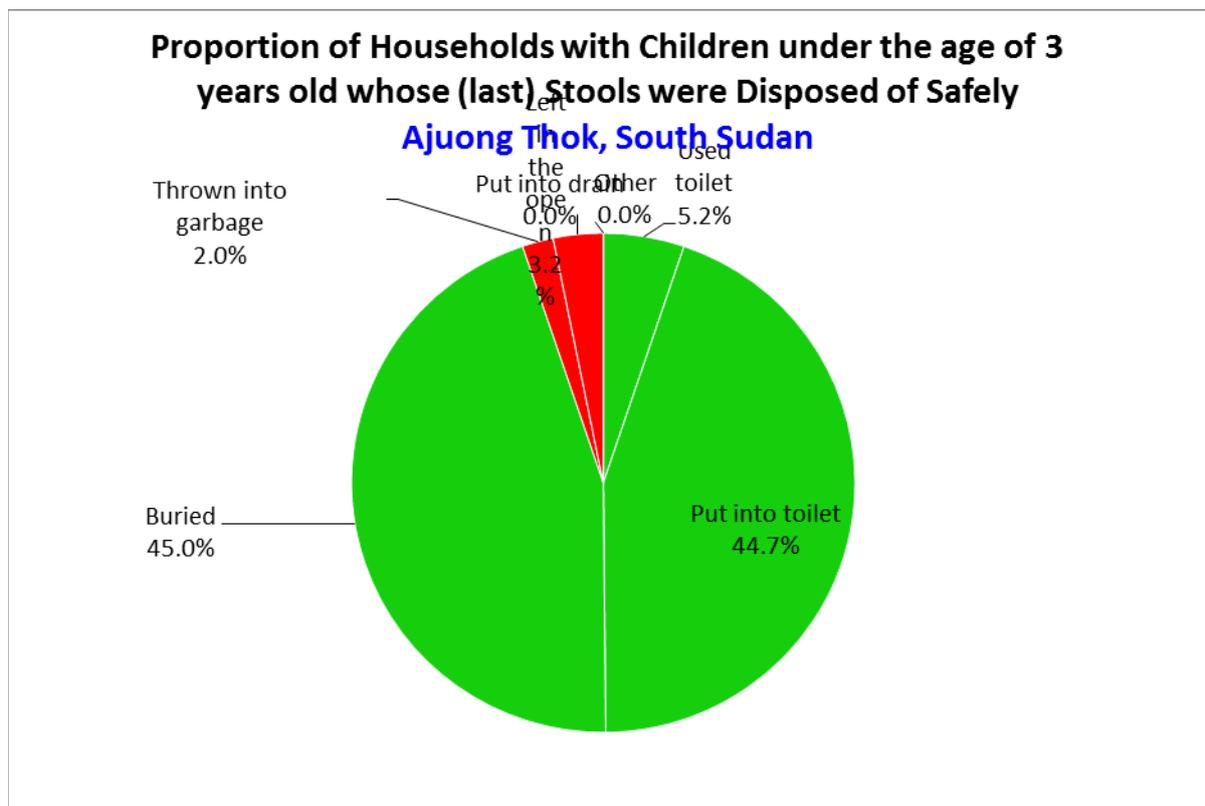
Table 82: Safe Excreta Disposal

	Number/total	% (95% CI)
Proportion of households that use:		
An improved excreta disposal facility (improved toilet facility, 1 household)	184/454	40.5 (29.1-51.9)
A shared family toilet (improved toilet facility, 2 households)	58/454	12.8 (8.0-17.5)
A communal toilet (improved toilet facility, 3 households or more)	59/454	13.0 (6.8-19.2)
An unimproved toilet (unimproved toilet facility or public toilet)	153/454	33.7 (23.7-43.7)
Proportion of households with children under three years old that dispose of faeces safely	329/347	94.8 (90.9-98.8)

*To maintain consistency with other survey instruments (e.g. the multiple indicator cluster survey), UNHCR SENS WASH module classifies an **“improved excreta disposal facility”** as a toilet in the “improved” category **AND** one that is **not shared** with other families / households.

According to UNHCR WASH monitoring system, an **“improved excreta disposal facility” is defined differently than in survey instruments and is defined as a toilet in the “improved” category AND one that is shared by a *maximum* of 2 families / households or no more than *12 individuals*. Therefore, the following two categories from the SENS survey definitions are considered “improved excreta disposal facility” for UNHCR WASH monitoring system: “improved excreta disposal facility (improved toilet facility, 1 household)” and “shared family toilet (improved toilet facility, 2 households)”.

Figure 35: Proportion of Households with Children under the Age of 3 Years whose (Last) Stools Were Disposed Of Safely



4.2.6 Mosquito Net Coverage

Table 83: Mosquito Net Coverage Sampling Information

Household data	Planned	Actual	% of target
Total households surveyed for mosquito net coverage	233	226	87.6

Table 84: Household Mosquito Net Ownership

	Number/total	% (95% CI)
Proportion of households owning at least one mosquito net of any type	167/226	73.9 (65.0-82.8)
Proportion of households owning at least one LLIN	167/226	73.9 (65.0-82.8)

Figure 36: Household Ownership of At Least One Mosquito Net (Any Type)

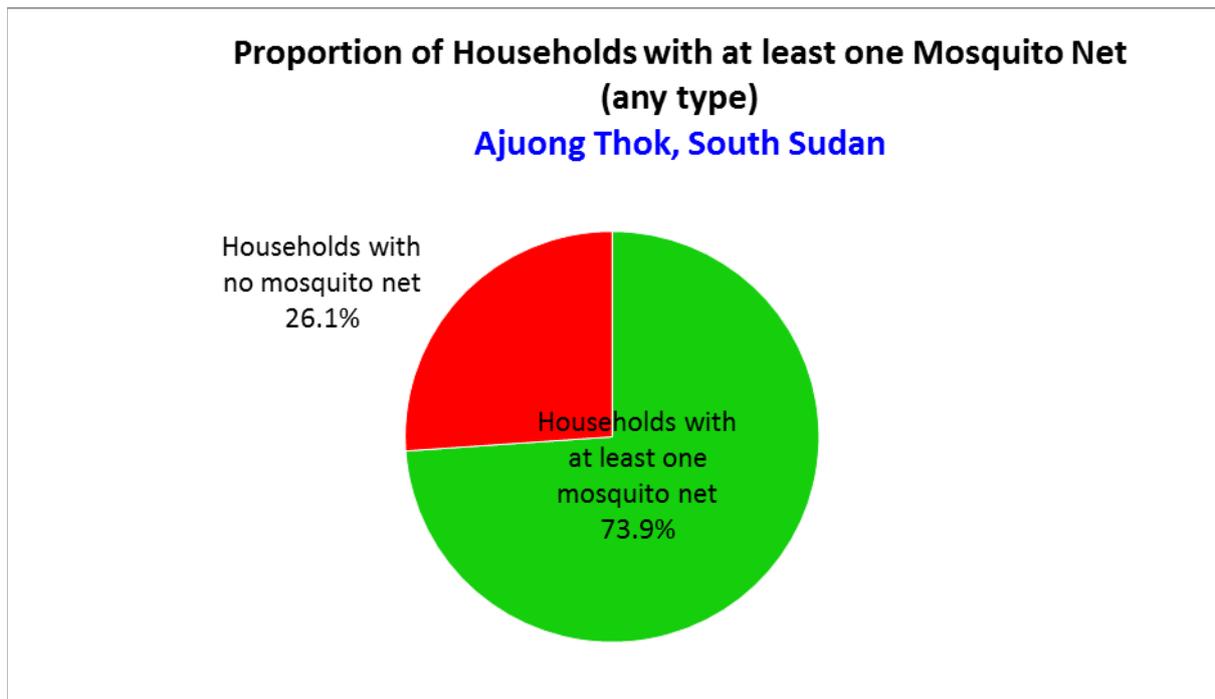


Figure 37: Household Ownership Of At Least One LLIN

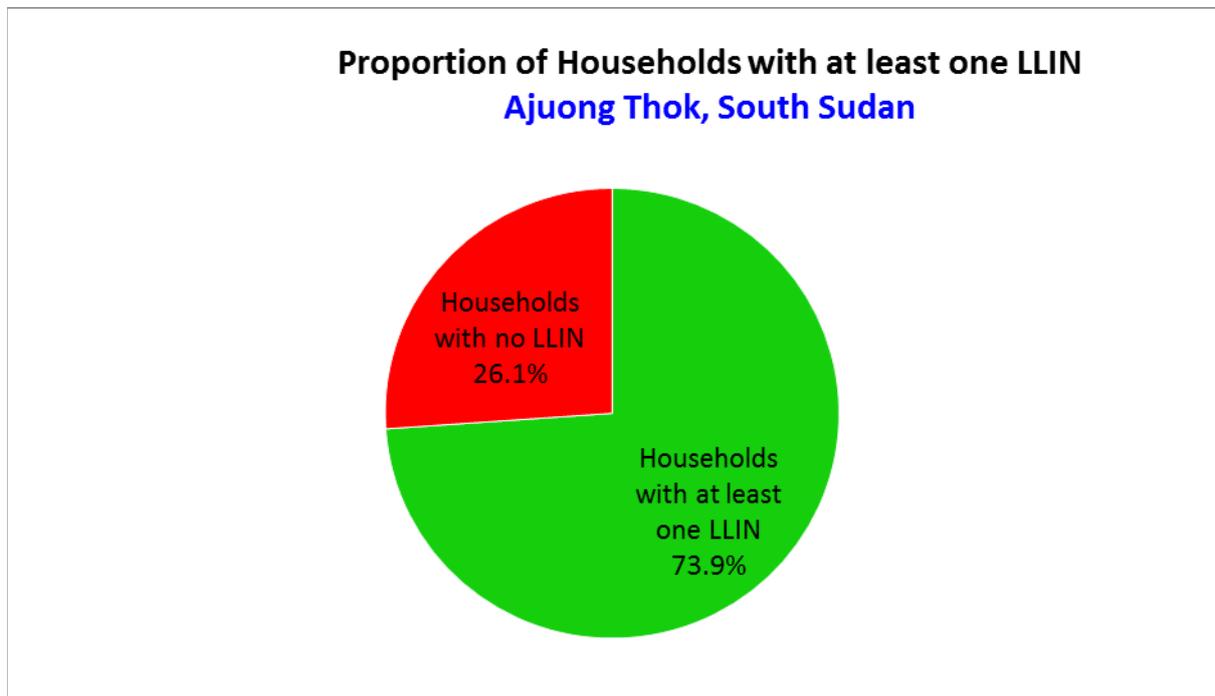


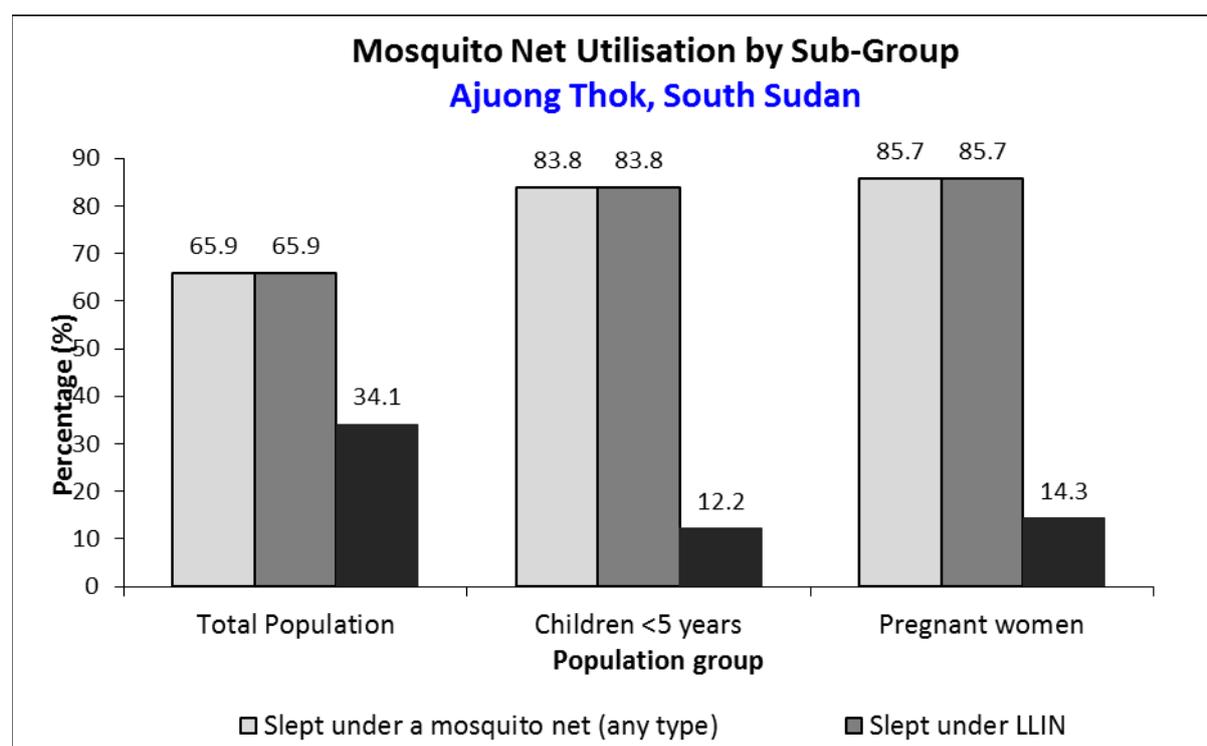
Table 86: Number Of Nets

Average number of LLINs per household	Average number of persons per LLIN
2.3	3.6

Table 87: Mosquito Net Utilisation

	Proportion of total population (all ages)		Proportion of 0-59 months		Proportion of pregnant women	
	Total No=	%	Total No=	%	Total No=	%
Slept under net of any type	1385		315		42	
	913	65.9	264	83.8	36	85.7
Slept under LLIN	913	65.9	264	83.8	36	85.7

Figure 38: Mosquito Net Utilisation by Sub-Group



5 Limitations

Data Quality

The plausibility report generated by the ENA software showed that the data was generally of good quality, scoring 8% in both Yida and Ajuong Thok. Stunting and underweight results may need to be interpreted with caution as over 50% of the screened children did not have exact birth dates, age estimation using the calendar of events was employed instead.

Population Data

The address system in Yida is by Boma (tribe/clan) and not by geographical location. Cluster selection in Yida therefore was not as reliable as some Boma members do not reside with their tribesman and also in some areas people are mixed and not staying by tribe.

Data Collection

Data was collected for two ten consecutive days with only one day of rest in between Yida and Ajuong Thok data collection. It is possible that the teams could have been exhausted by the time data collection in Ajuong Thok was finished.

SFP/TFP Coverage

The data needs to be interpreted with extreme caution as the survey sample was very small.

IYCF Indicators

Due to the small survey sample size for some indicators such as the “continued breastfeeding at 1 year” and the “continued breastfeeding at 2 years” indicators, these results have to be interpreted with caution.

Language

The training and the questionnaire was in English but questionnaire were admitted in Arabic. This is likely to have affected understanding of the questions and ultimately the responses given.

6 Discussion

6.1 *Nutritional Status of Young Children*

The overall age sex ratio of the anthropometric data is 1.0 for boys and girls of all ages, this shows that both sexes were equally represented in the survey.

In Yida, the GAM and SAM prevalence is 7.9(6.1-10.1 95% CI) and 1.6(0.9-1.8 95% CI) respectively. The Ajuong Thok results showed GAM of 8.4(5.9-12.0 95% CI) and SAM of 1.5(0.7-3.2). In comparison to 2014, there is a statistically significant increase in the prevalence of malnutrition in Ajuong Thok, while the increase in Yida is not statistically significant. In 2014, the Yida GAM was 6.2(4.7-8.2 95% CI) and Ajuong Thok GAM was 3.1(1.9-5.1 95% CI). The SAM prevalence in Yida was 0.8(0.4-1.7 95% CI) and in Ajuong Thok SAM was 0.2(0.0-2.3 95% CI).

The population in Yida has been constant and established, hence the stability in malnutrition trends. In Ajuong Thok, the population more than doubled from 13,000 in 2014 when the survey was conducted to over 31,000 at the time of conducting the 2015 survey. New arrivals arrived with little or no assets, this could loosely be interpreted that the new arrivals were highly food insecure. According to new arrival screening results, the malnutrition levels among this group was over 10%. The population increase in Ajuong Thok came with no staff increase and hence community outreach to spread preventive message and other preventive interventions was not possible. There is also no decentralisation of activities in Ajuong Thok, which could be another contributing factor to the increasing malnutrition levels.

At the beginning of the year, refugees were receiving a food basket that provided at least 2100Kcal/person/day and in addition milling vouchers for grinding 50% of the cereal ration were also provided. In March 2015, the milling vouchers were scrapped followed by reduction of the GFD ration by 30% to provide 1470Kcal of the daily minimum energy requirements. In addition, salt has not been included in the food basket since March 2015. For households to access grinding services, salt and other household food and non-food items, they have to sell part of their GFD ration. The above factors led to decrease in the available food for consumption at household and hence households resorting to reduced meal sizes and meal frequency. Some households also reported sharing of nutrition commodities such as CSB+, CSB++, plumpy sup and plumpy nut. The survey was conducted at a time when there was high malaria prevalence among the population and children were equally affected. The prevalence of acute respiratory tract infections was also high among the population at the time of the survey. According to data from the health facilities for the months of September and October 2015 which is the time preceding the survey and the time of the survey, malaria contributed to over 50% of total morbidities in the refugee camps. All the above factors could have contributed to the noticed increase in malnutrition prevalence.

Although there is increased malnutrition in the refugee camps, the nutrition situation in the camps is still below the critical thresholds of GAM 10% and SAM 2%. Compared to the surrounding host community, refugee nutrition status is commendable. The SMART survey that was conducted by CARE between April and May 2015 in Pariang County showed GAM of 23.4%(19.1-28.3 95% CI) and SAM of 5.3%(3.5-7.9 95% CI) (CARE, 2015). According to the Integrated Food Security Phase Classification (IPC) results, the analysis for August/September 2015 showed that the Nutrition situation in Unity State was at critical level phase 3 with GAM prevalence of over 15% (FAO, 2015).

Stunting levels increased among the population in both Yida and Ajuong Thok. According to the 2014 survey, total stunting in Yida was 23.9(20.0-28.4 95% CI) and severe stunting was 6.1(4.4-8.5 95% CI). In Ajuong, total stunting in 2014 was 20.5(17.2-24.2 95% CI) and severe stunting was 5.3(3.8-7.4 95% CI). The 2015 survey show total and severe stunting in Yida as 33.7(29.7-37.9 95% CI) and 11.1(8.6-14.2 95% CI) respectively. In Ajuong Thok, the total and severe stunting are 40.4(36.0-45.0 95% CI)

and 14.4(10.9-17.8 95% CI) respectively. It is however to be noted that in 2014, almost all the children did not have exact birth records and age was estimated using the events calendar. There are chances that there was under estimation of stunting. The stunting in Yida is serious while in Ajuong Thok, the prevalence of stunting is on the critical threshold borderline. Prevalence of stunting is critical and of high public health significance when above 40%.

Possible contributors to the high stunting levels include poor maternal nutrition during preconception, pregnancy and lactation. This is true given that MUAC malnutrition among pregnant and lactating women was around 10% during the year according nutrition trends monitoring, this is despite the BSFP intervention that commenced in June of this year. Adolescent pregnancy and short child spacing also contribute to the high stunting levels. According to data from health partners, teenage pregnancy account for between 15% and 25% of total pregnancies in the refugee camps. The use of family planning is below around 16%, according to the UNHCR Health Information System (HIS). Family planning is not culturally acceptable among the population. Other contributors to stunting include poor sanitation conditions leading to diarrhoeal diseases, around 30% of the population practice open defecation. The survey found period prevalence diarrhoea of 21.7(13.3-30.0 95% CI) in Yida and 33.1 (22.8-43.5 95% CI) in Ajuong Thok. The survey was conducted when malaria accounted for not less than 50% of total morbidities in the Out-Patient Department (OPD) and In-Patient Department (IPD) consultations. Acute respiratory infections also play a role in stunting and are one of the major causes of morbidity among children less than five years being the second morbidity cause in Ajuong Thok and the third in Yida. Literacy levels are very low among the refugees especially women, and there is undisputed body of knowledge that shows a positive correlation between low literacy levels and stunting and malnutrition in general. (WHO, 2014). The GFD basket comprises sorghum, yellow split peas/lentils, and vegetable oil and salt only, this basket lacks in animal protein which is essential for skeletal development and linear growth of children under 2 years and could be a contributing factor to the stunting levels shown. Good linear growth in the first two years of life results in substantial gains in height and schooling and gives some protection from adult chronic disease risk factors (Adair et al, Lancet Series, 2013). Stunting levels are high among children 18 to 29 months followed by the 30 to 41 months age category. This is likely to be a result of poor child care practices as these age groups do not get the attention and care they deserve. In most cases, the mother will be pregnant again or there will be a younger child in the family.

The nutrition situation is likely to remain at the same levels in the foreseeable future as the food security situation is not likely to improve anytime soon, although the malaria epidemic is likely to decrease as the rainy season comes to an end.

6.2 Programme Coverage

The measles vaccination and vitamin A supplementation coverage are below the expected coverage standards of 95% and 90% respectively. Measles vaccination coverage in Yida is 72.2(63.2-81.1 95% CI) and in Ajuong Thok it is 77.0(69.0-84.9 95% CI) while vitamin A supplementation is 71.9(72.1-81.7 95% CI) and 73.6(65.5-81.7 95% CI) in Yida and Ajuong Thok respectively. These results are combined for both the card and recall. Comparing to 2014, there is a decrease in the coverage. According to the 2014 findings, measles vaccination coverage in Ajuong Thok was 94.0(91.4-96.4 95% CI) and in Yida in was (79.0-89.7 95% CI). From the 2014 survey results, vitamin A supplementation coverage was 79.1% (71.7-86.6 95% CI) in Yida and 92.1% (91.4-96.4 95% CI) in Ajuong Thok.

There is a decrease in the two camps of the two indicators but the decrease is most notable in Ajuong Thok than in Yida. The reasons for the decrease could be that there was no mass immunisation and vitamin A supplementation prior to the survey and these findings are mainly from

routine activities. In addition in Ajuong Thok, where the decrease is significant, it is likely due to the increased population that led to the overstretching of available resources.

There is however an improvement in the coverage of both DPT3/PENTA3 across the two camps. The coverage analysis for the two vaccines was combined as there are some children who were given the pentavalent vaccine while others were given the DPT vaccine. In 2014, DPT3/PENTA3 coverage in Yida was 55.2% (45.4-64.9 95% CI) and 40.2% (31.6-48.7 95% CI) in Ajuong Thok. The 2015 survey showed a notable improvement of the indicator coverage to 64.6(55.8-73.3 95% CI) in Yida and 67.5(59.4-75.6 95% CI) in Ajuong Thok. The vaccination coverage increase can be attributed to improved routine immunisation activities in the camps.

There is a deterioration in the ANC coverage and iron-folic acid coverage in Ajuong Thok from 2014 to 2015. The deterioration could be due to mothers not embracing the ANC coverage and also due to low community outreach work to support the activities. In 2014, ANC coverage in Ajuong Thok was 90.5(83.5-97.6 95% CI) and iron-folic acid coverage was 82.1(71.6-92.6 95% CI) while in 2015 the Ajuong Thok the coverage is 66.7 (46.0-82.8 95% CI) for both ANC and iron folic acid. In Yida, the two indicators however remarkably improved. Community outreach work in Yida is comprehensive and there is collaboration between Health, Nutrition and WASH to pass the same message to the community. The 2014 results show ANC coverage in Yida to be 66.7(58.3-75.0 95% CI) and in 2015 it is 81.0(68.3-95.6 95% CI). The Yida iron folic acid coverage was 53.5(42.0-65.0 95% CI) in 2014 and 71.4(54.1-88.8 95% CI) in 2015. It is worthy to note that the sample sizes for these two indicators are quite small and as such the indicators should be treated with caution.

The SFP and TFP programme coverage indicators which measure the enrolment efficacy of the programmes shows that most malnourished are not admitted in the programme. The sample sizes of these indicators are very low to allow meaningful conclusions to be drawn, although it gives an idea that the nutrition programmes have a high rate of exclusions. The TFP programme coverage indicator using MUAC only is zero in both camps while it is below 20% using MUAC and WHZ. The SFP programme coverage is around 50% in both camps using MUAC and WHZ and below 30% using MUAC only. This is a cause for concern as most malnourished children are not being admitted in the appropriate nutrition treatment programmes. The coverage indicator results show that there is poor active case finding being done by the agencies implementing nutrition programmes.

6.3 Anaemia in Young Children and Women

The survey results showed total anaemia prevalence of 56.3%(50.4-62.3 95% CI) among children 6 to 59 months in Yida and 55.9%(50.9-60.9 95% CI) in Ajuong Thok. The prevalence of total anaemia in children 6 to 23 months in Yida is 73.3%(66.1-80.6 95% CI) and in Ajuong Thok it is 73.2%(65.5-80.8 95% CI). The World Health Organisation (WHO) classifies anaemia prevalence above 40% as critical and of high public health significance. According to WHO, total child anaemia across all age groups is critical and of high public health significance. However, the anaemia problem is more pronounced among children 6 to 23 months than in older children. In children 24 to 59 months, total anaemia prevalence is 46.5%(38.2-54.7 95% CI) in Yid and 44.1%(37.4-50.8 95% CI) in Ajuong Thok.

Although anaemia prevalence is high, the majority of the children are mildly anaemic. The prevalence of moderate and severe anaemia among children 6 to 59 in Yida is 28.4 %(22.9-33.8 95% CI). Age breakdown of the child anaemia prevalence in Yida shows that among children 6 to 23 months, the prevalence of moderate and severe anaemia is 36.7%(29.2-44.5 95% CI) and in children 24 to 59 months the prevalence is 23.5 %(17.5-29.5 95% CI). In Ajuong Thok, the prevalence of moderate and severe anaemia is 29.0%(24.3-33.6 95% CI) in children 6 to 59 months and in children 6 to 23 months the prevalence is 44.1%(36.9-51.3 95% CI), while it is 18.6 %(13.2-24.1 95% CI) in

children 24 to 59 months. This shows that although total child anaemia prevalence is very high across in both camps, the prevalence of moderate and severe anaemia is only critical and of high public health significance in Ajuong Thok among children 6 to 23 months, otherwise moderate and severe anaemia prevalence is of medium public health significance.

Total women anaemia prevalence in Yida is 30.0%(22.4-37.7 95% CI) and in Ajuong Thok, it is 34.4%(27.6-41.2 95% CI). According to the WHO classification the women anaemia prevalence is of medium public health significance.

In the two camps, there is an increase in the anaemia prevalence across all indicators when comparing the 2015 findings to the 2014 findings. In 2014, total child anaemia prevalence in Yida was 38.8% (33.9-43.7 95% CI) and 35.9% (31.9-39.9 95% CI) in Ajuong Thok. Prevalence of women anaemia in 2014 was 22.6% (18.1-27.1 95% CI) in Yida and 18.2% (13.1-23.2 95% CI) in Ajuong Thok. The increase in anaemia prevalence can be attributed to a number of factors that characterise the camp population. Chief among the contributors to the high anaemia prevalence is the poor diet which is poor in micronutrients. The GFD basket provides a poor micronutrient diet. Although according to the NutVal, the diet provides 76% of iron daily energy requirements, at 100% of the GFD ration, when reduced by 70%, the GFD basket provides 53% of the daily iron requirements. To compound the problem, there are several factors that reduces the bioavailability of the iron. Sorghum, which contributes the bulk of the iron in the food is high in phytates, these are anti-nutrients that inhibit iron absorption in the body. Also, the GFD provides only 2% of vitamin C, which plays a pivotal role in iron absorption. The refugee diet, lacks green leaf vegetable and animal based which are good source of iron and the iron from these foods is highly bioavailable.

6.4 IYCF Indicators

Infant and Young Child Feeding (IYCF) is key to child survival and shows the level of care provided by mothers and caregiver to their children. This area offers great potential for preventing malnutrition among children and it is therefore important for the IYCF indicators to be optimal, (WHO, 2010). This survey investigates key IYCF indicators that have high bearing on child survival.

The rate of early initiation of breast milk within the first hour of delivery is 70.8%(61.5-80.1 95% CI) in Yida and 74.2%(65.4-83.0 95% CI) in Ajuong Thok. This achievement is as a result of the integration between Nutrition and reproductive Health, where these IYCF messages are passed on to mothers in the maternity ward and during ANC visits. Although the rate of early initiation is still high, there is a reduction if compared to 2014 when in Yida, 90.6% (87.4-94.3 95% CI) were breastfed within one hour of delivery while in Ajuong Thok 85.8% (79.0-92.6 95% CI) were breastfed within one hour of delivery. The reduction can be attributed to not all mothers giving birth in the health facility particularly among new arrivals who did not deliver their children in the camp hence are not aware of the importance of breast feeding within the first hour of delivery.

The rate of exclusive breast feeding (EBF) for the first six months of life in Yida is 70.5%(56.6-84.3 95% CI) and in Ajuong Thok the EBF rate is 86.0%(76.5-95.5 95% CI). There is an improvement in the EBF rate if 2015 findings are to be compared to the 2014 results. In 2014, the EBF rate in Yida was 50.9% (37.9-63.8 95% CI) and in Ajuong Thok it was 54.0% (39.0-68.9 95% CI). The improvement is attributed to strong network of mother to mother support groups that is cascading the IYCF messages to the general population. This indicator is among the most key IYCF indicators as research has shown that EBF has a significant impact on child survival.

In Yida, 46.2%(27.9-64.4 95% CI) of children 6 to 8 months were introduced to solid and semi-solid foods on time, this is an improvement compared to 10.8% (4.3-17.2 95% CI) in 2014. Among children

6 to 8 months in Ajuong Thok, 66.7%(43.3-90.0 95% CI) were introduced to solid and semi-solid foods timely. There is no statistical difference on this indicator if the 2015 findings are to be compared to the 2014 results when 70.0% (61.7-78.3 95% CI) were introduced to solid and semi-solid foods timely. There is room for improvement in this area through mother to mother support groups, who seem to be concentrating mainly on EBF messaging.

Some of the IYCF results should be interpreted with caution as the sample is small to draw meaningful conclusions. However these findings give an idea in the status of infant and young feeding among the surveyed population.

6.5 WASH

Essentially all the surveyed households are accessing drinking water from a safe source. The average individual water consumption meets the SPHERE standards of at least 15 litres per person per day (lpppd) in both camps. The UNHCR standard of 20lpppd is however not met. The average water consumption in Yida is 18.6lpppd and in Ajuong Thok it is 16.2lpppd. There is a reduction in the average water consumption when 2015 results are to be compared to the 2014 results when the average water consumption in Yida was 22.6lpppd and 20lpppd in Ajuong Thok. This is likely due to the population increase in Ajuong Thok and in Yida due to some people being relocated by the local authorities to areas within the Yida refugee settlement that do not have services such as water and health care.

74.0%(61.7-86.2 95% CI) in Yida are satisfied with the drinking water supply and only 51.0%(36.5-65.5 95% CI) are satisfied in Ajuong Thok. In both camps, the major reasons for the dissatisfaction cited by the refugees are long distances to the water points and irregular water supply. The Yida results for this indicator are the same as in the 2014 survey while there is an improvement in Ajuong Thok when a meagre 42.5% (31.5-53.5 95% CI) of the households reported satisfaction with the supply of drinking water. The improvement in Ajuong Thok is attributed to the efforts made by the WASH partner to improve the WASH services. The lack of improvement of the indicator in Yida is likely due to the policy not to invest in more infrastructural development in Yida but to simply maintain the currently available services and infrastructure.

In both Yida and Ajuong Thok, 35.7%(27.2-44.2 95% CI) and 33.7%(23.7-43.7 95% CI) are using unimproved sanitary facilities mainly practising open defecation. The practice of open defecation was evidenced by direct observation during the survey when it was a common phenomenon in some parts of the refugee camp locations to come across faecal matter. It is however important to note that the use of open defecation is not common across the camp but only in certain locations of the camp. Although more than a third of the surveyed population is still using unimproved toilet facilities, there is an improvement on the indicator when compared to the 2014 results. In 2014, 43.0% (36.5-49.6 95% CI) in Yida and 46.4% (37.7-55.1 95% CI) in Ajuong Thok reported that they were using unimproved toilet facilities.

Although a good proportion of the population are using unimproved toilet facilities, there seems to be good knowledge of child stool disposal. 92.0%(86.9-97.1 95% CI) in Yida and 94.8%(90.9-98.8 95% CI) are safely disposing child faecal matter through mainly burying or throwing into the toilet.

6.6 Mosquito Net Coverage

According to UNHCR standards, at least 80% of households in a refugee camp should have at least one long lasting insecticide treated mosquito net (LLIN) and not more than two people should share a mosquito net. In Yida, 84.6%(76.4-92.9 95% CI) own at least one LLIN, while in Ajuong Thok it is 73.9%(65.0-82.8 95% CI). The survey was conducted soon after a blanket mosquito net distribution in Yida. In Ajuong Thok, all the new arrivals receive mosquito nets as part of the Core Relief Items

(CRI) kit. Observations in the local markets show that mosquito nets are being sold, hence the possible reason why 100% of surveyed households do not have mosquito nets. All the mosquito nets in the refugee camps are LLIN.

The average number of LLIN per household in Yida is 2.4 while in Ajuong Thok it is 2.3. The survey showed that on average 3.3 people in Yida share a mosquito net and in Ajuong Thok 3.6 people share a mosquito net.

The high ratio of persons per LLIN in the refugee locations means that not every household member uses the net. In Yida 78% of the population of all ages sleep under a mosquito net, 74.3% of children 0 to 59 months sleep under the net and 73.5% of pregnant women sleep under the net. In Ajuong Thok, 65.9% of the population all ages sleeps under a mosquito net, 83.8% of children 0 to 59 months sleep under the net and 85.7% of pregnant women sleep under the net. These ratios show that the general population has an appreciation of the population groups that are most vulnerable to malaria. In 2014, the Yida results show that 62.8% of the population slept under an LLIN, 67.8% of children 0 to 59 months slept under an LLIN and 47% of pregnant women slept under an LLIN. The 2014 results from Ajuong Thok also show that 62.3% of the population slept under an LLIN, 75.9% of children 0 to 59 months slept under an LLIN and 63.2% of pregnant women slept under an LLIN. There is an increase in the proportion of children using LLIN in the camp. Malaria however was a major morbidity concern among the population. This mainly due to the improper use of the mosquito nets.

7 Conclusions

Despite the prevalence of acute malnutrition being below critical threshold, the nutrition situation of the refugees has deteriorated over the year. The anaemia and chronic malnutrition levels are a cause of concern which requires immediate and holistic responses to address the situation. The ongoing preventive nutrition interventions should be strengthened further and be complemented with curative nutrition interventions. The anaemia and stunting situation needs to be approached from a multifaceted angle as a matter of urgency to address the factors contributing to anaemia and stunting. This can be achieved by having nutrition specific interventions coupled with nutrition specific interventions aimed at addressing the various forms of malnutrition in the population. Nutrition sensitive interventions such as agriculture, health, social protection, early child development, education, and WASH have enormous potential to enhance the scale and effectiveness of nutrition-specific interventions such as CMAM and IYCF (Alderman H. and Ruel M.T. Lancet Series 2013).

The sanitation situation in general has improved in the two camps but the water supply seems to be in problems as the UNHCR standards are not being met. It is important to however note that despite the reduced water consumption, the level of satisfaction has remained the same in Yida and improved in Ajuong Thok. This is likely due to reduced walking distances as more tap stands are being constructed in the camp.

There is an improvement in the availability of mosquito nets in the camp, almost all the mosquito nets in the camp are LLIN, which is encouraging. Although mosquito nets availability has improved there are still problems with proper use of mosquito nets as malaria is still a major morbidity cause in the population. Malaria related mortality is very low, which is a pointer on good case management of malaria in the camp.

8 Recommendations and Priorities

8.1 Immediate Term

1. UNHCR and nutrition partners; SP and AHA should continue implementing and strengthening the curative nutrition interventions.
2. As a malnutrition prevention strategy, it is recommended that UNHCR in collaboration with WFP consider implementing all year round BSFP for children between 6 and 23 months and for pregnant and lactating women. The preferred commodity for children should be CSB++ as the commodity contains animal protein that is vital for skeletal development.
3. There is need for UNHCR and partners working in nutrition to review the anaemia strategy and develop and implement a comprehensive strategy to address the high anaemia levels in the camps.
4. It is recommended that a stunting prevention strategy be developed and implemented in the camps.
5. The health partners IRC, AHA and MSF-F should come up with ways of improving routine measles immunisation and vitamin A coverage which will be complemented by campaigns.
6. SP and AHA should strengthen the IYCF programmes in order to improve the exclusive breastfeeding rates and other optimum IYCF indicators.
7. UNHCR and WASH partners to continue improving the water supply in Ajuong Thok especially walking distances.
8. In light of the reduced general food ration (GFR), UNHCR should continue lobbying the local authorities to avail more land for refugees to grow food crops that can supplement the GFD ration. Support with tools and training is vital for the success of this intervention.
9. Nutrition partners should improve and strengthen the active case finding strategies so as to have all malnourished children admitted in the appropriate nutrition programmes.

8.2 Medium Term

10. UNHCR, AHA and SP to consider conducting a coverage assessment of the curative nutrition interventions which identifies nutrition services access barriers and boosters among the refugees.
11. UNHCR and WASH partners should work to continue improving on latrine coverage targeting mainly family latrines. For the refugee population.
12. UNHCR and partners to prioritise supporting livelihoods programmes for the refugees, especially agro-based livelihoods for the refugees to improve dietary diversity and have an income source. Improved income source is likely to have positive impact on stunting. Supporting back yard gardens is an example of such interventions.
13. WFP and UNHCR to consider carrying out a proper food security assessment in Yida and Ajuong Thok as a way of understanding the food security patterns, food utilisation and available coping mechanisms. It is highly likely that some refugees can be assisted to have the coping mechanisms be livelihood sources.

14. UNHCR should consider introducing indoor residual spray before the beginning of the next rainy season as a malaria prevention measure.

15. Health and community services stakeholders should come up with messaging on the appropriate use of mosquito nets by refugees.

8.3 Long Term

16. All partners working in nutrition, health and WASH should continue to strengthen the integrated community health programme so as to have all-rounder community health workers as a way of having sustainable public health interventions.

17. Supporting adult education should be considered by UNHCR and the Education partner. Research has shown that improved mother/caregiver education has positive correlation with child nutrition status.

It is recommended that another survey be conducted next year at the same time. This will enable evidence based nutrition programming for the following year and also to monitor the nutrition status of the population. The survey can still be led by UNHCR.

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1. Participating Organisations

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3. Individuals involved in the survey

Survey Coordinator

Frank Mashapa (UNHCR)

Supervisors/ Trainers

Zachariah Ndegwa (AHA), David Mbugua (SP), Blessing Mureverwi (UNHCR)

Data Analysis and Report Writing

Frank Mashapa

Report Review

Naser Mohmand; Senior Regional Nutrition and Food Security Officer (UNHCR Regional Support Centre, Nairobi), Dr Gebrewold Petros Yohannes; Public Health Officer (UNHCR, Juba), Dr Fidelis Folifac, Associate WASH Officer (UNHCR, Jam Jang)

Logistics/administration

Daniel Mogga (UNHCR), Andrew (SP), Juma Eliobas (UNHCR), Samuel Ayalew (UNHCR)

Team members

TEAM 1	TEAM 2	TEAM 3	TEAM 4	TEAM 5	TEAM 6
Jubara Ibrahim Dyan*	Safari Aradi Hamadi*	Mustafa Suliman Anur	Edward Kocholo	Nani Sarah Abdallah	Luka Tutu Ramadhan*
Gosim Idriss Kuku	Regan Randal Issa	Ayman Adam Agada	Karlo Mohammed	Farid Nimir Hissen	Karbino Marta Aduma
Alajabu Bakhit Kujumi	Adil Ali Achabi	Omar Abdallah Lodi	Hassan Kamil Hassan	George George Hessen	Asadig Abass Kuku
Kanad Ibrahim Hassan	Asadiki Ibrahim Kochana	Kumi Ditti	Mary Njoki*	Dayan Kuku*	Makki Abdalla Kaki
Atom Idriss Adiger	Winnie Simon David	Mustafa Suliman Anur*			Fadina Tia Rahal

*Team Leader

Drivers

Juma Deng, Simon Peter W. Benson, James Mabany Mayiik, Toby Tong, Elia Paul, Charles Taban Isaac, Achor Angara, Achuil Biar

11 Appendices

11.1 Appendix 1 – Plausibility Check Reports

SMART Plausibility Check Report – Yida

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

(Flagged data is included in the evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	0 (2.3 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	0 (p=0.792)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	4 (p=0.019)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	0 (3)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	2 (10)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	2 (9)
Standard Dev WHZ .	Excl	SD	<1.1 and >0.9 0	<1.15 and >0.85 5	<1.20 and >0.80 10	>=1.20 or <=0.80 20	0 (0.95)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	0 (-0.02)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	0 (0.01)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	0 (p=0.209)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	8 %

The overall score of this survey is 8 %, this is excellent.

SMART Plausibility Check Report – Ajuong Thok

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

(Flagged data is included in the evaluation.)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	0 (1.3 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	0 (p=0.898)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	4 (p=0.002)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	0 (6)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	2 (10)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	2 (11)
Standard Dev WHZ .	Excl	SD	<1.1 and >0.9 0	<1.15 and >0.85 5	<1.20 and >0.80 10	>=1.20 or <=0.80 20	0 (0.95)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	0 (-0.09)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	0 (0.14)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	0 (p=0.276)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	8 %

The overall score of this survey is 8 %, this is excellent.

11.2 Appendix 2 – Assignment of Clusters

Assignment of Clusters-Yida

Abu Hashim	746	
Adda Dabakia	14	
Alliri	315	
Angolo	10008	1,RC,RC,2,3
Atoro	1429	RC
Bilenya	318	
Boram	1621	4
Chururu	140	
Compound 1	75	
Compound 2	44	
Compound 3	46	
Compound 4	54	
Compound 5	63	
Compound 6	52	
Compound 7	81	
Dabakia Shatt	570	
Damam	2550	5,6
Damba	145	
Dar	3253	7
Darfur	374	
Dilling	306	8
Doloka	923	
Fama	3450	9,10
Faruk	300	
Gulu	65	
Hajer Anaba	368	
Jabal Adair	63	
Jabal Tagali	34	
Kafina	349	
Katcha	2116	11
Kawalib	609	12
Kawonyaro	91	
Keiga	281	
Kululu	1607	13
Kurungo Abdallah	690	
Kutang	650	
Lagawa / Gharbia	411	
Lera	832	14
Mashisha	618	
Mazarig	2654	RC
Miri	404	15

Reka	843	
Sabore	359	
Safaya	3405	16,17
Safaya Guluk	113	
Safaya Noss	502	
Saraf Jamus	772	18
Shawaja	152	
Taballa	458	
Tabanya	2325	19
Tafare	237	
Tarawi	984	20
Tess	2371	21
Tillo	128	
Tira	2937	22
Tolodi	1188	23
Tora	679	
Toroji	4337	24,25
Tuku	561	
Tuma	166	26
Tuna	826	
Umdoreen	6685	27,28,29
Umshuran	1032	30
Werni	141	

Assignment of Clusters-Ajuong Thok

Block 1	413	1
Block 2	369	
Block 3	428	2
Block 4	431	
Block 5	357	
Block 6	395	3
Block 7	399	
Block 8	491	4
Block 9	449	
Block 10	483	5
Block 11	475	
Block 12	532	RC
Block 13	570	6
Block 14	455	
Block 15	581	7
Block 16	475	
Block 17	620	8
Block 18	530	9
Block 19	473	
Block 20	463	10
Block 21	425	
Block 22	483	11
Block 23	433	
Block 24	463	
Block 25	395	12
Block 26	537	13
Block 27	471	
Block 28	585	14
Block 29	605	
Block 30	497	RC
Block 31	618	RC
Block 32	484	
Block 33	479	15
Block 34	489	
Block 35	618	16
Block 36	589	
Block 37	467	17
Block 38	487	
Block 39	451	18
Block 40	512	19
Block 41	463	
Block 42	392	

Block 43	509	20
Block 44	572	RC
Block 45	604	
Block 46	740	21
Block 47	500	22
Block 48	437	
Block 49	558	23
Block 50	569	
Block 51	651	24
Block 52	525	25
Block 53	534	
Block 54	645	26
Block 55	577	27
Block 56	671	
Block 57	516	28
Block 58	323	
Block 59	232	
Block 60	392	29
Block 61	105	
Block 62	72	
Block 63	189	
Block 64	306	30
Block 65	356	
Block 66	350	

11.3 Appendix 3: Report for Evaluation of Enumerators

Weight:

	Precision: Sum of Square [W1-W2]	Accuracy: Sum of Square [Enum.(W1+W2)- (Superv.(W1+W2))]	No. +/- Precision	No. +/- Accuracy
Supervisor	0.00		0/0	
Enumerator 1	0.02 POOR	0.06 POOR	0/2	2/1
Enumerator 2	0.01 POOR	0.01 POOR	1/0	1/0
Enumerator 3	0.00 OK	0.00 OK	0/0	0/0
Enumerator 4	0.01 POOR	0.09 POOR	1/0	1/2
Enumerator 5	0.01 POOR	0.17 POOR	1/0	0/2
Enumerator 6	0.00 OK	0.04 POOR	0/0	0/1

Height:

	Precision: Sum of Square [H1-H2]	Accuracy: Sum of Square [Enum.(H1+H2)- Superv.(H1+H2)]	No. +/- Precision	No. +/- Accuracy
Supervisor	0.02		1/1	
Enumerator 1	0.05 POOR	0.05 OK	2/0	1/1
Enumerator 2	0.05 POOR	0.39 POOR	1/1	2/2
Enumerator 3	0.06 POOR	0.08 POOR	2/1	3/2
Enumerator 4	0.02 OK	0.36 POOR	0/2	2/2
Enumerator 5	0.34 POOR	0.20 POOR	3/1	0/2
Enumerator 6	0.10 POOR	0.32 POOR	2/0	2/3

MUAC:

	Precision: Sum of Square [MUAC1-MUAC2]	Accuracy: Sum of Square [Enum.(MUAC1+MUAC2)- Superv.(MUAC1+MUAC2)]	No. +/- Precision	No. +/- Accuracy
Supervisor	2.00		1/1	
Enumerator 1	5.00 POOR	7.00 POOR	0/2	0/4
Enumerator 2	1.00 OK	37.00 POOR	1/0	3/2
Enumerator 3	5.00 POOR	19.00 POOR	3/2	1/3
Enumerator 4	9.00 POOR	63.00 POOR	2/1	2/2
Enumerator 5	12.00 POOR	46.00 POOR	1/2	0/5
Enumerator 6	9.00 POOR	19.00 POOR	3/0	1/3

11.4 Appendix 4 – Anthropometry Results NCHS Reference

Result Tables for NCHS growth reference 1977 – Yida

Table 88: Prevalence of Acute Malnutrition Based On Weight-For-Height Z-Scores (and/or Oedema) and By Sex

	All n = 688	Boys n = 349	Girls n = 339
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(55) 8.0 % (6.2 - 10.3 95% C.I.)	(27) 7.7 % (5.5 - 10.9 95% C.I.)	(28) 8.3 % (5.6 - 12.0 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(45) 6.5 % (4.7 - 8.9 95% C.I.)	(22) 6.3 % (4.3 - 9.1 95% C.I.)	(23) 6.8 % (4.2 - 10.9 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(10) 1.5 % (0.9 - 2.5 95% C.I.)	(5) 1.4 % (0.6 - 3.3 95% C.I.)	(5) 1.5 % (0.6 - 3.4 95% C.I.)

The prevalence of oedema is 0.6 %

Table 89: Prevalence of Acute Malnutrition by Age, Based on Weight-For-Height Z-Scores and/or Oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (>= -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	162	0	0.0	9	5.6	151	93.2	2	1.2
18-29	181	5	2.8	17	9.4	159	87.8	0	0.0
30-41	117	1	0.9	1	0.9	114	97.4	1	0.9
42-53	150	0	0.0	10	6.7	139	92.7	1	0.7
54-59	78	0	0.0	8	10.3	70	89.7	0	0.0
Total	688	6	0.9	45	6.5	633	92.0	4	0.6

Table 90: Distribution of Severe 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. 4 (0.6 %)
Oedema absent	Marasmic No. 10 (1.4 %)	Not severely malnourished No. 686 (98.0 %)

Table 91: Prevalence of Acute Malnutrition Based On the Percentage of the Median and/or Oedema (Using the NCHS Growth Reference)

	n = 688
Prevalence of global acute malnutrition (<80% and/or oedema)	(30) 4.4 % (3.2 - 5.9 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and >= 70%, no oedema)	(26) 3.8 % (2.7 - 5.2 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(4) 0.6 % (0.2 - 1.5 95% C.I.)

Table 92: Prevalence of Malnutrition by Age, Based On Weight-For-Height Percentage of the Median and Oedema (Using the NCHS Growth Reference)

Age (mo)	Total no.	Severe wasting (<70% median)		Moderate wasting (>=70% and <80% median)		Normal (> =80% median)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	162	0	0.0	3	1.9	157	96.9	2	1.2
18-29	181	0	0.0	15	8.3	166	91.7	0	0.0
30-41	117	0	0.0	1	0.9	115	98.3	1	0.9
42-53	150	0	0.0	4	2.7	145	96.7	1	0.7
54-59	78	0	0.0	3	3.8	75	96.2	0	0.0
Total	688	0	0.0	26	3.8	658	95.6	4	0.6

Table 93: Prevalence of Underweight Based On Weight-For-Age Z-Scores by Sex

	All n = 686	Boys n = 348	Girls n = 338
Prevalence of underweight (<-2 z-score)	(220) 32.1 % (28.2 - 36.2 95% C.I.)	(110) 31.6 % (26.3 - 37.4 95% C.I.)	(110) 32.5 % (27.2 - 38.4 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(176) 25.7 % (22.5 - 29.0 95% C.I.)	(87) 25.0 % (20.2 - 30.5 95% C.I.)	(89) 26.3 % (22.0 - 31.2 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(44) 6.4 % (4.3 - 9.5 95% C.I.)	(23) 6.6 % (4.2 - 10.3 95% C.I.)	(21) 6.2 % (3.7 - 10.2 95% C.I.)

Table 94: Prevalence of Underweight By Age, Based On Weight-For-Age Z-Scores

Age (mo)	Total no.	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	159	4	2.5	48	30.2	107	67.3	2	1.3
18-29	183	19	10.4	61	33.3	103	56.3	0	0.0
30-41	116	7	6.0	22	19.0	87	75.0	1	0.9
42-53	150	5	3.3	31	20.7	114	76.0	1	0.7
54-59	78	9	11.5	14	17.9	55	70.5	0	0.0
Total	686	44	6.4	176	25.7	466	67.9	4	0.6

Table 95: Prevalence of Stunting Based On Height-For-Age Z-Scores and By Sex

	All n = 644	Boys n = 334	Girls n = 310
Prevalence of stunting (<-2 z-score)	(171) 26.6 % (23.4 - 30.0 95% C.I.)	(98) 29.3 % (24.9 - 34.2 95% C.I.)	(73) 23.5 % (18.3 - 29.7 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(120) 18.6 % (15.8 - 21.8 95% C.I.)	(68) 20.4 % (16.7 - 24.6 95% C.I.)	(52) 16.8 % (11.7 - 23.5 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(51) 7.9 % (6.0 - 10.5 95% C.I.)	(30) 9.0 % (6.5 - 12.3 95% C.I.)	(21) 6.8 % (3.9 - 11.4 95% C.I.)

Table 96: Prevalence of Stunting By Age Based On Height-For-Age Z-Scores

Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	154	6	3.9	31	20.1	117	76.0
18-29	174	19	10.9	42	24.1	113	64.9
30-41	103	8	7.8	15	14.6	80	77.7
42-53	143	12	8.4	22	15.4	109	76.2
54-59	70	6	8.6	10	14.3	54	77.1
Total	644	51	7.9	120	18.6	473	73.4

Table 97: 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	684	-0.84±0.85	1.04	7	12
Weight-for-Age	686	-1.45±1.07	1.21	4	13
Height-for-Age	644	-1.25±1.23	1.00	2	57

Result Tables for NCHS growth reference 1977 – Ajuong Thok

Table 98: Prevalence of Acute Malnutrition Based On Weight-For-Height Z-Scores (and/or Oedema) and By Sex

	All n = 534	Boys n = 266	Girls n = 268
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(50) 9.4 % (6.9 - 12.6 95% C.I.)	(26) 9.8 % (6.9 - 13.7 95% C.I.)	(24) 9.0 % (5.7 - 13.9 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(47) 8.8 % (6.4 - 11.9 95% C.I.)	(25) 9.4 % (6.4 - 13.5 95% C.I.)	(22) 8.2 % (5.2 - 12.8 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(3) 0.6 % (0.2 - 1.8 95% C.I.)	(1) 0.4 % (0.0 - 2.8 95% C.I.)	(2) 0.7 % (0.2 - 3.1 95% C.I.)

Table 99: Prevalence of Acute Malnutrition by Age, Based On Weight-For-Height Z-Scores and/or Oedema

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	141	1	0.7	21	14.9	119	84.4	0	0.0
18-29	137	0	0.0	15	10.9	120	87.6	2	1.5
30-41	107	0	0.0	3	2.8	104	97.2	0	0.0
42-53	95	0	0.0	3	3.2	92	96.8	0	0.0
54-59	54	0	0.0	5	9.3	49	90.7	0	0.0
Total	534	1	0.2	47	8.8	484	90.6	2	0.4

Table 100: 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. 2 (0.4 %)
Oedema absent	Marasmic No. 4 (0.7 %)	Not severely malnourished No. 535 (98.9 %)

Table 101: Prevalence of Acute Malnutrition Based On the Percentage of the Median and/or Oedema

	n = 534
Prevalence of global acute malnutrition (<80% and/or oedema)	(25) 4.7 % (2.9 - 7.5 95% C.I.)
Prevalence of moderate acute malnutrition (<80% and \geq 70%, no oedema)	(23) 4.3 % (2.7 - 6.8 95% C.I.)
Prevalence of severe acute malnutrition (<70% and/or oedema)	(2) 0.4 % (0.1 - 1.6 95% C.I.)

Table 102: Prevalence of Acute Malnutrition by Age, Based On Weight-For-Height Percentage of the Median and Oedema

Age (mo)	Total no.	Severe wasting (<70% median)		Moderate wasting (\geq 70% and <80% median)		Normal (\geq 80% median)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	141	0	0.0	11	7.8	130	92.2	0	0.0
18-29	137	0	0.0	5	3.6	130	94.9	2	1.5
30-41	107	0	0.0	2	1.9	105	98.1	0	0.0
42-53	95	0	0.0	2	2.1	93	97.9	0	0.0
54-59	54	0	0.0	3	5.6	51	94.4	0	0.0
Total	534	0	0.0	23	4.3	509	95.3	2	0.4

Table 103: Prevalence of Underweight Based On Weight-For-Age Z-Scores by Sex

	All n = 534	Boys n = 266	Girls n = 268
Prevalence of underweight (<-2 z-score)	(194) 36.3 % (32.3 - 40.5 95% C.I.)	(97) 36.5 % (29.2 - 44.4 95% C.I.)	(97) 36.2 % (31.3 - 41.4 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and \geq-3 z-score)	(143) 26.8 % (23.1 - 30.8 95% C.I.)	(74) 27.8 % (21.8 - 34.8 95% C.I.)	(69) 25.7 % (21.3 - 30.8 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(51) 9.6 % (7.0 - 12.9 95% C.I.)	(23) 8.6 % (5.8 - 12.8 95% C.I.)	(28) 10.4 % (6.8 - 15.7 95% C.I.)

Table 104: Prevalence of Underweight by Age, Based On Weight-For-Age Z-Scores

Age (mo)	Total no.	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	139	12	8.6	38	27.3	89	64.0	0	0.0
18-29	137	18	13.1	45	32.8	74	54.0	2	1.5
30-41	109	13	11.9	22	20.2	74	67.9	0	0.0
42-53	95	5	5.3	23	24.2	67	70.5	0	0.0
54-59	54	3	5.6	15	27.8	36	66.7	0	0.0
Total	534	51	9.6	143	26.8	340	63.7	2	0.4

Table 105: Prevalence of Stunting Based On Height-For-Age Z-Scores and By Sex

	All n = 500	Boys n = 253	Girls n = 247
Prevalence of stunting (<-2 z-score)	(176) 35.2 % (30.6 - 40.1 95% C.I.)	(92) 36.4 % (29.1 - 44.3 95% C.I.)	(84) 34.0 % (27.9 - 40.7 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(129) 25.8 % (22.2 - 29.8 95% C.I.)	(65) 25.7 % (20.8 - 31.3 95% C.I.)	(64) 25.9 % (20.0 - 32.9 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(47) 9.4 % (6.9 - 12.7 95% C.I.)	(27) 10.7 % (6.6 - 16.8 95% C.I.)	(20) 8.1 % (5.0 - 12.7 95% C.I.)

Table 106: Prevalence of Stunting By Age Based On Height-For-Age Z-Scores

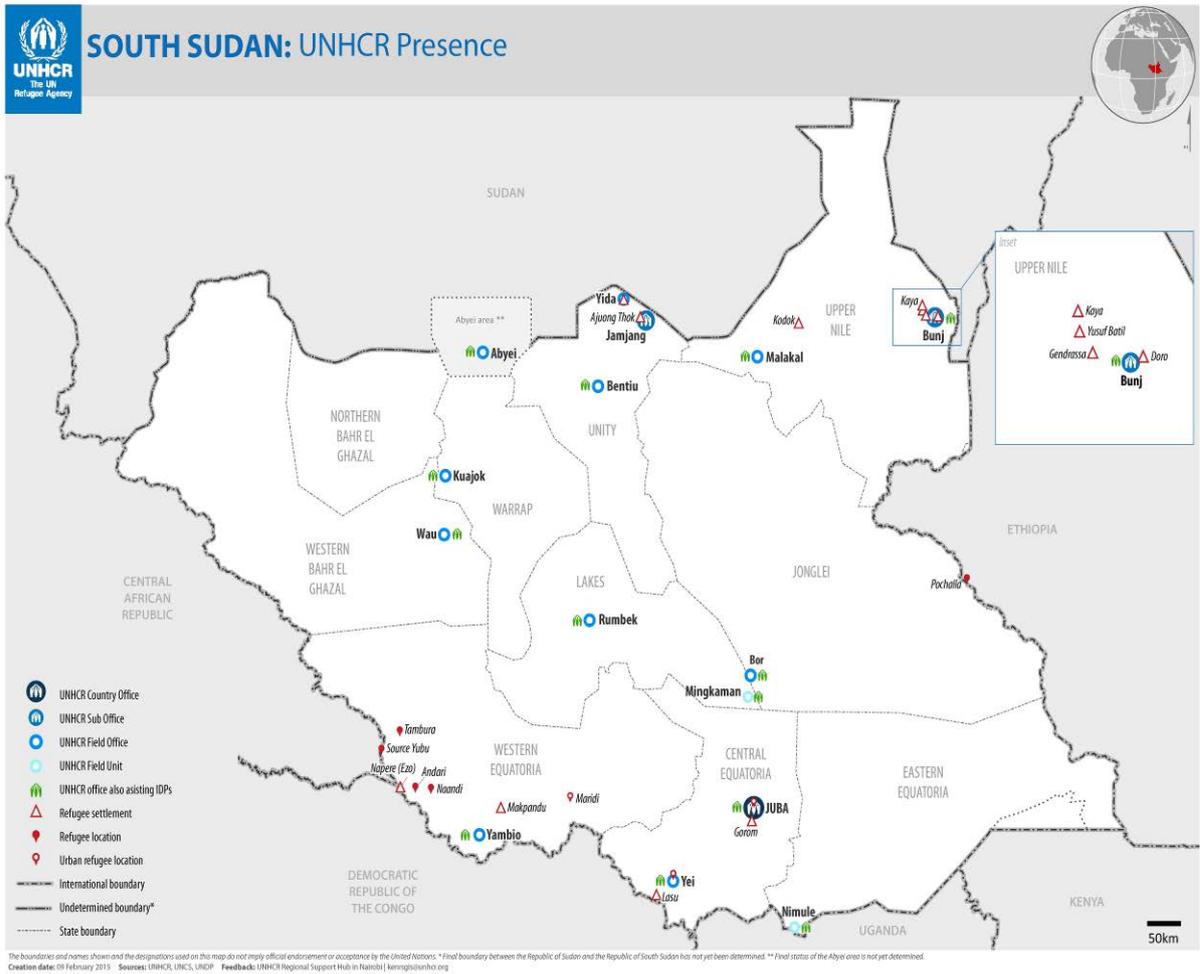
Age (mo)	Total no.	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
		No.	%	No.	%	No.	%
6-17	134	7	5.2	29	21.6	98	73.1
18-29	126	12	9.5	42	33.3	72	57.1
30-41	99	13	13.1	19	19.2	67	67.7
42-53	89	12	13.5	25	28.1	52	58.4
54-59	52	3	5.8	14	26.9	35	67.3
Total	500	47	9.4	129	25.8	324	64.8

Table 107: 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	532	-0.92±0.82	1.14	6	7
Weight-for-Age	534	-1.62±1.07	1.00	4	7
Height-for-Age	500	-1.49±1.21	1.19	2	43

* contains for WHZ and WAZ the children with edema.

11.5 Appendix 5 – Map of Area



11.6 Appendix 6 - Questionnaires

UNHCR Standardised Expanded Nutrition Survey (SENS) Questionnaire

(SENS) المفوضية الدولية لأمراض سوء التغذية للموسعة

Greeting and reading of rights:

THIS STATEMENT IS TO BE READ TO THE HEAD OF THE HOUSEHOLD OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSE BEFORE THE INTERVIEW. DEFINE A HOUSEHOLD AS A GROUP OF PEOPLE WHO LIVE TOGETHER AND ROUTINELY EAT OUT OF SAME POT. DEFINE HEAD OF HOUSEHOLD AS MEMBER OF THE FAMILY WHO MANAGES THE FAMILY RESOURCES AND IS THE FINAL DECISION MAKER IN THE HOUSE.

تحية وقراءة من الحقوق

هذا البيان هو أن تقر قبل القبول قبل نظرة السريرة أو إذا ما غاب أو غيب أو الحضور البالغين من البيت عربي فسكن البيت مجموعة من الناس الذين يعيشون مع أي ألقون بشك كل روتين يفي قدر (أو) هال (واحتري في مسموول اورية للي يتفرد من أفراد الأسرة الذي يدير موارد الأسرة و هو ان يقرر ان يفي البيت.

Hello, my name is _____ and I work with [UNHCR]. We would like to invite your household to participate in a survey that is looking at the nutrition and health status of people living in this camp.

- UNHCR is sponsoring this nutrition survey.
- Taking part in this survey is totally your choice. You can decide to not participate, or if you do participate you can stop taking part in this survey at any time for any reason. If you stop being in this survey, it will not have any negative effects on how you or your household is treated or what aid you receive.
- If you agree to participate, I will ask you some questions about your family and I will also measure the weight and height of all the children in the household who are older than 6 months and younger than 5 years. In addition to these assessments, I will test a small amount of blood from the finger of the children and women to see if they have anaemia.
- Before we start to ask you any questions or take any measurements, we will ask you to state your consent on this form. Be assured that any information that you will provide will be kept strictly confidential.
- You can ask me any questions that you have about this survey before you decided to participate or not.
- If you do not understand the information or if your questions were not answered to your satisfaction, do not declare your consent on this form.

Thank you.

مرحبا، اسمي _____ وأنا أعمل مع المفوضية الدولية. نود أن ندعو أهليتك للمشاركة في الدراسة التي تبحث عن الحالة التغذوية والصحية لساكني هذا المخيم.

- المفوضية الدولية رعية هذا المسح التغذوي.
- للمشاركة في هذا المسح هوتم المختيارك. يمكنك أن تقرر عدم المشاركة، أو إذا كنت تفعل للمشاركة أي وقت ولأي سبب. إذا كنت تتوقف عن أنك وتوقف هذا الدراسة فلن يكون لها التأثير على عملك. في حال عمل معك أو سررتك أو ملق ييل مساعداتك.
- إذا كنت تقرر عمل المشاركة، وسوف نللك بعض الأسئلة عنى بوزنك وطفلي وطفلي اس ال وزن ولطول أطفالك في السريرة الذين ملك برسنا من 6 أشهر ولا يتقبل أعمارهم عن 5 سنين واطيل ضاف على ذلك وقياسات، سيتم اعتبار كمية صغيرة من الدم من الصبغ من الأطفال والنساء مع عفة إذا كان لي فمقر الدم.
- قبل أن نبدأ أن نطلب منكم أي أسئلة أوتخاذ أي قياسات، وسوف نطلب منك موافقتك على الإجابة عن الأسئلة. نتأكد من أن أي وسيتقى العمل وماتك يسوفت قدي سري تمامة.
- يمكنك أن تسأل أي سؤال لي ألقديك حول هذا المسح قبل أن تقرر المشاركة أم لا.
- إذا كنت لا تفهم العمل ومات أو إذا كنت لا الإجابة على الأسئلة الخاصة بك لا لا يباح الإجابة عنك، لا تعلن موافقتك على هذا النموذج.

شكرالك

SENS CHILDREN 6-59 QUESTIONNAIRE

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

Date of interview (dd/mm/yyyy): التاريخ المعقيل ليوم موش هور سنه					Cluster Number (in cluster survey only) رغم الام جموع						Team number رغم لي فريق				
CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11	CH12	CH13	CH14	CH 15	CH16
ID لبطقة	HH رابة لييت	Consent لرطفة given 1=yes نعم 2=no لا 3=absent غاب	Sex نوع (m/f) ذكر/انثى	Birthdate* تايغ ليياد dd/mm/yyyy يوم موش هور سنه	Age* سنه شهور (mon ths)	Weight وزن(kg) ±100g 011 جرام- +	Height طول (cm) ±0.1cm	Oedem وزمة الامعاء (y/n)	MUAC قياس يد الاغى (mm)	Child enrolled لطفل لمن جيل 1=SFP للليل الضافى 2=TFP للليل لل الج 3=None لشئى	Measles لحصبية 1=yes card نعم لى بطاقة 2=yes نعم ازكر 3=no or don't know لا عرف	Vit. A in past فيتاين فى 6 فتره هور months (show capsule) نعم لى بطاقة 2=yes نعم ازكر 3=no or don't know لا عرف	Diarrh oea in past 2 weeks لسهلات خلال اسبوع للمضية 1=yes نعم 2=no لا 8=DK لا اعرف	DPT3/ Penta 3 1=yes card نعم ب طبق على 2=yes نعم ازكر 3=no or don't know لا عرف	Hb (g/dL)
01				/ /											
02				/ /											
03				/ /											
04				/ /											
05				/ /											
06				/ /											
07				/ /											
08				/ /											
09				/ /											
<p>*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.</p> <p>**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.</p> <p>الدولتوقية لتايغ موش هور سنه لام الد ازا يوج دس جيل لوططق لوس هية والتس جيل ضى والوجت زكر لتايغ لام الد نكر خليية ازا لوططق رس هية غير موجود. وازا لا توج د وطق لام الد خم من سرب حوايت لام جيل. وازا س جيل موجود لتايغ اس جيل</p>															

SENS IYCF Questionnaire

No	QUESTION <small>السؤال</small>	ANSWER CODES <small>الجوابات</small>
SECTION IF1		
IF1	Sex نوع	Male ذكر 1 Female أنثى 2
IF2	Birthdate التاريخ ميلاد RECORD FROM AGE DOCUMENTATION. LEAVE BLANK IF NO VALID AGE DOCUMENTATION سجل من يتيق	Day/Month/Year / / يوم/شهر/سنة
IF3	Child's age in months سنة ميلاد طفلي	IF AGE DOCUMENTATION NOT AVAILABLE, ESTIMATE USING EVENT CALENDAR. IF AGE DOCUMENTATION AVAILABLE, RECORD THE AGE IN MONTHS FROM THE DATE OF BIRTH إذا لم تتوفر وثيقة ميلاد من التاريخ التي حدثت فيها ميلاد
IF4	Has [NAME] ever been breastfed? هل (الاسم) تئم لي رضيت	Yes نعم 1 No لا 2 DK لا اعرف 8
IF5	How long after birth did you first put [NAME] to the breast? بعد ميلاد طفلي كم زمت رضيت لطفلي؟	Less than one hour من ساعة 1 Between 1 and 23 hours بين 0 و 32 ساعة 2 More than 24 hours أكثر من 32 ساعة 3 DK لا اعرف 8
IF6	Was [NAME] breastfed yesterday during the day or at night? هل رضيت لطفلي البارحة خلال النهار أو ليلاً؟	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? الآن أريد أن أسأل عن السوائل التي قد يكون طفلي قد تناولها البارحة خلال النهار أو ليلاً. أنا مهتم في معرفة ما إذا كان طفلي قد تناولها حتى لو كان مع أطعمة أخرى. البارحة، خلال النهار أو ليلاً، هل تناول طفلي أي من التالي؟ 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. اسأل عن كل سائل. إذا كان قد تم إعطائه، دمج '1'. إذا لم يكن قد تم إعطائه، دمج '2'. إذا لم تكن تعرفين، دمج '8'. كل سطر يجب أن يحتوي على رمز. ملء الخانات بالرموز (1) إذا كان قد تم إعطائه، (2) إذا لم يكن قد تم إعطائه، و (8) إذا لم تكن تعرفين.	Yes No DK
	7A. Plain water مياه عذبة	7A.....1 2 8
	7B. Infant formula: for example (Libto Mama) [غثاق لبن] غثاق لبن (غثاق لبن أمهات)	7B.....1 2 8
	7C. Milk such as tinned, powdered, or fresh animal milk: for example (Nido, Formost) لبن عذبة أول حليب يون طازج عذبة (نيدو، فورمست)	7C.....1 2 8
	7D. Juice or juice drinks (Gungules-Aradeb, Kedem) عصير أو مشروب عصير عصير (غونجوليس، كيديم).	7D.....1 2 8
	7E. Clear broth مرق اللحم	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) نخب خفيف نخب خفيف (ميددا خفيف)	7G.....1 2 8
	7H. Tea or coffee with milk الشاي أو القهوة مع الحليب	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 ازكريبعض من اللسوطيل نهل شرابات غريبة (kastar), Serilak): for example sodas, other sweet drinks, herbal infusion, gripe water, clear tea with no milk, black coffee, ritual fluids غريبة و شرابا تالفشاى على من لبن شرابات اللولة شرابات غريبة	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 اولى هل (لم) لقت لكل صلب امينب تصليب (لبن) عجيبي	Yes نعم.....1 No لا2 DK... لا اعرف8	<input type="checkbox"/>
SECTION IF3			
IF9	Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night? هل (لم) شرب اى شئ من زجاج له حلمة امس اللالان دار اوالهيل	Yes نعم.....1 No لا2 DK لا اعرف8	<input type="checkbox"/>
SECTION IF4			
IF10	Is child aged 6-23 months? هل فطلك عمره 6-32شهر REFER TO IF2	Yes نعم1 No لا2	<input type="checkbox"/> IF ANSWER IS 2 STOP NOW ازا للجابة 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 عنك ان ال بعض غداء ت (لم) من كل فطلك لة هزى ال مواد صغى و جملوت مع اغذية اخرى امس خلال الهيل اون هار (لم) في الكال لة الهيل: 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. لمس ل الكال ال مواد ازال مواد قنض ع طارة 0 (ازال ال مواد اعطى طارة 3) (و ازال لم يرض ع طارة 8) (لكل خطوط ع يتكفن لة رمز	Yes نعم1 No لا2	<input type="checkbox"/>
IF12	11A. Flesh foods for example: beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart غزاعل حمى (لم) جمل لكل حمل الة الة نهل س مك دجاج ولبدر على صغى نهل للحم بقري راضا ربط ان بل حم جئور ليد الهية 11B. CSB+ Premix الغذاء ال خلوية وقوى و س ج ال موجه و هى ال فطقة 11C. FBF++ : for example CSB++ ال غزاعل قوى مثل زرة ف ول صهي ا 11D. RUTF : for example Plumpy'Nut® (SHOW SACHET) ال ج ا فوي ستع امف ال ال علاج س ج ل وى 11E. RUSF : for example Plumpy'Sup® (SHOW SACHET) ل محلى ال الاضف ال س ج ل الة ال لكل ال موجه و ال ك 11F..... 11G. Infant formula: for example Libto Mama . ال قوى وصفة ال طفل ال رضى ازك رب عض من الة اسماء . ال غنى ال حى دى 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. زيب عض ل غنى ال شبة صلب ال ين ل مصلن عمل لاطفال والاطفال ال رضى ال موجه و تف ال ل من طقة ال ف ر ق من ل غ و صلب او	11A.....1 2 8 11B.....1 2 8 11C.....1 2 8 11D.....1 2 8 11E.....1 2 8 11F.....1 2 8 11G.....1 2 8 11H.....1 2 8	<input type="checkbox"/>

5	<p>household use? الى نوع من المراحيض التي يتم استخدامها في البيت ؟ ADAPT LIST TO LOCAL SETTING BEFORE SURVEY. WHEN ADAPTING THE LIST, KEEP THE ORIGINAL ANSWER CODES AND DO NOT CHANGE. يجب ان قطفهم لسكن قبل المسح اليه لى و عن عدم تعيين القوائم يبقى الاجلة الاصح و لاني غير DO NOT READ THE ANSWERS لثقرأ الاجلة SELECT ONE ONLY اختر اجلة واح فقط</p>	<p>الزمر Flush to septic system 02 قنق نظام الهتك Pour-flush to pit .. 03 ص ال حمر ال لت حوض VIP/simple pit latrine with floor/slab 04 ال حفرة فى الرض Composting/dry latrine 05 للمسيدي Flush or pour-flush elsewhere 06 تنفق اقصب فى لمكان اخر Pit latrine without floor/slab 07 حفرة مرحاض بدون ارضية Service or bucket latrine 08 صريفة سيعة للمرحاض Hanging toilet/latrine 09 المرحاض معلق No facility, field, bush, plastic bag 10 لاوييلة , حقل , كيس السقيكى</p>	<p>_____ IF ANSWER IS 10 GO TO WS7</p>
WS 6	<p>How many households share this toilet? كم عدد السر ال بي يريش اركون فى مرحاض واحد ؟ THIS INCLUDES THE SURVEYED HOUSEHOLD هذا من ضمن ال حلال الهمسوحة</p>	<p>RECORD NUMBER OF HOUSEHOLDS IF KNOWN (RECORD 96 IF PUBLIC TOILET OR 98 IF UNKNOWN) عديقي اسى منزل عوط الالم عرفة بيتم 96 تنس حيل للمرحاض لاعامة و 98 لم جمولين) SUPERVISOR SELECT ONE ONLY ي ختار الم شرف واح فقط Not shared (1 HH) 1 لا اشترك Shared family (2 HH) 2 مشاركة ال حلال Communal toilet (3 HH or more) 3 المرحاض العام Public toilet (in market or clinic etc.) 4 المرحاض للعمومى Don't know 8 لا اعلم</p>	<p>_____ Households</p>
WS 7	<p>Do you have children under three years old? هل ليك طفل تحت ال اعمار 3 سنة ؟</p>	<p>Yes 1 نعم No 2 لا</p>	<p>_____ IF ANSWER IS 2 GO TO WS9</p>
WS 8	<p>The last time [NAME OF YOUNGEST CHILD] passed stools, what was done to dispose of the stools? DO NOT READ THE ANSWERS SELECT ONE ONLY</p>	<p>Child used toilet/latrine 01 Put/rinsed into toilet or latrine 02 Buried 03 Thrown into garbage 04 Put/rinsed into drain or ditch 05 Left in the open 06 Other 96 Don't know 98</p>	<p>_____ _____</p>

SECTION WS2					
Observation Based Questions (done after the initial questions to ensure the flow of the interview is not broken)					
No	OBSERVATION / QUESTION	ANSWER			
WS9	<p>CALCULATE THE TOTAL AMOUNT OF WATER USED BY THE HOUSEHOLD PER DAY</p> <p>THIS RELATES TO ALL SOURCES OF WATER (DRINKING WATER AND NON-DRINKING WATER SOURCES)</p>	<p>Please show me the containers you used yesterday for collecting water</p> <p>ASSIGN A NUMBER TO EACH CONTAINER</p>	Capacity in litres	Number of journeys made with each container	<p>Total litres</p> <p>SUPERVISOR TO COMPLETE HAND CALCULATION</p>
		1			
		2			
		3			
		4			
		5			
		6			
		7			
		8			
		9			
		10			
		Total litres used by household			
WS10	<p>Please show me where you store your drinking water.</p> <p>ARE THE DRINKING WATER CONTAINERS COVERED OR NARROW NECKED?</p>	<p>All are1</p> <p>Some are2</p> <p>None are3</p>			<p> _ </p>

MOSQUITO NET QUESTIONNAIRE

No	QUESTION السؤال	ANSWER CODES الجملات العربية			
SECTION TN1					
TN 1	How many people live in this household and slept here last night? كم عدد افراد في هذه العائلة والذين نامون في الليلة؟ لإعداد الملحق INSERT NUMBER				_ _ _
TN 2	How many children 0-59 months live in this household and slept here last night? كم عدد الاطفال الالهجاء من 0-59 شهور في هذه العائلة والذين ناموا في الليلة؟ لإعداد الملحق INSERT NUMBER				_ _ _
TN 3	How many pregnant women live in this household and slept here last night? كم عدد النساء الحوامل في هذه العائلة ومن هن في الليلة؟ لإعداد الملحق INSERT NUMBER				_ _ _
TN 4	Did you have your house sprayed with insecticide in an indoor residual spray campaign in the past ___ months? (OPTIONAL) هل تم رش منزلكم بمبيد حشرات في الحملة الموضيطة في الشهر ___ ؟	Yes 1 نعم	No 2 لا		_
TN 5	Do you have mosquito nets in this household that can be used while sleeping? هل لديك امسرات في بيتك يمكن استخدامها في النوم؟	Yes 1 نعم	No 2 لا		_ IF ANSWER IS 2 STOP NOW
TN 6	How many of these mosquito nets that can be used while sleeping does your household have? كم عدد امسرات في بيتك التي يمكن استخدامها في النوم في الليلة؟ لإعداد الملحق INSERT NUMBER	IF MORE THAN 4 NETS, ENTER THE NUMBER AND USE ADDITIONAL NET QUESTIONNAIRE SHEETS ENTERING THE NUMBER OF THE NETS SEQUENTIALLY AT THE TOP. انما اكثر من 4 امسرات اذكري في كل ورقة استبيان عدديا لعدد الشبكات			_ _ Nets
TN 7	ASK RESPONDENT TO SHOW YOU THE NET(S) IN THE HOUSEHOLD. IF NETS ARE NOT OBSERVED → CORRECT TN6 ANSWER اسأل المضيف ان يريك الشبكات في البيت اذا كانت موجودة	NET # _ _	NET # _ _	NET # _ _	NET # _ _
TN 8	OBSERVE NET AND RECORD THE BRANDNAME OF NET ON THE TAG. IF NO TAG EXISTS OR IS UNREADABLE RECORD 'DK' FOR DON'T KNOW. لاحظ شيفر توكس على اشارة في اشارة من شيفر على البطاقة، اذا وجدت اي بطاقة او غير صالحة للقراءة، اذكر DK				
TN 9	For surveyor/supervisor only (not to be done during interview): للمساح والمشرف فقط، اثناء الموعنة	1=LLIN 2=Other/DK	1=LLIN 2=Other/DK	1=LLIN 2=Other/DK	1=LLIN 2=Other/DK
		_	_	_	_

	WHAT TYPE OF NET IS THIS? BASED ON THE TAG INDICATE IF THIS IS A LLIN OR OTHER TYPE OF NET OR DK. لى نوع هذه الشبكة؟ وما نوع المبيّنات لبطولة و الشبكة او الشبكة او				
TN 10	For surveyor/supervisor only (not to be done during interview): للمساح و المشرف فقط طيناء المبيّنات RECORD THE TOTAL NUMBER OF LLINs IN HOUSEHOLD BY COUNTING THE NUMBER OF '1' IN TN9. سجل لاعددي اللينى لفي لعل تبس اب لفي 9				LLINs

SECTION TN2

Line no	Household members	Sex	Age	Pregnancy status	Slept under net	Which net	Type of net
#	COL1	COL2	COL3	COL4	COL5	COL6	COL7
	Please give me the names of the household members who live here and who slept here last night	Sex m/f	Age years	FOR WOMEN 15-49 YEARS, ASK: Is (NAME) currently pregnant? (CIRCLE NOT APPLICABLE OR N/A '99' IF FEMALE <15->49 YEARS OR MALE) Yes No/DK N/A	Did (NAME) sleep under a net last night? Yes No/DK	ASK THE RESPONDENT TO PHYSICALLY IDENTIFY WHICH OF THE OBSERVED NETS THEY SLEPT UNDER. WRITE THE NUMBER CORRESPONDING TO THE NET THEY USED.	For surveyor/supervisor only: BASED ON THE OBSERVED NET BRANDNAME RECORDED (TN8), INDICATE IF IT IS AN LLIN OR OTHER / DON'T KNOW (DK). LLIN OTHER/DK
01		m f	<5 ≥5	1 0 99	1 0	___	1 2
02		m f	<5 ≥5	1 0 99	1 0	___	1 2
03		m f	<5 ≥5	1 0 99	1 0	___	1 2
04		m f	<5 ≥5	1 0 99	1 0	___	1 2
05		m f	<5 ≥5	1 0 99	1 0	___	1 2
06		m f	<5 ≥5	1 0 99	1 0	___	1 2
07		m f	<5 ≥5	1 0 99	1 0	___	1 2
08		m f	<5 ≥5	1 0 99	1 0	___	1 2
09		m f	<5 ≥5	1 0 99	1 0	___	1 2
10		m f	<5 ≥5	1 0 99	1 0	___	1 2
11		m f	<5 ≥5	1 0 99	1 0	___	1 2
12		m f	<5 ≥5	1 0 99	1 0	___	1 2

						__	
13		m f	<5 ≥5	1 0 99	1 0	__	1 2
14		m f	<5 ≥5	1 0 99	1 0	__	1 2
15		m f	<5 ≥5	1 0 99	1 0	__	1 2
Mosquito net summary (for surveyor / supervisor only, not to be done during interview)							
	Total household members		Total <5			Total Pregnant	
Slept under a net of any type	Count the number of '1' in COL5	TN11 __ __	For children < 5 (COL3 is '<5'), count the number of '1' in COL5	TN13 __ __	For pregnant women (COL4 is '1'), count the number of '1' in COL5	TN15 __ __	
Slept under an LLIN	Count the number of '1' in COL7	TN12 __ __	For children <5 (COL3 is '<5'), count the number of '1' in COL7	TN14 __ __	For pregnant women (COL4 is '1'), count the number of '1' in COL7	TN16 __ __	

11.7 Appendix 7 – Events Calendar

Local event calendar used during the survey to estimate age of young children

Unity Events Calendar

MONTHS	2010	2011	2012	2013	2014	2015
JANUARY		57 New year celebrations	45 New year celebrations	33 New year celebrations	21 New year celebrations	09 New year celebrations
FEBRUARY		56 Start of land preparation	44 Start of land preparation	32 Start of land preparation	20 Start of land preparation	08 Start of land preparation
MARCH		55 Celebration of Yusuf Kuwa	43 Celebration of Yusuf Kuwa	31 Celebration of Yusuf Kuwa; Ajuong Thok opens	19 Celebration of Yusuf Kuwa	07 Celebration of Yusuf Kuwa
APRIL		54 House rehabilitations	42 House rehabilitations	30 House rehabilitations	18 House rehabilitations	06 House rehabilitations
MAY		53 Rains begin; SPLA Day	41 Rains begin; SPLA Day	29 Rains begin; SPLA Day	17 Rains begin; SPLA Day	05 Rains begin; SPLA Day
JUNE		52 Primary schools close; War broke in South Kordofan	40 Primary schools close	28 Primary schools close	16 Primary schools close	04 Primary schools close
JULY		51 Start of weeding South Sudan Independence	39 Start of weeding South Sudan Independence	27 Start of weeding South Sudan Independence	15 Start of weeding South Sudan Independence	03 Start of weeding South Sudan Independence
AUGUST		50 First maize harvest	38 First maize harvest	26 First maize harvest	14 First maize harvest	02 First maize harvest
SEPTEMBER		49 Groundnuts harvesting; Bible Course	37 Groundnuts harvesting; Bible Course	25 Groundnuts harvesting; Bible Course	13 Groundnuts harvesting; Bible Course	01 Groundnuts harvesting; Bible Course
OCTOBER		48 Primary schools open	36 Primary schools open	24 Primary schools open	12 Primary schools open	00 Primary schools open
NOVEMBER	59 Wrestling month	47 Wrestling month Antenov Bombed Yida	35 Wrestling month	23 Wrestling month	11 Wrestling month	
DECEMBER	58 Christmas celebrations	46 Christmas celebrations	34 Christmas celebrations	22 Christmas celebrations	10 Christmas celebrations	